LEGISLATIVE RESEARCH COMMISSION

HAZARDOUS SUBSTANCES LABELLING AND IDENTIFICATION

REPORT TO THE 1985 GENERAL ASSEMBLY OF NORTH CAROLINA

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STATE OF NORTH CAROLINA

LEGISLATIVE RESEARCH COMMISSION

STATE LEGISLATIVE BUILDING

RALEIGH 27611

13 December 1984

TO THE MEMBERS OF THE 1985 GENERAL ASSEMBLY:

This is the Legislative Research Commission's report to the 1985 General Assembly on Hazardous Substances Labelling and Identification. This report is made pursuant to Section 21 of 1983 Session Laws Chapter 905 (HB 1142), was prepared by the Legislative Research Commission's Hazardous Substances Labelling and Identification Committee, and is transmitted by the Legislative Research Commission for your consideration.

Respectfully submitted,

Liston B. Ramsey
Speaker of the House

W. Craig Lawing
Senate President Pro Tempore

Cochairmen
Legislative Research Commission

PREFACE

The Legislative Research Commission, authorized by Article 6B of Chapter 120 of the General Statutes, is a general purpose study group. The Commission is cochaired by the Speaker of the House and the President Pro Tempore of the Senate and has ten additional members, five appointed from each house of the General Assembly. Among the Commission's duties is that of making or causing to be made, upon the direction of the General Assembly, "such studies of an investigation into governmental agencies and institutions and matters of public policy as will aid the General Assembly in performing its duties in the most effective manner" (G.S. 120-30.17(1)).

At the direction of the 1983 General Assembly the Legislative Research Commission has undertaken studies of numerous subjects. These studies were grouped into broad categories and each member of the Commission was given the responsibility for one category of study. The cochairmen of the Legislative Research Commission, under the authority of General Statutes 120-30.10(b) and (c), appointed committees consisting of members of the General Assembly and the public to conduct the studies. Cochairmen, one from each house of the General Assembly, were designated for each committee.

The study of the Hazardous Substances Labelling and Identification was authorized by Chapter 905 (H1142) of the 1983 Session Laws (Omnibus Studies Bill), with reference H1339 introduced in the 1983 Session. The Committee issued an interim report to the 1983 Session (1984 Regular Session).

The Legislative Research Commission grouped this study in its environment area under the direction of Representative Bruce Ethridge. The cochairmen of the Study Committee established by the Research Commission are Senator Ollie Harris and Representative Harry Payne. The full membership of the Committee is listed in Appendix A of this report. Chapter 905 authorizing the Study and House Bill 1339 (with flow chart) which the Committee was authorized to consider in determining the scope of the Study are attached in Appendix A. In Appendix B are documents highlighting the federal OSHA standard.

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Appendix F

Introduction

On June 7, 1984, the Legislative Research Commission submitted to the General Assembly the Interim Report of the Hazardous Substances Labelling and Identification Study Committee.

That report set out the preliminary findings of the Committee on the "right-to-know" or "hazard communication" issue, terms commonly meaning that employers in specified categories must compile lists of information about hazardous chemicals used in the workplace and make this information available to specified classes of persons, such as workers, health and emergency personnel, or the community. The Committee heard from many persons on all sides of the issue. Their testimony and supporting documents are set out in the Interim Report.

Essentially, the Committee's findings were as follows:

1. The problem of hazardous substance in the workplace is significant and growing and involves worker and community health and safety issues, emergency and environmental management issues, and medical information requirements.

2. The federal standard, as set out in 48 Federal Register 53282 (1983), is inadequate, since its coverage is limited to the manufacturing sector and the standard does not directly deal with emergency management and related issues.

3. This State possesses the authority to legislate in areas not preempted by the federal standard.

However, the Committee did not in the Interim Report make comprehensive legislative recommendations. Instead, it requested more study and sought the advice and cooperation of several State departments.

North Carolina Department of Labor initiatives

The North Carolina Department of Labor is the agency responsible for the administration and implementation of the federal OSHA standard in covered categories. In addition, the Department held a number of public hearings across the State in September and October of 1984 to "receive comment on the OSHA hazard communication standard and to provide information to the public concerning options for modifying the standard." The Committee commends the Department for its interest in extending the federal OSHA standard to currently exempt categories.

MEETINGS

September 21, 1984

The Committee continued its deliberation from Spring 1984 by voting unanimously to request that the Department of Crime Control and Public Safety identify the needs and requirements of emergency personnel for information about hazardous chemicals in the workplace and report to the Committee no later than November 15, 1984. (See Appendix C) The Committee also requested that the Department of Labor, the Department of Human Resources, and the Department of Natural Resources and Community Development collaborate to produce an appropriate definition of hazardous chemicals and report to the Committee no later than November 15, 1984. (See Appendix C) These requests were modelled on legislation proposed in the Interim Report but not passed in that form

by the General Assembly.

The Committee heard from one speaker at this meeting, Mr. Bill Brawley of Local 660, International Association of Firefighters, in Charlotte, North Carolina. He spoke about an ancillary issue - the transportation of hazardous chemicals.

Department Responses: November 1984

The recommendation by the Departments of Labor, Human Resources, and Natural Resources and Community Development concerning an appropriate definition of hazardous substances can be found in Appendix D. Recommendations from the Department of Crime Control and Public Safety concerning emergency management proposals can be found in Appendix E.

The Issue Framed

The many issues raised before the Committee illustrate the multifaceted complexity of the problem of hazardous substances labelling and identification. At its very heart, all the questions are variations of one question: Access to information--what information is to be available, who shall have it and under what terms? It is said: "Knowledge is power." In this issue, knowledge is the power to prevent or mitigate illnesses, death or disasters in the workplace, the community, or the environment, by providing access to that information to persons who have a legitimate interest to it.

FINDINGS

Having heard from a broad spectrum of business, labor, environmental, emergency management, and governmental departments and having received many materials and recommendations from these persons and through Counsel, the Committee makes the following findings:

1. The problem of hazardous substances in the workplace is significant and growing. Federal OSHA admits that approximately 25 million American workers, or one in four, are "potentially exposed to one or more of the nearly 8,000 hazards identified by NIOSH", and "(A)s many as 40 to 50 million Americans (23% of the entire population) may have been exposed at some point during their lifetimes to one or more of the hazardous chemicals presently regulated by OSHA." 48 Federal Register 53282 (1983). Moreover, the federal Environmental Protection Agency estimates that over 33,000 chemical compounds are now in common use, with about 700 entering the workplace each year. Clearly, these figures suggest that there is significant potential hazard in the workplace.

But while the problem stems from the workplace and is most concentrated there, there are at least five separate issues, each of undeniable significance, related to the RTK issue.

First, there is the issue of worker health and safety.

Second, there is the issue of community health and safety.

Third, there is the issue of emergency management personnel health and safety. The proliferation of toxic chemicals and the presence of toxic fumes when they burn give an added dimension of danger to firefighting which did not exist before.

Fourth, there is the issue of medical personnel access to information. A doctor or other health professional can hardly be expected to make swift and accurate diagnosis of the chemical exposure condition if he does not have access to requisite data on the chemicals involved.

Fifth, there is the issue of environmental management. The Committee received testimony that it would enormously simplify the task of toxic chemical monitoring if appropriate authorities had access to the information as to what toxic chemicals are stored where.

2. There is a significant need to extend coverage into sectors not covered by the federal rules and provide for community right-to-know, emergency management, and enhanced environmental management. As will be recalled, the federal standard covers workers only in the manufacturing sector in specified SIC Codes and in the chemical manufacturing and importing sectors. The Committee heard testimony that only about 29% of the workers in North Carolina are in manufacturing. Clearly, the overwhelming majority of workers are unaffected by the federal standard. In addition, the federal standards do not deal with the issues set out above of community health and safety, emergency management health and safety, or questions relating to environmental management.

RECOMMENDATION

The General Assembly should pass legislation as set out in Appendix F.

APPENDIX A

HAZARDOUS SUBSTANCES IDENTIFICATION AND LABELLING

Committee Members:

President Pro Tempore's Appointments

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GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 1983
RATIFIED BILL

CHAPTER 905
HOUSE BILL 1142

AN ACT AUTHORIZING STUDIES BY THE LEGISLATIVE RESEARCH COMMISSION AND BY THE COMMISSION ON CHILDREN WITH SPECIAL NEEDS AND MAKING TECHNICAL AMENDMENTS RELATING THERETO.

The General Assembly of North Carolina enacts:

Section 1. The Legislative Research Commission may study the topics listed below. Listed with each topic is the 1983 bill or resolution that originally proposed the study and the name of the sponsor. The Commission may consider the original bill or resolution in determining the nature, scope and aspects of the study. The topics are:

(1) Continuation of the Study of Revenue Laws (H.J.R. 16 - Lilley); and the ramifications, if enacted, of H.B. 746, Appraisal of Subdivided Tract (Auman) and H.B. 1250, No Intangible Tax/Income Surtax (Auman),

(2) Continuation of the Study on the Problems of the Aging (H.J.R. 44 - Economos; S.J.R. 16 - Gray),

(3) Continuation of the Study on Insurance Regulation (H.B. 63 - Seymour) and Insurance Laws and Regulation of Insurance Industry (H.B. 1243 - Hightower),

(4) Teaching of Computer Literacy in the Public Schools and Community Colleges (H.J.R. 191 - Berry) and the Continuation of Study of College Science Equipment (H.J.R. 898 - Enloe),

(5) Adequacy of State Management of Large-Scale Land Clearing and Peat Mining (H.J.R. 220 - Evans),

(6) Adequacy of Existing Water Pollution Control Programs to Improve and Protect Water Quality in the State (H.J.R. 232 - Evans),

(7) Marketing of Seafood by Fishermen (H.J.R. 896 - Chapin),

(8) Continuation of Study on the Economic Social and Legal Problems and Needs of Women (H.J.R. 904 - Easterling; S.J.R. 329 - Marvin),

(9) Regulation of Nonpublic and Public Post-Secondary Educational Institutions (Joint Resolution 33 (H.J.R. 988 - Thomas)),

(10) Readable Insurance Policies (H.B. 1069 - Ballance),

(11) State Government Risk Management (H.J.R. 1083 - Seymour),

(12) Biotechnology Development (H.B. 1122 - Etheridge, Bobby and H.J.R. 1282 - Etheridge, Bobby; S.J.R. 620 - Hancock),

(13) Continuation of Study of the State's Interest in Railroad Property (H.B. 1142 - Hunt),

(14) Restricting Driving by Minors (H.J.R. 1149 - J. Jordan),

(15) Health Professionals (H.J.R. 1194 - Diamont),
(16) Water Quality in Haw River and B. Everett Jordan Reservoir (H.J.R. 1257 - Hackney),
(17) Regulation of Alcoholic Beverages on State Property (H.J.R. 1292 - Clark),
(18) Disposition of Animals by Animal Shelters and Pounds (H.J.R. 1309 - Stamey),
(19) Boards, Commissions, and Councils in the Executive Branch (H.J.R. 1321 - Hunt),
(20) Feasibility of a Food Distribution Facility on Dix Farm Property in Raleigh (H.J.R. 1334 - James),
(21) Implementation of Identification and Labelling of Toxic or Hazardous Substances as Proposed by House Bill 1339 (Payne),
(22) Water Resources Issues Involving North Carolina and Virginia (H.J.R. 1404 - Church),
(23) Investment Guidelines for Eleemosynary Institutions and Funds (H.J.R. 1423 - Musselwhite),
(24) Child Support Collection Procedures (H.J.R. 1439 - Easterling; S.J.R. 675 - Woodard, W.),
(25) Contamination of Unpackaged Foods (H.J.R. 1441 - Stamey),
(26) Legislative Communications Confidentiality (H.R. 1461 - Miller),
(27) Continuation of the Study of Information Processing Resources in State Government (S.J.R. 44 - Alford),
(28) Regulation and Taxation of Banks, Savings and Loans and Credit Unions (S.J.R. 381 - Edwards of Caldwell),
(29) District Attorney Standards (S.B. 496 - Hipps),
(30) Cost of Providing Attorneys and Guardians Ad Litem to Indigents (S.J.R. 643 - Swain),
(31) Public Health Facility Laws (S.J.R. 656 - Hancock), and Review of Certificate of Need Procedures (H.J.R. 1294 - Economos),
(32) Life Care Arrangements (S.J.R. 657 - Hancock),
(33) Worthless Checks (S.J.R. 661 - Thomas of Henderson),
(34) State-owned Rental Housing as contained in Section 2 of this act,
(35) User Fees at State-owned Facilities, as contained in Section 3 of this act,
(36) Motorboat Titles and Liability Insurance, as contained in Section 4 of this act,
(37) Motor Vehicle Inspection Program, as contained in Section 5 of this act,
(38) Continuation of the Study of Day Care (H.J.R. 594 - Colton),
(39) Continuation of the Study on Twelfth Grade (H.J.R. 753 - Mauney; S.J.R. 343 - Tally),
(40) Procedure for Incorporating Municipalities (S.J.R. 445 - J. Edwards),
(41) Solar Law (S.J.R. 670 - Walker),

(42) Statutory Liens (S.J.R. 680 - Edwards of Caldwell),

(43) In-service Training of Teachers in North Carolina History, the American Economic System, Free Enterprise Concepts, and Legal Topics (H.B. 1281 - Foster).

Sec. 2. State-owned Rental Housing. (a) The Legislative Research Commission is authorized to conduct a study of all State-owned rental housing during the 1983-84 fiscal year and to recommend a comprehensive statewide rental policy, to be administered by the Department of Administration, to the 1984 Session of the General Assembly. This study shall be conducted in consultation with the department that owns the housing. In conducting this study, the Commission shall first determine the amount of nonessential rental housing currently owned by the State using the following criteria: The geographic location of the State property on which the housing is located and its proximity to alternative privately owned housing; the amount of time that would be required for employees to arrive at the State property on which housing is now located in the event of an emergency; the amount of security necessary for State property that is now being provided by State employees living in State-owned rental housing; and any other benefits to the State for employees to occupy said housing: The Commission shall recommend the disposition of nonessential rental property by one of three means: sale of the housing and property on which it is located; sale of the housing unit only with the stipulation that the house be removed from State property; and conversion of the housing unit to an alternative use.

(b) It is the policy of the State of North Carolina that the State provide rental housing only in cases in which an essential State purpose is served. Nothing in these sections shall be construed to mean that State departments may not continue to divest themselves of nonessential rental housing during the course of the Legislative Research Commission study.

Sec. 3. User Fees. The Legislative Research Commission is authorized to study the potential for user charges and admission fees at State-owned cultural, recreational and historical facilities. The study may cover museums, historic sites, marine resource centers as well as other facilities. The Legislative Research Commission may make an interim report to the 1984 Regular Session of the 1983 General Assembly and may make a final report to the 1985 General Assembly.

Sec. 4. Motorboat Titles and Liability Insurance. The Legislative Research Commission of the General Assembly is authorized to study the issue of motorboat titles and liability insurance. The study may include start-up and administrative costs, potential revenues, phase-in plans, financial institution requirements, etc. The Commission may report to the 1984 Session.

Sec. 5. Motor Vehicle Inspection Program Study. The Legislative Research Commission may study the effectiveness of the motor vehicle inspection program required by Article 3A of Chapter 20 of the General Statutes. The study may consider, among other aspects, the impact on highway safety, cost

effectiveness of the program, and probable impact of eliminating part or all of the program.

Sec. 6. For each of the topics the Legislative Research Commission decides to study, the Commission may report its findings, together with any recommended legislation, to the 1984 Session of the General Assembly or to the 1985 General Assembly, or the Commission may make an interim report to the 1984 Session and a final report to the 1985 General Assembly.

Sec. 7. G.S. 120-30.17 is amended by adding two new subsections to read:

"(7) to obtain information and data from all State officers, agents, agencies and departments, while in discharge of its duty, pursuant to the provisions of G.S. 120-19 as if it were a committee of the General Assembly.

(8) to call witnesses and compel testimony relevant to any matter properly before the Commission or any of its committees. The provisions of G.S. 120-19.1 through G.S. 120-19.4 shall apply to the proceedings of the Commission and its committees as if each were a joint committee of the General Assembly. In addition to the other signatures required for the issuance of a subpoena under this subsection, the subpoena shall also be signed by the members of the Commission or of its committee who vote for the issuance of the subpoena."

Sec. 8. Section 1 of Chapter 1372, Session Laws of 1981, is amended by deleting "as authorized in Section 2 of Resolution 61, Session Laws of 1981".

Sec. 9. Section 1(3) of Chapter 1372, Session Laws of 1981, is amended by deleting "1983 Session", and inserting in lieu thereof "1983 and 1985 Sessions".

Sec. 10. G.S. 124-5 is amended by deleting "June 1, 1983", and inserting in lieu thereof "the date of convening of the 1985 Regular Session of the General Assembly".

Sec. 11. The last sentence of G.S. 124-5 is amended by deleting "11-month period", and inserting in lieu thereof "period ending on convening of the 1985 Regular Session."

Sec. 12. Deaf/Blind School Move--Commission on Children with Special Needs. (a) The Commission on Children with Special Needs, established by Article 12 of Chapter 120 of the General Statutes, may study the issue of transferring the State schools for the Deaf and the Governor Morehead School for the Blind to the jurisdiction of the State Board of Education.

(b) The Commission may make a final report to the Second Session of the 1983 General Assembly. (H.J.R. 246 - Fenner)

Sec. 13. Bills and Resolution References. The listing of the original bill or resolution in this act is for references purposes only and shall not be deemed to have incorporated by reference any of the substantive provisions contained in the original bill or resolution.

Sec. 14. This act is effective upon ratification.

In the General Assembly read three times and ratified, this the 21st day of July, 1983.

JAMES C. GREEN

James C. Green
President of the Senate

LISTON B. RAMSEY

Liston B. Ramsey
Speaker of the House of Representatives

GENERAL ASSEMBLY OF NORTH CAROLINA

SESSION 1983

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HOUSE BILL 1339

Short Title: Identify Toxic/Hazardous Substance. (Public)

Sponsors: Representatives Payne; McDowell, Ballance, Clark, Bruce Ethridge.

Referred to: Water and Air Resources.

June 22, 1983

A BILL TO BE ENTITLED

AN ACT REGARDING IDENTIFICATION AND LABELING OF TOXIC OR HAZARDOUS SUBSTANCES.

The General Assembly of North Carolina enacts:

Section 1. Chapter 130 of the General Statutes is amended by adding a new Article to read:

"ARTICLE 32.

"Identification of Toxic or Hazardous Substances.

"§ 130-286. As used in this Article, unless the context requires otherwise:

(1) 'CAS number' means the identification number assigned to a chemical substance by the Chemical Abstract Service;

(2) 'chemical name' means the scientific designation of a substance in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry or the Chemical Abstract Service;

(3) 'common name' means any designation other than a chemical name used by an employer to identify a substance;

(4) 'container' means a receptacle or formed or flexible covering for toxic or hazardous substances and includes a bag, barrel, bottle, box, can, cylinder, drum, carton, stationary or mobile storage tank, vessel, vat, or pipeline;

(5) 'emit' means to release a toxic or hazardous substance into the environment by any means;

(6) 'employee' means a person who works with or without compensation at a place of business;

(7) 'employer' means a person engaged in business who has employees, including the State and its political subdivisions but excluding an individual whose only employees are domestic workers or casual laborers hired to work at the individual's residence;

(8) 'EPA waste stream code' means the identification number assigned to types of hazardous waste by the United States Environmental Protection Agency;

(9) 'facility' means the area, regardless whether enclosed, used by an employer at a single location in the conduct of business;

(10) 'SIC code' means the identification number assigned to types of businesses by the Standard Industrial Classification Code;

(11) 'trace quantity' means a quantity in a substance that constitutes less than one one-hundreth of a percent (.01%) of the total volume of the substance; and

(12) 'toxic or hazardous substance' means a substance that contains more than a trace quantity of a toxic or hazardous substance listed in the most recent NIOSH Registry of Toxic

Effects of Chemical Substances or determined by the Secretary to pose a significant risk to public health or employee health and safety.

"§ 130-287. Labeling of toxic or hazardous substances by employer.--(a) Except as provided in this section, an employer who manufactures, processes, uses, stores, or produces toxic or hazardous substances at a facility in this State shall affix a label to every container of a toxic or hazardous substance that has a capacity greater than one gallon or seven and one-half pounds. The label shall be conspicuously placed on the container and shall contain the following information:

(1) the chemical name and the common name of the toxic or hazardous substance, unless the substance is a trade secret; and

(2) the category and degree of hazard of the substance, which information shall be conveyed by using the color and number coding system adopted by the National Fire Protection Association in its most recent edition of a 'Standard System for the Identification of the Fire Hazards of Materials'.

(b) An employer is not required to label a container of a toxic or hazardous substance that has a capacity of 10 gallons or less in volume, into which toxic or hazardous substances are transferred from labeled containers and used only by the employee who transfers the substance from the labeled container.

"§ 130-288. Material safety data sheet required for each toxic or hazardous substance.--(a) An employer who manufactures,

processes, uses, stores, or produces a toxic or hazardous substance at a facility in this State shall, on or before September 1 of each year, submit a material safety data sheet to the Secretary for each substance containing the following information:

(1) the chemical name, common name, and CAS number of the substance, unless it is a trade secret;

(2) the ways in which an employee can be exposed to the substance, such as by inhalation, ingestion, adsorption or absorption;

(3) any permissible or recommended exposure limits to the substance established by the Federal Occupational Safety and Health Administration, the National Institute for Occupational Safety and Health, or the American Conference of Governmental Industrial Hygienists;

(4) the acute and chronic effects or exposure to the substance at a hazardous level, including a description in lay terms of the potential health risks of the substance and a list of medical conditions that might be aggravated by exposure;

(5) symptoms of the effects of exposure to the substance, including a description of these symptoms in lay terms;

(6) the flammability, explosiveness, corrosiveness, and reactivity of the substance, including specific information on its reactivity with water, and any

other relevant hazards of the substance;

(7) the appropriate emergency and first aid procedures for spills, fires, explosions, or accidental emissions of the substance or exposure to the substance at hazardous levels;

(8) the necessary safety precautions and handling practices for safe use and exposure to the substance, including the use of personal protective equipment and recommended engineering controls;

(9) the date the information was compiled; and

(10) the name, address, and telephone number of the manufacturer of the substance.

(b) Whenever an employer receives new information from any source about a toxic or hazardous substance for which he has completed a material safety data sheet, the employer shall, if necessary, amend the material safety data sheet to correct any information previously reported and shall send an amended copy of the data sheet to the Secretary. Within 20 days of the initial manufacture, processing, use, storage, or production of a toxic or hazardous substance for which a data sheet has not been submitted, the employer shall submit a data sheet for that substance to the Secretary.

(c) An employer shall retain all material safety data sheets for at least 10 years after the toxic or hazardous substance described in a data sheet was last manufactured, processed, used, stored, or produced by the employer.

(d) An employer who manufactures a toxic or hazardous

substance shall provide a material safety data sheet for the substance to all persons to whom the employer sells or gives the substance.

"§ 130-289. Employer required to submit toxic or hazardous substance public disclosure form.--(a) Except as provided in this section, every employer required by G.S. 130-288 to submit material safety data sheets to the Secretary and every employer who emits toxic or hazardous substances from a facility in this State shall, on or before September 1 of each year, submit a toxic or hazardous substance public disclosure form to the Secretary containing the following information:

(1) a list by chemical name of all toxic or hazardous substances, except substances that are trade secrets, for which the employer has submitted a material safety data sheet;

(2) the EPA waste stream code of every toxic or hazardous substance emitted by the employer;

(3) the total amount by volume or weight of each toxic or hazardous substance manufactured, processed, used, stored, or produced by the employer during the previous 12-month period, and the anticipated maximum amount of each toxic or hazardous substance that will be manufactured, processed, used, stored, or produced by the employer in the following year;

(4) the type of container used to hold toxic or hazardous substances and the street address of the facility at which the substance is manufactured,

processed, used, stored, or produced;

(5) the total amount by volume or weight of each toxic or hazardous substance emitted by the employer during the previous 12-month period, the anticipated maximum amount of each toxic or hazardous substance that will be emitted by the employer in the following year, the maximum rate at which the toxic or hazardous substance is emitted, and the street address of the facility from which the substance is emitted;

(6) the approximate location within a facility of toxic or hazardous substances;

(7) the SIC code of the employer, if applicable; and

(8) any other information required by the Secretary.

(b) An employer who regularly manufactures, processes, uses, stores, or produces less than 10 gallons or 100 pounds of toxic or hazardous substances a month, whichever is less, exclusive of human or animal carcinogens, mutogens, or teratogens and substances for which the Secretary requires an employer to submit a disclosure form regardless of quantity is not required to file a disclosure statement under this section.

(c) Amended Form. An employer shall submit an amended toxic or hazardous substance public disclosure form within 15 days of:

(1) a significant change in the use or amount of a toxic or hazardous substance manufactured, processed, used, stored, produced, or emitted by the employer;

(2) the submission of an amended material safety data sheet; or

(3) a change in the employer's business name, address, or ownership.

"§ 130-290. Trade secrets.--(a) An employer may withhold the chemical name of a toxic or hazardous substance provided:

(1) The employer can establish that the substance is a trade secret by showing that it:

a. is a catalyst unknown to competitors or other intermediate unknown to competitors; or

b. cannot be practically and lawfully discovered by analytical techniques, laboratory procedures, or other means available to any potential competitor;

(2) The employer can establish that the substance is not a suspected or recognized carcinogen, mutagen, teratogen, or cause of significant irreversible damage to human organs or body systems, as demonstrated through human, animal, or other experimental media;

(3) The toxic or hazardous substance is identified by a generic chemical classification that provides sufficient information for a health professional to recommend adequate safeguards to prevent hazardous exposure to the substance and for fire and safety personnel to prepare adequate responses to emergencies involving the substance;

(4) All other required information on the properties and effects of the substance is provided;

(5) The material safety data sheet for the substance in question is posted in the facility where the substance is manufactured, processed, used, stored, or produced; and

(6) The withheld information is provided on a confidential basis to a treating physician who states in writing, except in an emergency situation, that a patient's health problems may be related to exposure to a toxic or hazardous substance. A statement to this effect with the name and telephone number of the person authorized, on a 24-hour a day basis, to disclose the withheld information shall be included on the material safety data sheet.

(b) An employer may withhold information as a trade secret if the employer can establish that the information was withheld by the employer's supplier pursuant to subsection (a).

(c) Every employer shall substantiate the withholding of information as a trade secret. The Secretary shall review an employer's substantiating information and determine whether the substance in question is a trade secret. If the Secretary determines that the substance is not a trade secret, the Secretary shall send written notification thereof to the employer. The employer may contest this determination by filing a written notice of his desire to do so with the Secretary within

15 days of receiving notice of the Secretary's determination. If the employer does not notify the Secretary within the time allowed, the Secretary's determination is final and is not subject to review by any court. An employer who does not contest the Secretary's determination shall accordingly disclose the withheld information.

An employer who contests the Secretary's determination shall be provided a hearing before the Commission. After the hearing the Commission shall issue an order, based on findings of fact, affirming or vacating the Secretary's determination. This order shall become final 30 days after its issuance.

(d) An employer may at any time institute an action in superior court for a declaratory judgment on whether the information withheld by the employer is a trade secret.

(e) No toxic or hazardous substance emitted by an employer may be a trade secret.

"§ 130-291. Local health and fire departments receive data sheets and disclosure forms.- The Secretary shall send copies of all material safety data sheets and toxic or hazardous substance public disclosure forms submitted to him to the local health department and the local fire department, if any, serving the area in which the employer is located. Local health departments shall index these forms alphabetically by the name of the employer, by the street address of the employer, and by the postal number of the employer's address, if available, to make these forms readily available to the public.

"§ 130-292. Inspections and investigations by local health

director.--(a) The local health director shall annually inspect the premises of an employer who submits a material safety data sheet or a toxic or hazardous substance public disclosure form to the Secretary to determine the following:

(1) whether the employer has properly labeled all toxic or hazardous substances;

(2) whether the information contained in the data sheet or disclosure form is accurate; and

(3) whether the employer has appropriate safety, containment, and cleanup equipment.

(b) The local health director shall investigate complaints from employees and members of the public that an employer is not in compliance with this Article within three working days of the complaint. The local health director may not disclose the name of the complaining party.

(c) The local health director may request the assistance of the Office of Occupational Safety and Health in the Department of Labor in performing its duties under this section. That office shall cooperate with the local health director in making inspections and investigating complaints, and may make inspections on behalf of the local health director when making inspections pursuant to Article 16 of Chapter 95.

(d) The Secretary shall provide training for local health directors and their staff to enable the local health department to fulfill its responsibilities under this section.

"§ 130-293. Citations.--(a) The local health director may issue a citation against an employer if, upon inspection or

investigation, he finds that the employer is not in compliance with this Article. Each citation shall:

(1) state with particularity the nature of the violation;

(2) fix a reasonable time for abatement of the violation;

(3) state the penalty for the violation, if any, the local health director intends to recommend to the Secretary; and

(4) state that the employer may contest the citation or the proposed penalty by filing a written notice with the Secretary of his desire to do so within 15 days of the issuance of the citation.

If the employer does not notify the Secretary within the time allowed, the citation and the proposed penalty abatement are final and are not subject to review by any court. An employer who contests a citation or proposed penalty shall be provided a hearing before the Commission. After the hearing the Commission shall issue an order, based on findings of fact, affirming, modifying, or vacating the local health director's citation or proposed penalty or directing other appropriate relief. This order shall become final 30 days after its issuance.

(b) If a local health director finds that an employer has failed to correct a violation within the time allowed by a citation, the health director shall issue a citation to the employer for this failure. If the employer contested the former citation, the time allowed for abatement of the violation shall

not begin to run until the entry of an order by the Commission.

"§ 130-294. Injunction.--If, after a complaint and investigation, the local health director fails to issue a citation for an alleged violation, the complaining party may institute an action for injunctive relief in the superior court of the county in which the alleged violation occurred. Reasonable attorneys' fees may be awarded to the prevailing party.

"§ 130-295. Penalties.--The Secretary may impose an administrative penalty on an employer for violating this Article. Each day of a continuing violation constitutes a separate offense. The size of the penalty shall reflect the seriousness of the offense but may not exceed five thousand dollars ($5,000) for each day the violation continues.

"§ 130-296. Employee's rights concerning toxic or hazardous substances.--(a) Information. Every employer shall make copies of material safety data sheets and toxic or hazardous substances public disclosure forms available to all employees and their designated representatives free of charge. In addition, every employer shall post copies of the most recent data sheets and public disclosure form concerning substances at a facility at the location or locations in each facility where notices to employees are normally posted. Employers shall provide a copy of a material safety data sheet or a public disclosure form to an employee or the employee's designated representative within three working days of the request therefor. If an employer fails to provide the requested information within this time period, the

employee may refuse to work with the toxic or hazardous substance for which the information was requested until the employer provides the information.

(b) Education and Training. Every employer who manufactures, processes, uses, stores, produces, or emits a toxic or hazardous substance shall establish an education and training program to inform employees of the toxic or hazardous substances to which they may be exposed in the course of their employment. This training program shall review the information required to be submitted by the employer to the Secretary under G.S. 139-288. Every employer shall make the education and training program available to employees before they are assigned duties in which they may be exposed to toxic or hazardous substances. The education and training program required by this section shall be provided at no cost to the employee and shall be offered at least annually to employees and whenever the potential for exposure to toxic or hazardous substances is altered. Employees shall be compensated at their normal rate of pay for time spent participating in an education and training program. Employees may keep, free of charge, all training materials provided them in the training program.

(c) Inspection. An employee or a designated representative of an employee who submits a written statement to the local health director alleging that his employer is in violation of this Article and who requests to accompany the local health director on any inspection made by the director pursuant to the complaint may participate in the inspection. An employer may not reduce an

employee's pay or take any other action adverse to the employee for participating in the inspection.

(d) Protection from Discrimination. An employer may not discharge, discipline, or otherwise discriminate against an employee or job applicant because that employee or applicant has exercised his rights under this Article. Any disciplinary action taken against an employee within 90 days after the employee has exercised his rights under this Article is presumed to have been taken in retaliation for the exercise of these rights and to be unlawful discrimination against the employee. If an employer discriminates against an employee or job applicant in violation of this section, the employee or applicant may recover damages from the employer in a civil action and may obtain other appropriate relief, such as reinstatement and back pay. Attorneys' fees may be awarded to the prevailing party in an action alleging wrongful discrimination in violation of this subsection.

"§ 130-297. Public access to information about toxic or hazardous substances and employer compliance.--All information reported by an employer to the Secretary under this Article, except information that would disclose a trade secret, and all information concerning violations and alleged violations of this Article are public records. Public access to these records, however, is limited to records in the custody of a local health department or the Secretary. This limitation does not apply to requests by an employee or an employee representative to an employer to provide a copy of a material safety data sheet or a

toxic or hazardous substance public disclosure form pursuant to G.S. 130-296.

"§ 130-298. Exemptions to Article.--This Article does not apply to the following:

(1) toxic or hazardous substances while being transported in interstate commerce into or through this State; and

(2) toxic or hazardous substances contained in consumer products and food stuffs packaged for distribution to and use by the general public, except that the Secretary may require an employer to submit a material safety data sheet or a public disclosure form for a substance if, because of the quantity of the substance stored by the employer, the Secretary determines that the interests of employee and public health warrant the disclosure of this information.

"§ 130-299. Fees, use of fees and penalties.--The Secretary shall establish fees payable by an employer when submitting a material safety data sheet or public disclosure form to cover the cost of processing these forms and administering this Article. Three-fourths of the amount of fees collected under this Article shall be distributed to local health departments on a per capita basis. All fees and civil penalties collected by the Secretary pursuant to this Article may be used only to improve occupational and environmental health in this State.

"§ 130-300. Local law.--Counties and municipalities may enact ordinances imposing additional obligations concerning toxic or hazardous substances on employers, but may not enact ordinances relieving an employer from any obligation imposed by this

Article."

Sec. 2. Article 3 of Chapter 143B is amended by adding a new Part to read:

"Part 28. Toxic or Hazardous Substance Council.

"§ 143B-216.16. Council on Toxic or Hazardous Substances.--(a) The Council on Toxic or Hazardous Substances in the Department of Human Resources is created. The Council shall advise the Secretary on issues related to Article 32 of Chapter 130 of the General Statutes. The Council consists of the following members:

(1) the Secretary, who shall serve as Chairman;

(2) the Commissioner of Labor, who shall serve as Vice-Chairman;

(3) two members who represent the interests of labor, appointed by the Governor;

(4) one occupational health hygienist appointed by the Governor;

(5) one member who represents the interests of a large manufacturer, appointed by the Governor;

(6) one member who represents the interests of a small manufacturer, appointed by the Governor;

(7) one member who represents the interests of an environmental group, appointed by the Governor;

(8) one public health official appointed by the Governor;

(9) one county official appointed by the Governor; and

(10) one fireman appointed by the Governor.

(b) All members of the Council appointed by the Governor shall

serve three-year terms. Vacancies occurring before the expiration of a term shall be filled in the same manner as the original appointment. Interim appointees shall serve the remainder of the term for which they were appointed to fill. The Council shall meet at the call of the Chairman and on petition by a majority of the members. The Secretary shall provide clerical assistance to the Council."

Sec. 3. Notwithstanding G.S. 143B-216.16(b) as it appears in Section 2 of this act, the original appointees of the Governor to the Council on Toxic or Hazardous Substances shall serve the following terms:

(1) one of the members who represented labor, as designated by the Governor, the occupational health hygienist, and the member who represents a large manufacturer shall serve one-year terms;

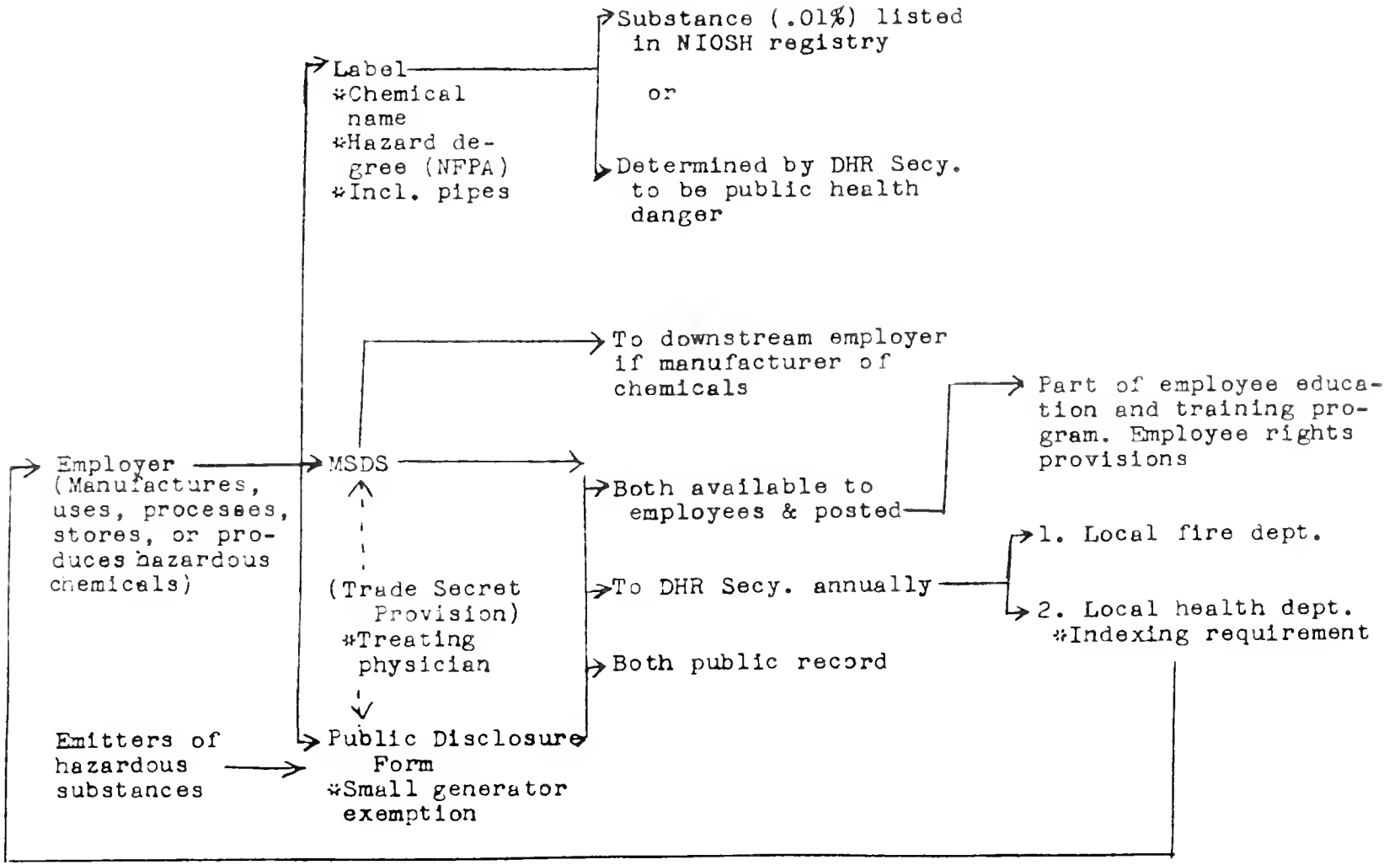
(2) the members who represent a small manufacturer and an environmental group, and one of the members who represents labor, as designated by the Governor, shall serve two-year terms; and

(3) the public health official, county official, and fireman shall serve three-year terms.

Sec. 4. There is appropriated from the General Fund to the Department of Human Resources for fiscal year 1983-84 the sum of two hundred thousand dollars ($200,000) to implement and assist counties in implementing the provisions of this act.

Sec. 5. Section 4 of this act shall become effective July 1, 1983. The remainder of this act shall become effective

January 1, 1984, for employers who have at least 10 employees, and shall become effective July 1, 1984, for all other employers.



Exemptions:

1. Substances transported in interstate commerce.
2. Consumer products

APPENDIX B

DRAFT

HIGHLIGHTS OF OSHA'S HAZARD COMMUNICATION STANDARD

(29 CFR Part 1910.1200)

Purpose

-- To ensure the evaluation of chemicals to determine their hazards.

-- To apprise workers in manufacturing industries of the hazards with which they work.

-- To preempt state laws covering hazard communication in states without state OSHA plans; to require OSHA approval for state hazard communication laws in states operating their own OSHA programs.

Scope

-- Covers 14 million employees in 300,000 manufacturing establishments in SIC codes 20-39. These industries include: 20) Food and Kindred Products; 21) Tobacco Manufacturers; 22) Textile Mill Products; 23) Apparel and Other Textile Products; 24) Lumber and Wood Products; 25) Furniture and Fixtures; 26) Paper and Allied Products; 27) Printing and Publishing; 28) Chemicals and Allied Products; 29) Petroleum and Coal Products; 30) Rubber and Plastic Products; 31) Leather and Leather Products; 32) Stone, Clay and Glass Products; 33) Primary Metal Industries; 34) Fabricated Metal Products; 35) Machinery, Except Electrical; 36) Electrical Equipment and Supplies; 37) Transportation Equipment; 38) Instruments and Related Products; and 39) Miscellaneous Manufacturing Products. (b)(1)

-- Requires chemical manufacturers and importers to assess hazards, develop labels and material safety data sheets and forward this information to manufacturers. (b)(1); (d)(1)-(6)

-- Makes manufacturing employers responsible for informing and training workers about the hazards in their workplaces, retaining warning labels and making available material safety data sheets supplied with hazardous products. (b)(1), (e)

-- Exempts chemical laboratories in manufacturing from labeling provisions of standard, but otherwise provides for limited coverage of laboratory employees. (b)(3)

-- Exempts hazardous wastes, wood, tobacco, "articles" and potentially hazardous substances such as drugs, food, and cosmetics brought into the workplace for the personal consumption of employees. (b)(5)

-- Permits the use of labels required by other federal agencies in lieu of those otherwise required under this standard. (b)(4)

Hazard Determination

-- Written hazard evaluation procedures are required. (e)(1)

-- Physical hazards include chemicals which are combustible liquids, compressed gases, explosive, flammable, organic peroxides, oxidizers, pyrophorics, unstable (reactive), or water-reactive. (c)

-more-

-- Health hazards include chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system and agents which damage the lungs, skin, eyes or mucous memoranes. (See Appendix A of the standard.) (c)

-- Determining health hazards (Appendix B) See also (d)(5)

1) If one or more positive studies--human and/or animal data--which are conducted according to accepted scientific principles and have statistically significant results which show adverse health effects that may occur as a result of employee exposure, these must be reported. Negative data believed to be relevant also may be reported.

2) The standard establishes a "floor" of about 600 substances automatically considered health hazards--substances regulated by OSHA and/or listed by the American Conference of Governmental Industrial Hygienists in Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment.

3) In determining carcinogenicity, chemical manufacturers/importers are to rely on the National Toxicology Program, the International Agency for Research on Cancer and OSHA standards.

4) Mixtures are to be evaluated for health hazards on the basis of data covering them or on the basis of data on any constituent chemical which comprises 1 percent or more of the mixture. If a constituent chemical comprises 0.1 percent or more and is a carcinogen, the mixture must be considered carcinogenic. If a mixture component represents less than 1 percent but might result in workplace exposures exceeding OSHA permissible exposure limits or in harm to workers, this must be reported.

Written Hazard Communication Program (e)

-- To be in writing and to be available to employees, designated representatives, OSHA and NIOSH.

-- To cover container labeling, material safety data sheets and employee training.

-- To include a list of hazardous chemicals in each work area, describe how the employer will meet criteria of the standard, explain methods for communicating hazards to employees involved in nonroutine tasks and to those who work in areas where there are unlabeled pipes, explain the methods used to inform contractors of hazards to which their employees may be exposed.

Labels (f)

-- Affixed by manufacturer, importer or distributor to shipped containers.

f(1)

-- Include identity (chemical and common names), hazard warnings and name and address of the manufacturer or responsible party. Must be legible, and in English. Must not be removed or defaced. May follow format required by other federal agency or foreign entity such as the European Economic Community. New labels not necessary if current ones provide required information. (f)(1)

-- Not conflict with labels required by the Department of Transportation under the Hazardous Materials Transportation Act. (f)(2)

-- Affixed by employer to other containers used in-plant by employees except: signs or placards or standard operating procedures, process sheets, batch tickets, blend tickets, etc. may be used for stationary containers. (f)(5)

-- Exempt: pipes and piping systems as well as in-plant containers for immediate use only of employee who transfers chemicals from labeled containers. (c); f(6)

Material Safety Data Sheets (g)

-- Manufacturers, importers and distributors to forward at the time of initial shipment to an employer. (g)(6)

-- Employers required to obtain and maintain MSDS for each hazardous chemical in their workplace. (g)(8)

-- Information must be in English, include identity and chemical and common names for the hazardous chemical. Mixtures to receive special treatment (see Hazard Determination above). (g)(2)

-- One MSDS may be used for similar mixtures with essentially the same hazards and contents. (g)(4)

-- MSDS must also include information specified on physical and chemical characteristics of the hazardous chemical; known acute and chronic health effects and related information; information on exposure limits and whether OSHA, the International Agency for Research on Cancer or the National Toxicology Program consider the chemical a carcinogen; precautionary measures; emergency and first aid procedures; date of preparation; and identification of the party responsible for the MSDS. (g)(2)

-- No blank spaces permitted; spaces should be marked when information is not found or not applicable. (g)(3)

-- New information to be incorporated on MSDS within three months following the manufacturer's receipt of the information. New MSDS to be transmitted with the next shipment of the chemical to the employer. (g)(5)

-- Copies of MSDS or comparable written document to be available in the workplace to employees, designated employee representatives, OSHA and NIOSH. (g)(8)

-more-

Employee Information and Training (h)

-- To take place upon initial assignment and when new hazards are introduced.

-- To include: requirements of the standard; operations in the workplace where hazardous chemicals are used; location of written hazard communication program, material safety data sheets, written hazard evaluation procedures and lists of hazardous chemicals; procedures for determining the presence of a hazardous chemical; specific hazards of specific chemicals in employees' work area; protective measures employer has instituted and employees are to follow to protect themselves; how to read and interpret information on labels and material safety data sheets and how to get and use the available hazard information.

Trade Secrets (i)

-- Manufacturer, importer or employer may withhold the specific chemical identity (chemical name, Chemical Abstracts Services registry number) from an MSDS if this information constitutes a trade secret; provided information on the hazardous nature of the chemical is disclosed on the MSDS and if the MSDS indicates that the specific chemical identity is being withheld because it is a trade secret. (i)(1)

-- Trade secret information must be disclosed to OSHA upon request. (i)(2)

-- Trade secret processes and percentage of mixture information are excluded from disclosure requirements. (i)(3)

-- In emergencies the specific identity must be provided immediately upon request to a treating physician or nurse. (i)(2)

-- Non-emergency situations (i)(3)

1) The specific chemical identity must be made available to health professionals such as physicians, industrial hygienists, toxicologists and others providing medical or occupational health services to exposed employees upon written request.

2) Written requests must describe the medical or occupational health need such as: to assess the hazards of chemicals to which employees will be exposed; to conduct or assess sampling of workplace atmosphere to determine employee exposure levels; to conduct pre-assignment or periodic medical surveillance of exposed employees; to provide medical treatment to exposed employees; to select or assess appropriate personal protective equipment for exposed employees; to design or assess engineering controls or other protective measures for exposed employees; to conduct studies to determine the health effects of exposure.

3) The request must explain why the following types of information would be insufficient: properties and effects of the chemical; measures for controlling workers' exposure to the chemical; methods of monitoring and analyzing worker exposure to the chemical; methods of diagnosing and treating harmful exposures to the chemical.

-more-

-- Confidentiality

1) The request must describe procedures to be used to protect the confidentiality of the information and include a written agreement not to use the information for any purpose other than the health need or to release it except to OSHA and be signed by both the health professional and the employer or contractor of the health professional's services.

2) No penalty bond may be required; however, a liquidated damages agreement may be required and the parties may pursue non-contractual remedies to the extent permitted by law.

3) If the health professional decides to disclose the information to OSHA, he/she must inform the chemical manufacturer, importer or employer who provided the information.

-- Denials

1) Denials of health professionals' written requests for the specific identity of a chemical must be in writing within thirty days of the request and must include evidence to support the claim that the chemical identity is a trade secret, state the specific reasons for denial and explain in detail how alternative information may suffice.

2) If OSHA determines that the specific chemical identity does not represent a trade secret, the withholding manufacturer, importer or employer will be subject to citation. Likewise a citation may result if the specific chemical identity is a bona fide trade secret but the health professional has demonstrated a need to know the identity, executed a confidentiality agreement and shown adequate means for protecting the trade secret. Abatement of the citation will most likely involve divulging the information subject to confidentiality protections.

3) If the trade secret must be revealed, OSHA may impose additional limitations or conditions to assure that it is protected.

-- If the employer appeals the citation to the Occupational Safety and Health Review Commission, the administrative law judge may decide to review the matter in camera.

Effective Dates

-- November 25, 1985--Chemical manufacturers must complete labeling of containers shipped downstream and provide material safety data sheets to manufacturers. (f)(1)

-- May 25, 1986--All employers must be in compliance with all provisions of the standard. g(3)

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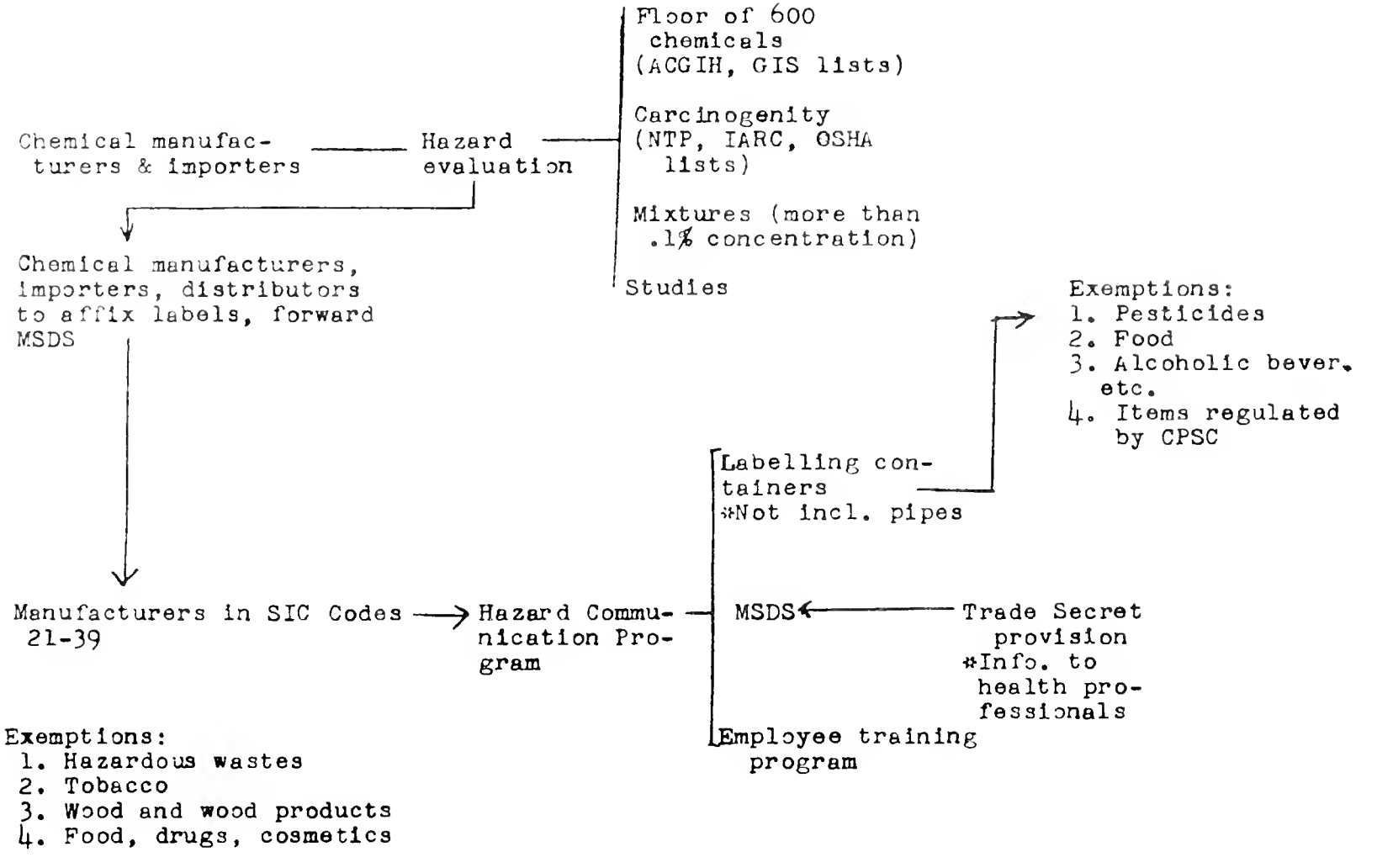

APPENDIX C

STATE OF NORTH CAROLINA
LEGISLATIVE RESEARCH COMMISSION
STATE LEGISLATIVE BUILDING
RALEIGH 27611

21 September 1984

MEMORANDUM

TO: The Honorable John Brooks
Commissioner of Labor

FROM: Legislative Research Commission Study Committee
Hazardous Substances Labelling and Identification

RE: Assistance to Committee

The Legislative Research Commission Study Committee on Hazardous Substances Labelling and Identification met on September 21, 1984, and voted to request that you direct the appropriate divisions of your department to do the following:

1. In coordination with the Department of Natural Resources and Community Development and the Department of Human Resources, study the various definitions of hazardous chemical substances for the purpose of arriving at an appropriate definition with respect to their presence in and from the workplaces of employers.

2. Report your findings to this Committee no later than November 15, 1984.

We sincerely appreciate your cooperation in this matter.

Senator Ollie Harris
Co-Chairman

Representative Harry Payne
Co-Chairman

STATE OF NORTH CAROLINA

LEGISLATIVE RESEARCH COMMISSION

STATE LEGISLATIVE BUILDING

RALEIGH 27611

21 September 1984

MEMORANDUM

TO: Heman R. Clark
Secretary, Department of Crime Control
and Public Safety

FROM: Legislative Research Commission Study Committee
Hazardous Substances Labelling and Identification

RE: Assistance to Committee

The Legislative Research Commission Study Committee on Hazardous Substances Labelling and Identification met on September 21, 1984, and voted to request that you direct the appropriate divisions of your department to do the following:

1. Study the needs and requirements of emergency personnel concerning hazardous chemical substances in and from the workplaces of employers; and

2. Report your findings and proposals to this Committee no later than November 15, 1984.

We sincerely appreciate your cooperation in this matter.

Senator Ollie Harris
Co-Chairman

Representative Harry Payne
Co-Chairman

STATE OF NORTH CAROLINA
LEGISLATIVE RESEARCH COMMISSION
STATE LEGISLATIVE BUILDING
RALEIGH 27611

21 September 1984

MEMORANDUM

TO: Sarah Morrow
Secretary, Department of Human Resources

FROM: Legislative Research Commission Study Committee
Hazardous Substances Labelling and Identification

RE: Assistance to Committee

The Legislative Research Commission Study Committee on Hazardous Substances Labelling and Identification met on September 21, 1984, and voted to request that you direct the appropriate divisions of your department to do the following:

1. In coordination with the Department of Labor and the Department of Natural Resources and Community Development, study the various definitions of hazardous chemical substances for the purpose of arriving at an appropriate definition with respect to their presence in and from the workplaces of employers.

2. Report your finding to this Committee no later than November 15, 1984.

We sincerely appreciate your cooperation in this matter.

Senator Ollie Harris
Co-Chairman

Representative Harry Payne
Co-Chairman

STATE OF NORTH CAROLINA
LEGISLATIVE RESEARCH COMMISSION
STATE LEGISLATIVE BUILDING
RALEIGH 27611

21 September 1984

MEMORANDUM

TO: James A. Summers
Secretary, Natural Resources and Community Development

FROM: Legislative Research Commission Study Committee
Hazardous Substances Labelling and Identification

RE: Assistance to Committee

The Legislative Research Commission Study Committee on Hazardous Substances Labelling and Identification met on September 21, 1984, and voted to request that you direct the appropriate divisions of your department to do the following:

1. In coordination with the Department of Labor and the Department of Human Resources, study the various definitions of hazardous chemical substances for the purpose of arriving at an appropriate definition with respect to their presence in and from the workplaces of employers.

2. Report your finding to this Committee no later than November 15, 1984.

We sincerely appreciate your cooperation in this matter.

Senator Ollie Harris
Co-Chairman

Representative Harry Payne
Co-Chairman

APPENDIX D

Department of Labor
State of North Carolina
214 West Jones Street
Raleigh 27603

John C. Brooks
Commissioner

MEMORANDUM

TO: The Honorable Ollie Harris
Co-Chairman
Legislative Research Commission Study Committee
Hazardous Substance Labelling and Identification

The Honorable Harry Payne
Co-Chairman
Legislative Research Commission Study Committee
Hazardous Substance Labelling and Identification

FROM: John C. Brooks
Commissioner of Labor

DATE: November 14, 1984

SUBJECT: Definition of Hazardous Chemical Substances

On September 21, you asked that the Departments of Human Resources, Natural Resources and Community Development, and Labor jointly "study the various definitions of hazardous chemical substances for the purposes of arriving at an appropriate definition with respect to their presence in and from the workplaces of employers," and report our findings to you not later than November 15, 1984. This memorandum and the enclosed background documentation are in response to that request.

Representatives of the departments have met regularly since June 8 and have considered the question raised in your memorandum. That working group and I conclude that the definition of hazardous chemicals contained in the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200(c)) adopted February 1 of this year in North Carolina is the appropriate definition. It is a stronger definition than most of those developed in other state and local jurisdictions; it will accommodate future changes as our understanding of hazardous substances expands; and it is a national definition, identical to the definition of hazardous chemical substances contained in the Federal OSHA Hazard Communication Standard.

If the General Assembly determines that it is necessary to address in legislation issues related to regulation and disclosure of information about hazardous chemical substances, we recommend consideration of the following language as a definition: "Hazardous Chemical Substance means any chemical which has the potential to cause adverse health effects as defined by the federal OSHA Hazard Communication Standard in 29 CFR Part 1910.1200(c)."

In many respects the effectiveness of the definition depends on the adequacy of the hazard determination procedures of the Standard, 29 CFR 1910.1200(d). In these procedures, OSHA relies heavily on a performance standard, i.e., if a chemical possesses certain toxic properties it will be regulated under the Standard. OSHA has also cited certain lists (ACGIH, OSHA-Z, NTP, IARC) to establish a "floor" of chemicals that will be covered under the Standard. Either the list approach or the performance approach, if used alone to establish the hazard of a chemical, can cause problems.

To illustrate the problems inherent in relying on a list of chemicals to determine hazard, the Department of Human Resources has briefly examined the Massachusetts substance list which is generally regarded as being very comprehensive. Under the listing for the letter "A," six chemicals with significant toxicity and use were not found. In addition, methyl mercury which is one of the most toxic forms of mercury was not listed and hexane, which causes a classical type of nerve damage, was not listed as a neurotoxin.

We believe that the preceding section illustrates the problem of relying on a list of chemicals to determine hazard. It should be noted, however, that each chemical omitted from the Massachusetts list would have been identified as hazardous by the proper application of the performance approach required in the Federal Standard. We recognize the limitations of using either one or the other approach. Thus, we have decided that the best approach is to closely examine and clarify the provisions in the performance standard and to propose the use of the Toxicology Data Bank (TDB) as a means of verifying the proper application of the hazard determination procedures.

TDB is an on-line data base of the National Library of Medicine that is continually updated and currently includes toxicological and environmental information for over 4,100

chemical entries. The selection and review process for TDB is well established and includes consideration of production volume, which can be regarded as an index of potential exposure. We must reiterate that no list can be expected to provide information on all hazards of all chemicals. The list recommended herein is meant to serve as an example of chemicals that will be identified by the performance approach.

Although we endorse the hazard determination procedures in the Standard, 29 CFR 1910.1200(d), the concerns described above and others discussed in the background document lead us to recommend that the application of these procedures be subject to the following interpretations:

1. When negative findings in a toxicity study (animal or human) are used to draw conclusions or to refute positive study data in accordance with Paragraph 4 of Appendix B, the precise procedure used in the hazard determination process shall be reported upon request to the Assistant Secretary or the Director. We feel that OSHA and other inspections will reveal those instances in which negative data has been used in a conclusionary manner or to refute statistically significant findings of toxicity. As warranted, the precise procedures used will be requested in order to verify the quality of the hazard determination.

2. The Standard considers a chemical to be a carcinogen if it has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen or if it is listed as carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP). Because there is a delay in reporting and because the terminology used in the Standard is different than the terminology used by IARC and NTP we believe that the Standard (Paragraph 4, Appendix B) shall apply as soon as the NTP Board of Scientific Counselors has made its final determination and shall apply to chemicals demonstrating clear evidence or some evidence of carcinogenicity as defined by NTP or sufficient evidence of carcinogenicity as defined by IARC. Furthermore, For Your Information (FYI) reports and other reports from industry to federal agencies on carcinogenicity and toxicity shall be considered

statistically significant data within the meaning of the Standard.

3. Considerable evidence has been presented by the National Institute of Occupational Safety and Health (NIOSH) and the National Cancer Institute (NCI) demonstrating that certain chemicals, such as dyes, are metabolized to carcinogens in humans. Thus, we recommend that the Standard shall apply to those chemicals that have not been tested for carcinogenicity but can be metabolized to carcinogens by humans. This interpretation is particularly important because of the heavy use of dyes in North Carolina compared to other states.

4. The Standard is quite explicit concerning the types of animals that are to be used to evaluate toxicity but we feel that useful and relevant toxicity data can be obtained from animals other than those recommended. Thus, we recommend that positive data in species other than the rabbit shall be considered in determining the irritation or sensitization potential described in paragraphs 4 and 5 of Appendix A.

Finally, an effective hazard communication program for North Carolina will require the interaction of many departments and this is demonstrated by your request to have three departments arrive at one definition for hazardous chemical substances. For this definition and any subsequent right-to-know standard to be effective in protecting public health and the environment, each department needs to have open communication and to refer situations they are concerned with to the department that has enforcement authority in the respective areas. Since a mechanism for communication and referral on an issue of this scale and magnitude has not been encountered in the past by the affected departments, we feel strongly that the legislature should support and promote a cooperative team approach to the Hazard Communication Standard.

JCB:md:jph

Enclosures: (1) Background Document
(2) Hazard Communication Standard

Enclosure 1

BACKGROUND DOCUMENT

HAZARD COMMUNICATION STANDARD

This background document represents the concensus of a working group from the Departments of Labor, Human Resources, and Natural Resources and Community Development. It attempts to explain the rationale used for the recommendations submitted to the Legislative Study Committee on hazard communication.

I. Definitions

In order to comply with the request of the Legislative Study Commission, the working group proposes a very general definition for a hazardous chemical substance: Any chemical that has the potential to produce an adverse health effect in humans should be considered hazardous.

As stated in Section IV - Summary and Explanation of the Standard:

> "The primary duty for hazard evaluation lies with the chemical manufacturers and importers of hazardous chemicals. Under the provisions of this paragraph, they are required to evaluate the chemicals they produce or import in their workplaces to determine if they are hazardous. Employers may rely on the evaluation performed by the chemical manufacturer or importer for chemicals they use within their workplaces to satisfy this requirement. The chemical manufacturers, importers, or employers <u>are to be held accountable for the quality of the hazard determination they perform</u>. (Emphasis added). Each chemical is to be evaluated for its potential to cause adverse health effects, as well as its potential to pose physical hazards, such as flammability."

II. The performance approach versus the use of lists to determine the hazard of a chemical.

In attempting to arrive at a definition of a hazardous substance, OSHA has decided to rely heavily on a performance standard i.e., if a chemical possesses certain toxic properties it will be regulated under the standard. OSHA has also cited certain lists (ACGIH, OSHA-Z, NTP, IARC) to establish a "floor" of chemicals that will be covered under the standard. Either approach, if used solely to establish the hazard of a chemical can cause problems. For example, one comment in Section II - Overview of the Standard stated:

> "The hazard determination process should remain performance oriented. Attempting to create a precise step-by-step hazard determination procedure is difficult and most likely would not be flexible enough to address the variety of situations as effectively and as inexpensively as the existing proposal. Creating a list of chemicals is equally undesirable because the list would require frequent updating and would always be subject to controversy as to why materials are included or not included on the list."

To illustrate the problems inherent in relying on a list of chemicals to determine hazard, the Massachusetts substance list, which is generally regarded as being very comprehensive, was briefly examined.

The following chemicals were not found under the listing for the Letter "A":

accetophenone - a narcotic at high concentrations; used in perfumes, solvents, chemical synthesis, flavoring, and in certain catalysts.

acetyl benzoyl per[illegible] - toxic
[illegible]
[illegible]
flour.

allyl isothiocyanate - toxic by ingestion, [illegible];
as a fumigant, [illegible]

aluminum borohydride - reacts violently with [illegible]
in air; used in [illegible],
additive, and a reducing agent.

p-amino phenol - can cause methemoglobinemia; used in photographic developer, antioxidant, and [illegible]

ammonium sulfide - strong irritant, toxic by [illegible]
in textiles, photography, coloring [illegible]
control in soda ash production [illegible]

amyl nitute - amyl nitrate was listed.

In addition, methyl mercury which is one of the most [illegible] was not listed and hexane, which causes a classical type of [illegible] not listed as a neurotoxin. The working group believes that [illegible] section illustrates the problem of relying solely on a list of [illegible] determine hazard. More importantly, we would like to point out that [illegible] chemical omitted from the Massachusetts list nevertheless [illegible] by the performance approach required in the Federal Standard.

The working group recognizes the limitations of using [illegible] other approach and has decided that the best approach is to [illegible] and clarify the provisions in the performance standard and [illegible] the purpose of an example only, a comprehensive [illegible] that should be regulated by the standard. Other states [illegible]

of lists" which have arbitrary origins and little relevance to the purposes of hazard communication. Thus, in addition to the lists required by the Federal Standard, the working group proposes to use the Toxicology Data Bank (TDB) as an example of chemicals that should be regulated by the standard.

TDB is an on-line data base established by the National Library of Medicine in collaboration with the Oak Ridge National Laboratory (ORNL) that is continually updated and, at present, contains toxicity data on over 4100 chemicals. The chemical selection process is well established and includes consideration of production volume which can be regarded as an index of potential exposure. The physio-chemical and toxicological proprieties presented in TDB are peer reviewed by recognized experts in their field. Furthermore, TDB is now being considered by EPA and other Federal Agencies as a prospective "list" not only for OSHA needs but also for superfund needs. Indeed, if any list has the potential for being comprehensive, it is TDB. In addition, ORNL has also developed a data base on mutagens and teratogens which may prove useful to identify this class of toxicants.

III. An evaluation and interpretation of the performance approach of the standard.

A. Reporting Requirements

As stated in Section II - Overview of the Final Standard and Summary of Major Issues:

> "The determination of what constitutes a hazardous chemical for the purposes of this standard was the most difficult issue discussed in the rulemaking record. The purpose of the hazard communication is to ensure the disclosure of information about the possible (emphasis added) hazards of chemicals in the workplace before the worker is exposed to them."

An important point relevant to hazard determination that may not be realized appears in the National Academy of Sciences publication - Principles for Evaluating Chemicals in the Environment. It states: "There is no substance which, under certain circumstances, could not be dangerous and unsafe. There is no battery of tests, however elaborate which can prove beyond challenge the complete safety of a chemical."

The report continues with a discussion on the extrapolation of animal toxicity data to potential human health effects. "Another common term of wide usage is the 'no-effect level'. This is statistically meaningless and therefore of limited value since it merely means that no effect was observed in studies using a group of animals of particular size. Such an observation is completely compatible with the presence of an adverse effect, which in further studies with large sample size or with different types of observation might lead to a positive outcome. We prefer the usage of the term 'no observed effect', which should always carry with it a qualifying statement as to size of the group in which no adverse effect was observed".

The working group believes that the dosage used in the toxicity study must also be considered in the hazard determination. Maximum tolerable doses are commonly employed by the National Toxicology Program in their chronic bioassays to compensate for the small number of animals used in the study. Industry, on the other hand, has a tendency to use lower doses which are meant to more closely simulate human exposure but may not detect certain toxic effects. The absence of statistically significant effect does not necessarily preclude the toxicity of the agent. Thus, the working group believes that the procedures used in determining hazard must take into account the actual dose versus the maximum tolerable dose used in a toxicity study.

A possible source of confusion in applying the standard is provided in Section IV - Summary and Explanation of the Standard - on page 53376:

"Furthermore, if an available study indicates that an adverse health effect is likely to occur (emphasis added), and that study is conducted according to scientific principles and results in statistically significant findings, the employer is required to report it whether he agrees with the findings or not. Employer are free to report such findings in a non-conclusionary (emphasis added) fashion, i.e. they don't have to agree with it, but they do have to report it. Employers may also report any negative data they believe is relevant to the hazard potential of the chemical."

(NOTE: no statement is included on the method of reporting negative data.)

Perhaps, this is taken into consideration by the statement in the Standard under hazard determination (d)(6) page 53343:

"Chemical manufactures, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director. The written description may (emphasis added) be incorporated into the written hazard communication program required under paragraph (e) of this section."

Additional concerns in the Standard regarding the determination of hazard are manifested in the definition of a health hazard (page 53341) that is referred to in the hazard determination (d) on page 53342:

> "Health hazard means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur (emphasis added) in exposed employees. The term health hazard includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes".

The term "may occur" is troublesome because it could be interpreted to mean that a manufacturer/importer can decide that a toxic effect in an experimental animal is not likely to occur in humans. For example, considerable controversy exists in the scientific community concerning the relevance of liver tumors in inbred mice that have been exposed to certain halogenated solvents. If the Standard is meant to allow the manufacture/importer to discount this findings, the working group is opposed to such a policy. Instead, the working group supports the principles published in the National Academy of Sciences publication - Drinking Water and Health. Thus, the effects in animals, properly qualified, are applicable to man and any effects found in animals should be considered as potential hazards to humans.

Therefore, the working group feels that the precise procedures used to determine hazard should be incorporated into the written hazard communication program when the manufacturer/importer has decided to use negative data in a conclusionary manner or to refute positive findings. If not included in the written hazard communication program, OSHA and other inspections will reveal those instances where negative data has been used in a conclusionary manner or to refute positive findings. As warranted, the precise procedures used will be requested to verify the adequacy of the hazard determination as specified (d) (6) in the Standard.

B. The following section is an evaluation of the seven definitions in Appendix A which are used as criteria to determine hazard in the Standard which states:

> "The goal of defining precisely, in measurable terms, every possible health effect that may occur in the workplace as a result of chemical exposures cannot realistically be accomplished. This does not negate the need for employees to be informed of such effects and protected from them."

Appendix B, which is also mandatory, outlines the principles and procedures of hazard assessment.

For purposes of this section, any chemicals which meet any of the following definitions, as determined by the criteria set forth in Appendix B, are health hazards:

1. Carcinogen
2. Corrosive
3. Highly toxic
4. Irritant

5. Sensitizer

6. Toxic

7. Target Organ Effects

1. Carcinogens

A troublesome feature in the Federal Standard is the criteria to be used for establishing a chemical as a carcinogen. In Appendix A, Health Hazard Definition, which is mandatory, the following is used to classify a carcinogen:

> a chemical is considered to be a carcingoen if it is listed as a carcinogen or potential carcinogen by the International Agency for Research on Cancer (IARC) or in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) or it is regulated by OSHA as a carcinogen.

In Section IV - Summary and Explanation of the Standard under (d) Hazard Determination the phrases confirmed or suspected carcinogen are used.

In Section II - Overview of the Final Standard and Summary of Major Issues (page 53295) the phrases potential or confirmed carcinogens are used.

The reason for bringing up this point is that the phrases used to describe carcinogenicity have a very precise meaning to toxicologists. The phrases actually used in the NTP annual report or Carcinogens are known carcinogens or reasonably anticipated to be carcinogens. IARC, on the other hand, actually uses the phrases limited and sufficient evidence of carcinogenicity. In the NTP carcinogenicity bioassay studies five categories of interpretative conclusions are used:

- Clear Evidence of Carcinogenicity
- Some of Evidence of Carcinogenicity
- Equivocal Evidence of Carcinogenicity
- No Evidence of Carcinogenicity
- Inadequate Study of Carcinogenicity

The preceding section points out the differencies in terminology used by the various agencies. Presently, only those chemicals with clear evidence of carcinogenicity have been listed in the NTP Annual Report on Carcinogens. However, in the Executive Summary it is stated: "The fact that a substance is not contained in the Third Annual Report does not means that it is not a known or reasonably-anticipated carcinogen."

Although these examples may only appear to confuse the issue, they have been presented to illustrate the difficulty in determining what is a carcinogenic hazard. It is the working group's feeling, that a chemical demonstrating clear evidence or some evidence of carcinogenicity according to the criteria used by NTP in their bioassay studies or sufficient evidence of carcinogenicity as defined by IARC should be suspected of being a potential human carcinogen and therefore, should be included as such within the provisions of the Standard.

In addition, the working group believes that three other points discussed in Appendix B regarding the carcinogenicity (and toxicity) of chemicals need to be incorporated into North Carolina rules:

a. Instead of waiting for the Annual Report on Carcinogens, we believe that the Standard should apply as soon as the NTP Board of Scientific Counselors has made its final determination on the carcinogenicity of a chemical.

b. Reports submitted to EPA and other agencies, such as For Your Information reports (FYI) documenting carcinogenicity or other toxic effects shall be required in the hazard determination and shall be considered statistically significant data within the meaning of the Standard.

c. Considerable evidence has been presented by the National Institute of Occupational Safety and Health (NIOSH) and the National Cancer

Institute demonstrating that certain chemicals, such as dyes, are metabolized to carcinogens in humans. Thus, we recommend that the standard shall apply to those chemicals that have not been tested for carcinogenicity but can be metabolized to carcinogens by humans. For example, certain benzidine dyes have been shown to be metabolized to benzidine, a known human carcinogen. This interpretation is particularly important because of the heavy use of dyes in North Carolina compared to other states.

2. Corrosive

The working group agrees with the OSHA performance standard but would recommend that any substance with a pH of less than 2 or greater than 12.5 should be listed as a corrosive because these substances are clearly corrosive and for reasons of consistency with the EPA RCRA definition.

3. Highly Toxic

The working group is in general agreement with the standard, although some consideration of extremely toxic chemicals (LD 50 less than 1 mg/kg) may be warranted. Since rat data is not always available or may not be a good indicator of toxicity, other species of animals may be just as valid an indicator of toxicity as the rat. Thus, a positive finding in another species should be communicated if it is relevant to the hazard determination.

4. Irritant

The working group has some problems with the limited definition of an irritant in the Standard:

Skin Irritant: The rabbit is the species most widely used for dermal irritation testing although the guinea pig shows similar sensitivity and is more economical to house. Both species do not completely predict human response, however, as moderately and minimally irritating compounds may show either stronger or weaker response. In many cases, the rabbit and guinea pig results taken together more accurately predict the

human response; compounds misgraded by one species are more accurately detected by the other. Scoring, as it is currently practiced, is a rather subjective procedure. At present, there are no standard study visual sets available for training as there are for eye testing. Thus, the working group feels that the use of the rabbit with the procedures specified in 16 CFR 1500.41 may not detect certain irritants. At a minimum, positive irritant findings by other procedures should be communicated to workers.

Eye Irritants: The working group has the same comment; positive findings by procedures other than those specified in 16 CFR 1550.42 should be communicated.

5. Sensitizer

The working group disagrees with the word substantial, in the Standard.

> "A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical."

A very low number of animals or people responding to a sensitization test, (e.g., 1%) means that 50 people in a group of 5000 may develop an allergic reaction. Thus, the working group feels that positive sensitization data needs to be communicated regardless of whether it is considered substantial.

6. Toxic

The working group has the same comments for toxic substances as highly toxic substances.

7. Target Organ Effects

The working group is in general agreement with the intent of the Standard as far as effects on target organs. The standard states that the examples

are not "intended to be all-inclusive". We agree with this statement because many examples of significant signs and symptoms have been omitted such as blood dyscrasias, liver enzyme changes and so on. The working group reiterates any abnormal finding resulting from chemical exposure in humans or animals must be communicated.

Enclosures: 1 - Hazard Communication Standard

2 - Background Document

Friday
November 25, 1983

Part IV

Department of Labor

Occupational Safety and Health Administration

Hazard Communication; Final Rule

been allocated to the inventory and the label review. Furthermore, it has been assumed that appropriate labels would be readily available from the producers of the chemical products. Relaxing these assumptions would imply that additional costs for the chemical inventory, label review, and label modification and redesign would be incurred by all entities.

TABLE 9.—DISTRIBUTION OF ADDITIONAL COSTS ATTRIBUTED TO THE ELIMINATION OF REGULATORY FLEXIBILITY

[illegible]

Provision	Entity size by number of employees				
	[illegible]	20–99	100–249	250 or greater	Total
MSDS Development	$181,3[illegible]	$101,383	$43,[illegible]	$49,[illegible]	$3[illegible]
Chemical inventory	[illegible]	[illegible],995	5,[illegible]	5,[illegible]	44,5[illegible]
Hazard Evaluation	4,[illegible]	2,732,686	1,162,46[illegible]	[illegible]	10,182,835
Total	[illegible]	2,846,064	1,210,[illegible]	[illegible],402,02[illegible]	10,605,208

Source: U.S. Department of Labor, Occupational Safety and Health Administration, Office of Regulatory Analysis.

Industry Effects

The expected compliance cost for the final OSHA standard has been calculated for each industry in manufacturing. The cost estimates are approximations and may not sum to the total figures provided in Chapter IV of the Regulatory Impact Analysis. These cost figures do, however, indicate the relative impact on the respective industry. The costs of hazard evaluation, labeling of chemical shipments, label review, label modification and redesign, MSDS development, MSDS provision with shipments, and hazard recordkeeping have been attributed to SIC 28. Some of these costs may actually be incurred by establishments in SIC 2911 or perhaps by other industrial suppliers.[1] Further disaggregation of these costs, however, was not possible. In the absence of the necessary information for an accurate adjustment for the industry groups, the costs assigned to SIC 28 may be overestimated.

As presented in Table 10, the industries associated with a relatively high compliance cost include Food and Kindred Products (SIC 20), Lumber and Wood Products (SIC 24), Printing and Publishing (SIC 27), Chemicals and Allied Products (SIC 28), Fabricated Metal Products (SIC 34), Machinery Except Electrical (SIC 35), Electrical Equipment and Supplies (SIC 36), and Transportation Equipment (SIC 37). The cost as a percent of payroll and value added are the highest for SIC 28 at 2.1 percent and 0.14 percent, respectively. As noted previously, some of the cost attributed to producers of chemical products is likely to be incurred by employers in other industries.

[1] The distributional impact on importers, repackagers, and distributors was discussed in a previous section.

TABLE 10.—EXPECTED TOTAL INITIAL COST AS A PERCENT OF PAYROLL AND AS A PERCENT OF VALUE ADDED BY INDUSTRY (1982)

SIC	Expected total cost (millions)	Cost as percent of payroll[1]	Cost as percent of value added[2]	Average cost per employee
(20) Food and Kindred Products	$27.428	[illegible]	0.04	$23.8[illegible]
(21) Tobacco Manufacturers	0.872	[illegible]	0.02	17.6[illegible]
(22) Textile Mill Products	13.979	0.[illegible]	0.0[illegible]	2[illegible]
(23) Apparel and Other Textile Products	22.609	[illegible]	0.[illegible]	20.6[illegible]
(24) Lumber and Wood Products	1[illegible]	[illegible]	[illegible]	33.6[illegible]
(25) Furniture and Fixtures	9.134	[illegible]	0.12	25.7[illegible]
(26) Paper and Allied Products	1[illegible].663	[illegible]	[illegible]	24.3[illegible]
(27) Printing and Publishing	38.10[illegible]	[illegible]	[illegible]	44.30
(28) Chemicals and Allied Products	260.018	2.1[illegible]	0.14	408.09
(29) Petroleum and Coal Products	2.252	0.0[illegible]	[illegible]	25.55
(30) Rubber and Plastic Products	14.20[illegible]	[illegible]	[illegible]	26.5[illegible]
(31) Leather and Leather Products	4.314	[illegible]	[illegible]	22.4[illegible]
(32) Stone, Clay and Glass Products	12.533	[illegible]	[illegible]	26.9[illegible]
(33) Primary Metal Industries	18.024	[illegible]	[illegible]	1[illegible]
(34) Fabricated Metal Products	30.674	[illegible]	0.[illegible]	2[illegible]
(35) Machinery, Except Electrical	4[illegible]	[illegible]	[illegible]	28.4[illegible]
(36) Electrical Equipment and Supplies	29.355	[illegible]	[illegible]	21.58
(37) Transportation Equipment	2[illegible]	[illegible]	0.05	2[illegible]
(38) Instruments and Related Products	10.163	[illegible]	0.08	2[illegible]
(39) Misc. Manufacturing Products	[illegible].555	[illegible]	0.1[illegible]	[illegible]

[1] The payroll (1976) for each SIC category is taken from U.S. Department of Commerce, Bureau of Census, *Statistical Abstract of the U.S.*, 1979.
[2] The value added (1976) for each SIC category is taken from U.S. Department of Commerce, Bureau of Census, *Statistical Abstract of the U.S.*, 1979.
Source: U.S. Department of Labor, Occupational Safety and Health Administration, Office of Regulatory Analysis.

OSHA has determined that the final standard will not impose a substantial burden on the affected industries. Hence, OSHA has concluded that the standard is economically feasible.

Environmental Assessment—Finding of No Significant Impact

The Hazard Communication standard and its major alternatives, as well as responses to OSHA's Notice of Proposed Rulemaking (NPRM) (47 FR 12092–12123, March 19, 1982) have been reviewed. No comments were received which specifically addressed the

This preemption will serve to reduce the burden on interstate commerce produced by conflicting state and local regulations and will ensure that all employees in the manufacturing sector are accorded the same degree of protection. OSHA will examine carefully any state requests to regulate in this area to determine any potentially burdensome impact on interstate commerce as well as to ascertain whether there is a compelling need for a separate regulation.

(b) *Scope and application.* The final hazard communication standard applies to employers and employees in the manufacturing SIC Codes, 20 through 39. The manufacturers in these SIC codes who produce chemicals for use or distribution, and importers of such chemicals, must evaluate the hazards of these substances. All employers in the manufacturing sector must establish a hazard communication program for their employees. In addition, distributors of hazardous chemicals are required to transmit hazard information to their manufacturing sector customers.

The proposed standard also applied to the manufacturing SIC codes. As discussed elsewhere in this preamble, OSHA has concluded that the need for hazard communication is greatest in the manufacturing sector, and is exercising its priority setting authority by choosing to regulate this segment of industry at this time, and reserving the right to separately regulate other segments in the future.

The scope of the final standard has been expanded to cover importers and distributors. The rulemaking record indicated that in order for the flow of hazard information from upstream manufacturers to downstream users to be continuous and effective, all aspects of the supply chain have to be specifically included in the scope of the standard. Thus, in the final standard importers are required to supply the same information as domestic manufacturers of a hazardous chemical. Distributors are to ensure the downstream flow of information by shipping labeled containers and making an appropriate material safety data sheet available to downstream purchasers.

The standard also applies only to chemicals which are known to be present in the workplace and to which employees may be exposed under normal conditions of use or in a foreseeable emergency. This means that employers must assess and communicate the hazards of any such chemicals, but do not have to analyze complex chemical mixtures in the

IV. Summary and Explanation of the Standard

The following is a paragraph-by-paragraph summary of the provisions of the final standard.

(a) *Purpose.* In the final standard, a paragraph has been added to specify what OSHA intends to accomplish through promulgation of the standard. In essence, the paragraph states that the final Hazard Communication standard is intended to ensure that all employees in the manufacturing sector, Standard Industrial Classification (SIC) Codes 20 through 39, are apprised of the hazards they work with through a hazard communication program. This program is to include container labeling, material safety data sheets, and employee training.

The paragraph goes on to state that OSHA intends to comprehensively address the issue of evaluating and communicating chemical hazards to employees in the manufacturing sector in this standard, and to preempt any state law pertaining to this subject. Thus if a state wishes to regulate in this area, it can only do so if the standard is approved by OSHA under section 18(b) of the Act which deals with state plans

workplace to determine the precise composition and components. That is, the term "known" means the employer need not analyze intermediate process streams, for example, to determine the presence of quantity of trace contaminants. However, where the employer knows of such contaminants and they are hazardous, then they fall under the provisions of the standard.

There are a number of laboratories in the manufacturing facilities covered by this standard, and they receive different treatment in terms of hazard communication requirements. Employers are to ensure that labels on incoming containers of hazardous chemicals are not removed or defaced. Furthermore, any material safety data sheets received with such chemicals are to be maintained and accessible to employees. Employers are also to ensure that laboratory employees are apprised of the hazards of the chemicals they work with in accordance with the training provisions of this standard. In all other respects laboratories in the covered SIC Codes are exempt from the provisions of the hazard communication standard. For example, employers need not label every container used in the laboratory with an identity and hazard warning as would otherwise be required.

The standard also exempts potentially hazardous chemicals that are brought into the workplace for the personal consumption of employees, such as foods, drugs, cosmetics or tobacco products.

The standard also included specific labeling exemptions for chemicals which are regulated by other Federal agencies, and total exemptions for certain classes of substances which are not expected to be hazardous for purposes of this standard.

(c) *Definitions.* The final standard includes a number of definitions which provide the framework to determine which employers are covered by the standard, what substances are covered by the standard, how the standard defines hazards, and how OSHA defines other key terms for purposes of the standard, such as what constitutes a trade secret. Since a number of these definitions are unique to this standard, they should be consulted to ensure that the provisions are properly understood.

The standard applies to several different groups of businesses, in varying degrees of coverage. All of the hazard communication provisions apply to "employers" who are defined as businesses within SIC Codes 20 through 39 where chemicals are "either used, or are produced for use or distribution."

"Produce" means to "manufacture, process, formulate, or repackage." "Use" means to "produce, handle, react, or transfer." Those employers who "produce" chemicals for "use or distribution" are considered to be "chemical manufacturers" and thus have additional hazard evaluation duties to perform.

The standard also requires "importers" to evaluate the hazards of chemicals. An importer "receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or manufacturing purchasers within the United States."

"Distributors" supply "hazardous chemicals to other distributors or to manufacturing purchasers."

"Manufacturing purchasers" are "employers" who purchase a hazardous chemical for use within a workplace in SIC Codes 20 through 39.

The standard applies to any chemical which is known to be present in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency. A "chemical" is broadly defined as "any element, chemical compound, or mixture of elements and/or compounds."

"Articles" are excluded under the scope of the standard from being covered as a "chemical." A mixture is defined as "any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction." "Exposure" occurs when an employee may inhale, ingest, or absorb a hazardous chemical during the course of employment. The definition includes both potential and current "exposure." A "foreseeable emergency" is one which employers would normally plan for as a presumed potential occurrence determined by the nature of the operation, i.e., equipment failure or rupture of containers.

The standard applies to both "physical" and "health" hazards. Each of these terms is defined by listing the various types of "physical" and "health" hazards covered. These listed hazards are then individually defined, or in the case of "health" hazards, further [illegible] in Appendix A.

If a "container" of a hazardous chemical is present in, or leaves the workplace, it must be labeled with an "identity" and "hazard warning." A "container" is any [illegible] that holds hazardous chemicals except pipes and piping systems. A "label" is any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals. An "identity" is any name used on the material safety data sheet for the chemical and for the list of hazardous chemicals in the workplace. The name used should permit cross-

references to be made among these three items. The "hazard warning" conveys the hazards of the chemical(s) in the container to employees. This message may be conveyed by words, symbols, pictures, or any combination thereof.

(d) *Hazard determination.* A new paragraph has been added to the final standard to separate out and highlight the provisions concerning the determination of what constitutes a hazard for purposes of the standard.

The primary duty for hazard evaluation lies with the chemical manufacturers and importers of hazardous chemicals. Under the provisions of this paragraph, they are required to evaluate the chemicals they produce or import in their workplaces to determine if they are hazardous. Employers may rely on the evaluation performed by the chemical manufacturer or importer for chemicals they use within their workplaces to satisfy this requirement.

The chemical manufacturers, importers, or employers are to be held accountable for the quality of the hazard determinations they perform. Each chemical is to be evaluated for its potential to cause adverse health effects as well as its potential to pose physical hazards such as flammability. The particular health and physical hazards to be considered are enumerated in the definition for a "hazardous chemical." Additional definitions are provided for the terms used in the definition for a hazardous chemical. The specific physical hazards are also defined in the definitions paragraph. The health hazard definitions are contained in Appendix A.

Appendices A and B are integral parts of this hazard determination paragraph. Appendix A contains a discussion of [illegible] definitives identifying [illegible] health effects, and indicates [illegible] approach the standard intends [illegible] coverage of such effects. It further provides specific definitions for certain [illegible] hazards, such as "corrosive" and "[illegible]izer." In addition, the Appendix [illegible] a target organ categorization of health effects which gives examples of signs and symptoms of exposure as well as [illegible] of substances which have been found to affect the target organ. This information is also provided to indicate the broad scope of health hazards to be covered. Essentially, the [illegible] any adverse health effect for which there is scientific [illegible] statistically significant evidence based on at least one positive study conducted in accordance with established scientific principles that it

may occur as a result of employee exposure

Appendix B provides further guidance to the employer in terms of the criteria to be applied in determining whether or not a chemical is hazardous for purposes of the standard. As examples of evidence to be considered, OSHA indicates that both human and animal data must be evaluated. Furthermore, if an available study indicates that an adverse health effect is likely to occur, and that study is conducted according to scientific principles and results in statistically significant findings, the employer is required to report it whether he agrees with the finding or not. Employers are free to report such findings in a non conclusionary fashion, i.e. they do not have to agree with it but they do have to report it. Employers may also report any negative data they believe to be relevant to the hazard potential of the chemical. An additional Appendix C lists a number of sources which are available for employers in their search for information on hazards.

The hazard determination paragraph also includes two provisions which establish certain substances as being hazardous chemicals in any occupational setting. These substances are those currently regulated by OSHA under 29 CFR Part 1910, General Industry Standards, and those listed by the American Conference of Governmental Industrial Hygienists (ACGIH) in their latest edition of the *Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment*. This provision establishes a "floor" of over 600 substances to be communicated to employees.

In addition, OSHA has defined a carcinogen for purposes of determining chronic hazards as any substance found to be a confirmed or suspected carcinogen by the International Agency for Research on Cancer, the National Toxicology Program, or OSHA. Use of these sources has eliminated much controversy involved in defining and identifying carcinogens. The hazard determination paragraph also addresses the evaluation of hazardous chemicals which are mixtures. Mixture coverage is included and several considerations are specified. First of all, if the employer has objective test data on the mixture as an entity, that data must be used to determine the hazards. If such data are not available for the health hazard determination, then the employer must consider the mixture to have the health hazards of those components which comprise one percent or more of the total composition. If any of the components are carcinogens, the mixture must be considered to be carcinogenic if the component is present in concentrations of 0.1% or more.

If the mixture has not been objectively evaluated to determine its physical hazard potential, the employer may use whatever scientifically valid information is available to subjectively assess the potential hazards.

Finally, if the employer has evidence to indicate that a component which comprises less than one percent of the mixture could be released in concentrations which would exceed an established permissible exposure limit under normal conditions of use, it must be identified. Furthermore, if the employer has reason to believe that the component could be released in quantities hazardous to the health of employees, it shall also be identified even though present in quantities less than one percent of the total weight or volume, or less than 0.1% in the case of a carcinogen. The procedures used to evaluate hazards must be prepared in writing. The written description may be included in the written hazard communication program required under paragraph (e).

(e) *Written hazard communication program.* The final standard requires each employer to establish a comprehensive hazard communication program for their employees which includes at least the mandated container labeling, material safety data sheets, and an employee training program. The program is to be written, and is to include how the employer plans to meet the criteria of the standard regarding labels, material safety data sheets, and training; a list of the hazardous chemicals in each work area; the methods the employer will use to inform employees of the hazards of non-routine tasks, as well as of the hazards associated with chemicals contained in unlabeled pipes in their work areas; and the methods employers will use to inform contractors in manufacturing facilities of the hazards to which their employees may be exposed.

The written program need not be lengthy or complicated, but should adequately address each of the required components in the program. Some employers already have aspects of their existing hazard communication programs in written form. These need not be modified to comply with this requirement as long as they address the minimal criteria established in the standard.

The written program is to be made available to employees, their designated representatives, the Assistant Secretary for OSHA and the Director of NIOSH.

(f) *Labels and other forms of warning.* Chemical manufacturers, importers and distributors are required to ensure that containers of hazardous chemicals leaving the workplace are labeled, tagged or marked with the identity, appropriate hazard warnings, and the name and address of the manufacturer or other responsible party. Additionally, they are to ensure that these labels do not conflict with those applied in accordance with Department of Transportation regulations under the Hazardous Materials Transportation Act. If labels already applied by the manufacturer, importer, or distributor contain the minimal information required by OSHA, additional labels need not be affixed.

The final standard requires that each container in the workplace be labeled, tagged or marked with the identity of hazardous chemicals contained therein and hazard warnings appropriate for employee protection. The term "identity" is defined for purposes of this standard as being any designation the employer chooses to use, as long as it also appears on the list of hazardous chemicals for the work area, and on the associated material safety data sheet. The hazard warning is to be any type of message, words, pictures, or symbols which convey the hazards of the chemical(s) in the container. The employer is responsible for selecting the message and ensuring that it is effective for the purpose involved.

OSHA recognizes that container labeling may be difficult, or in some cases impractical, to accomplish within a plant. Therefore, several exemptions to in-plant individual container labels have been included in the final standard. If there are a number of stationary containers within a work area which have similar contents and hazards, the employer may post signs or placards which convey the hazard information required rather than individually labeling each piece of equipment. Employers may also use various types of standard operating procedures, process sheets, batch tickets, blend tickets, or other such written materials as substitutes for individual container labels on stationary process equipment. However, these written materials must contain the same information as is required on the labels, and must be readily accessible to workers in the work areas. This requirement does not apply to pipes or piping systems, which are exempted altogether from the labeling requirements.

One additional exemption is included for in-plant containers. Employers are not required to label portable containers, into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer. According to the definition of immediate use, the container must be under the control of the employee performing the transfer and used within the workshift when the transfer has been made, for the exemption to apply.

The standard also requires that employers ensure that labels on incoming containers of hazardous chemicals are not removed or defaced unless they are immediately replaced with another label with the required information. In addition, labels are to be legible, in English and prominently displayed on the container. Employers may add information in other languages as well, as long as the message also appears in English.

(g) *Material safety data sheets.* The final standard requires chemical manufacturers and importers to develop material safety data sheets for each hazardous chemical they produce or import. Employers are required to obtain or develop a material safety data sheet for each hazardous chemical used in their workplaces.

Specific requirements are included for the information to be provided on the MSDS. Such information is to be in English, and includes the identity, as well as chemical and common names for the hazardous chemical. Special provisions apply to the listing of ingredients for hazardous chemicals which are mixtures. For physical hazards, the employer is to list those ingredients which he or she has determined present a physical hazard. For health hazards, the employer must list each component which comprises 1% or more, and which is itself a health hazard. Any chemical which is determined to be a carcinogen must be listed if it is present in quantities of 0.1% or greater. Employers must also list ingredients present in concentrations of less than one percent if there is evidence that the permissible exposure limit may be exceeded or if it could present a health hazard in those concentrations.

In addition to identity information, the employer must provide information specified on the physical and chemical characteristics of the hazardous chemical, known acute and chronic health effects and related health information, as well as information concerning exposure limits, whether the chemical is considered to be a carcinogen by NTP, IARC, or OSHA.

[illegible] first aid procedures [illegible] of the person [illegible]

In some situations [illegible] have more than [illegible] the workplace [illegible] contents and [illegible] petroleum [illegible] same chemical components [illegible] vary slightly [illegible] components [illegible] the same [illegible] MSDS for [illegible] order to comply [illegible] this standard.

If a manufacturer or importer [illegible] find the appropriate [illegible] complete a specific category [illegible] MSDS may [illegible] no information [illegible] word [illegible] blank spaces on [illegible] then be [illegible] significance of [illegible] them. If the [illegible] is not applicable [illegible] the chemical [illegible] the space should be marked [illegible] as well.

The chemical manufacturer, importer or employer is [illegible] that the MSDS accurately [illegible] evidence which [illegible] determination that [illegible] question [illegible] The chemical manufacturer [illegible] development [illegible] workplace [illegible] information [illegible] MSDS [illegible] chemical [illegible] time of the [illegible]

[illegible] MSDS [illegible]

[illegible] Providing an MSDS [illegible] the sheet need [illegible] the shipment [illegible] manufacturer [illegible]

Distributors [illegible]

[illegible] chemical [illegible] MSDS [illegible] the producer of the chemical.

[illegible] of the MSDS [illegible] order of the MSDS [illegible] workshift.

As was the case with [illegible] alternatives to MSDSs [illegible] are also permitted as long as they provide the appropriate information and are readily accessible to employees. These [illegible] to take the form of [illegible] operating procedures [illegible] employer may also use this [illegible] approach to address the hazards of a process rather than individual chemicals. However, information must still be available to employees for each hazardous chemical [illegible]

MSDSs are to be made available to [illegible] employees and their designated representatives [illegible] Assistant Secretary [illegible] must be maintained in a current fashion and [illegible] for any specified [illegible] except to the [illegible] by the Employee Access to Exposure and Medical Records rule [illegible]

(h) *Employee information and training.* Employers are to establish a training and information program for [illegible] exposed to hazardous chemicals [illegible] training is to be [illegible] where a new hazard [illegible] must receive [illegible] when this standard [illegible]

[illegible] specifies the [illegible] transmitted to [illegible] are to be informed [illegible] of the regulation [illegible] area where [illegible] and [illegible] the written hazard [illegible] written program [illegible] chemicals and [illegible] this section.

Employees are also to be trained regarding methods and observations they may use to detect the presence of a hazardous chemical in their work area. For example, employees should be informed of the visual appearance or smell of the chemicals they may be exposed to, so they will know when they are being released into the work atmosphere. Employees are also to be trained specifically about the hazards of the chemicals in their work areas. This may be done by specific chemical or by categories of hazards, but in any case, the employee is to be aware that information is available on the specific hazards of individual chemicals through the material safety data sheets. Training is to include the measures employees can take to protect themselves from the hazards, and is to indicate the specific procedures implemented by the employer to provide protection, such as work practices and the use of personal protective equipment. In addition, the employer is to explain the hazard communication program implemented in that workplace, including how to read and interpret information on labels and material safety data sheets, and how employees can obtain and use the available hazard information.

(i) *Trade secrets.* OSHA recognizes in the final standard that specific chemical identity information can constitute a *bona fide* trade secret, and thus provisions are made to protect such an identity while providing for the proper protection of exposed employees. This is accomplished by providing for limited trade secret disclosure to health professionals under prescribed conditions of need and confidentiality. The term "specific chemical identity" is used to describe the trade secret information being discussed. This term refers to the chemical name, the Chemical Abstracts Services (CAS) Registry Number, or any other specific information which reveals the precise chemical designation. It does not include common names.

The proposed standard did not include a definition for the term "trade secret," although OSHA stated that the Agency considered the definition derived from the Restatement of Torts to be the appropriate one. In response to comments suggesting that the definition be explicitly stated in the final standard, a slightly modified version of that definition has been added to clarify what the Agency considers to be a trade secret for purposes of this standard.

Given that it is recognized that the specific chemical identity of a chemical may be a trade secret, the standard establishes an information disclosure scheme which requires the release of essential hazard information, and defines the terms under which the specific chemical identity must also be released.

The chemical manufacturer, importer or employer is permitted to withhold the specific chemical identity from the MSDS if certain conditions can be met. (1) The chemical manufacturer, importer or employer can support the claim that the information withheld is a trade secret; (2) information concerning the properties and effects of the hazardous chemical is disclosed as required on the appropriate material safety data sheet, (3) the chemical manufacturer, importer, or employer indicates on the MSDS that the specific chemical identity is being withheld as a trade secret, and (4) the specific chemical identity is made available to health professionals under certain specified situations. Health professionals are considered to be physicians, Industrial hygienists, toxicologists, or any other person providing medical or other occupational health services to exposed employees.

The final standard's provisions make a distinction between the trade secret disclosure requirements in the event of a medical emergency and in non-emergency situations.

In the case of a medical emergency, the chemical manufacturer, importer, or employer must immediately disclose the specific chemical identity of a hazardous chemical to a treating physician or nurse when the information is needed for proper emergency or first aid treatment. As soon as circumstances permit, however, the chemical manufacturer, importer, or employer may obtain a written statement of need and a confidentiality agreement as provided for below.

OSHA considers it to be appropriate for the treating physician or nurse to have the ultimate responsibility for determining that a medical emergency exists. At the time of the medical emergency, their professional judgment regarding the situation must form the basis for triggering the immediate disclosure requirement. Although there will undoubtedly be situations which, when viewed in retrospect, do not appear to be genuine emergencies, OSHA has determined that the short-term necessity for appropriate emergency treatment far outweighs the risk of unnecessary disclosure of secret information. Since the chemical manufacturer, importer, or employer can require a written statement of need and a confidentiality agreement to be completed after the emergency is abated, further disclosure of the trade secret can be effectively controlled. If a chemical manufacturer, importer or employer refuses to provide specific chemical identity information in the event of a medical emergency, OSHA regulations would provide appropriate enforcement remedies.

In drafting the medical emergency disclosure requirement, OSHA considered whether to allow the chemical manufacturer, importer, or employer to suggest alternatives to disclosure of the type stated in the provisions for non-emergency situations (paragraph (i)(7)(v)). However, OSHA determined that the emergency nature of the situation addressed necessitates disclosure of the specific chemical identity immediately without the opportunity for the chemical manufacturers, importer or employer to explore possible suitable alternatives with the treating physician or nurse.

In non-emergency situations, chemical manufacturers, importers, or employers are required to disclose the withheld specific chemical identity to health professionals providing medical or other occupational health services to exposed employees if certain conditions are met. The concept of "health professional" is more broadly stated than for emergency situations, and includes any physicians, industrial hygienists, toxicologists, or epidemiologists who provide these medical or other occupational health services to exposed employees. Nurses are not included among the health professionals entitled to access to specific chemical identities in non-emergency situations. OSHA has determined that it is more appropriate, given the competing interests balanced in this standard, to entrust such information to the physician to whom a nurse would normally report. The request for information must be in writing, and must describe with reasonable detail the medical or occupational health need for the information. To be considered a medical or occupational health need for purposes of this standard, the health professional must be planning to use the specific chemical identity information for one or more of the following activities:

1. To assess the hazards of the chemicals to which employees will be exposed.
2. To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels.
3. To conduct pre-assignment or periodic medical surveillance of exposed employees.
4. To provide medical treatment to

exposed employees

5 To select or assess [illegible] personal protective equipment [illegible] exposed employees

6 To design or assess engineering controls or other protective measures for exposed employees [illegible]

7 To conduct studies to determine [illegible] health effects of exposure

It should be noted that for purposes [illegible] this standard exposure [illegible] potential, as well as current [illegible] situations Thus the health professional [illegible] will be able to obtain the neces[illegible] information prior to the actual [illegible] of employees, and can implement [illegible] preventive measures to avoid [illegible] occurrence of health effects

In addition, the written request [illegible] also explain in detail why the [illegible] of the specific chemical identity [illegible] essential to providing the [illegible] health services, and why disclosure [illegible] the following types of information [illegible] not satisfy the health professional's [illegible] need

1 Properties and effects of the chemical

2 Measures for controlling [illegible] exposure to the chemical

3 Methods of monitoring [illegible] analyzing worker exposure [illegible] chemical

4 Methods of diagnosing [illegible] harmful exposures to the [illegible]

OSHA anticipates that in ma[illegible] situations this alternative [illegible] will be sufficient to satisfy the [illegible] professional's needs

The request for the inform[illegible] further provide a description [illegible] procedures to be used to pr[illegible] confidentiality of the informa[illegible] agreement not to use [illegible] any purpose other than [illegible] asserted or to release [illegible] circumstances other than [illegible] also be included [illegible] health professional [illegible] employer or contractor of the [illegible] professional's services [illegible] that the employer or [illegible] health professional's [illegible] signatory to the agreement [illegible] equally regardless of [illegible] professional is provid[illegible] health, or medical services [illegible] downstream employer [illegible] organization, or individual [illegible] and regardless of whether [illegible] professional is being paid [illegible] services This makes [illegible] the principal and the agent [illegible] responsible for compliance [illegible] agreement, although only [illegible] professional may actually [illegible] to the specific chemical identity [illegible] information

section 15 of the Act and Agency procedures.

(j) *Effective dates.* The effective dates of the final standard are structured according to activity, that is, information being sent downstream must be prepared first, then other provisions of the hazard communication program are to be complied with by a later date. Chemical manufacturers and importers have two years in which to comply with the labeling of containers shipped downstream, and to provide material safety data sheets to manufacturing purchasers. Distributors must also begin transferring information downstream by this initial compliance date. All employers must be in compliance with all provisions of the standard within 2½ years.

V. Authority, Signature and the Standard

This document was prepared under the direction of Thorne G. Auchter, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 20210. Pursuant to Sections 6(b) and 8(g) of the Act, 29 CFR is hereby amended by adding a new § 1910.1200 to read as set forth below.

List of Subjects in 29 CFR Part 1910

Occupational safety and health, Hazard communication.

(Sec. 6(b), 8(c), and 8(g) Pub. L. 91-596, 84 Stat. 1593, 1599, 1600; 29 U.S.C. 655, 657; 29 CFR Part 1911, Secretary of Labor's Order No. 9-83 [48 FR 35736])

Signed at Washington, D.C. this 21st day of November 1983.

Thorne G. Auchter,

Assistant Secretary for Occupational Safety and Health.

PART 1910—[AMENDED]

Subpart Z of Part 1910 of Title 29 of the Code of Federal Regulations (CFR) is hereby amended by adding a new § 1910.1200 to read as follows:

§ 1910.1200 Hazard communication.

(a) *Purpose.* (1) The purpose of this section is to ensure that the hazards of all chemicals produced or imported by chemical manufacturers or importers are evaluated, and that information concerning their hazards is transmitted to affected employers and employees within the manufacturing sector. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets and employee training.

(2) This occupational safety and health standard is intended to address comprehensively the issue of evaluating and communicating chemical hazards to employees in the manufacturing sector, and to preempt any state law pertaining to this subject. Any state which desires to assume responsibility in this area may only do so under the provisions of § 18 of the Occupational Safety and Health Act (29 U.S.C. 651 et. seq.) which deals with state jurisdiction and state plans.

(b) *Scope and application.* (1) This section requires chemical manufacturers or importers to assess the hazards of chemicals which they produce or import, and all employers in SIC Codes 20 through 39 (Division D, Standard Industrial Classification Manual) to provide information to their employees about the hazardous chemicals to which they are exposed, by means of a hazard communication program, labels and other forms of warning, material safety data sheets, and information and training. In addition, this section requires distributors to transmit the required information to employers in SIC Codes 20–39.

(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

(3) This section applies to laboratories only as follows:

(i) Employers shall ensure that labels on incoming containers of hazardous chemicals are not removed or defaced;

(ii) Employers shall maintain any material safety data sheets that are received with incoming shipments of hazardous chemicals, and ensure that they are readily accessible to laboratory employees, and,

(iii) Employers shall ensure that laboratory employees are apprised of the hazards of the chemicals in their workplaces in accordance with paragraph (h) of this section.

(4) This section does not require labeling of the following chemicals.

(i) Any pesticide as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136 et seq.) when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Environmental Protection Agency;

(ii) Any food, food additive, color additive, drug, or cosmetic, including materials intended for use as ingredients in such products (e.g., flavors and fragrances), as such terms are defined in the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301 et seq.) and regulations issued under that Act, when they are subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Food and Drug Administration.

(iii) Any distilled spirits (beverage alcohols), wine, or malt beverage intended for nonindustrial use, as such terms are defined in the Federal Alcohol Administration Act (27 U.S.C. 201 et seq.) and regulations issued under that Act, when subject to the labeling requirements of that Act and labeling regulations issued under that Act by the Bureau of Alcohol, Tobacco, and Firearms, and,

(iv) Any consumer product or hazardous substance as those terms are defined in the Consumer Product Safety Act (15 U.S.C. 2051 et seq.) and Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.) respectively, when subject to a consumer product safety standard or labeling requirement of those Acts, or regulations issued under those Acts by the Consumer Product Safety Commission.

(5) This section does not apply to:

(i) Any hazardous waste as such term is defined by the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6901 et seq.), when subject to regulations issued under that Act by the Environmental Protection Agency;

(ii) Tobacco or tobacco products,

(iii) Wood or wood products;

(iv) Articles; and,

(v) Foods, drugs, or cosmetics intended for personal consumption by employees while in the workplace.

(c) *Definitions.* "Article" means a manufactured item: (i) Which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (iii) which does not release, or otherwise result in exposure to, a hazardous chemical under normal conditions of use.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Chemical" means any element, chemical compound or mixture of elements and/or compounds.

"Chemical manufacturer" means an employer in SIC Codes 20 through 39 with a workplace where chemical(s) are produced for use or distribution.

"Chemical name" means the scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS)

rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

"Combustible liquid" means any liquid having a flashpoint at or above 100°F (37.8°C), but below 200°F (93.3°C), except any mixture having components with flashpoints of 200°F (93.3°C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

"Common name" means any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

"Compressed gas" means:

(i) A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70°F (21.1°C); or

(ii) A gas or mixture of gases having in a container, an absolute pressure exceeding 104 psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or

(iii) A liquid having a vapor pressure exceeding 40 psi at 100°F (37.8°C) as determined by ASTM D–323–72.

"Container" means any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that containes a hazardous chemical. For purposes of this section, pipes or piping systems are not considered to be containers.

"Designated representative" means any individual or organization to whom an employee gives written authorization to exercise such employee's rights under this section. A recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

"Director" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Distributor" means a business, other than a chemical manufacturer or importer, which supplies hazardous chemicals to other distributors or to manufacturing purchasers.

"Employee" means a worker employed by an employer in a workplace in SIC Codes 20 through 39 who may be exposed to hazardous chemicals under normal operating conditions or foreseeable emergencies, including, but not limited to production workers, line supervisors, and repair or maintenance personnel. Office workers grounds maintenance personnel, security personnel or non-resident management are generally not included, unless their job performance routinely involves potential exposure to hazardous chemicals.

"Employer" means a person engaged in a business within SIC Codes 20 through 39 where chemicals are either used, or are produced for use or distribution.

"Explosive" means a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

"Exposure" or "exposed" means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes potential (e.g., accidental or possible) exposure.

"Flammable" means a chemical that falls into one of the following categories:

(i) "Aerosol, flammable" means an aerosol that, when tested by the method described in 16 CFR 1500.45, yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;

(ii) "Gas, flammable" means:

(A) A gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or

(B) A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit.

(iii) "Liquid, flammable" means any liquid having a flashpoint below 100°F (37.8°C), except any mixture having components with flashpoints of 100°F (37.8°C) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(iv) "Solid, flammable" means a solid, other than a blasting agent or explosive as defined in § 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

"Flashpoint" means the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested as follows:

(i) Tagliabue Closed Tester (See American National Standard Method of Test for Flash Point by Tag Closed Tester Z11.24–1979 (ASTM D 56–79)) for liquids with a viscosity of less than 45 Savbolt Universal Seconds (SUS) at 100°F (37.8°C), that do not contain suspended solids and do not have a tendency to form a surface film under test, or

(ii) Pensky-Martens Closed Tester (see American National Standard Method of Test for Flash Point by Pensky-Martens Closed Tester, Z11.7–1979 (ASTM D 93–79)) for liquids with a viscosity equal to or greater than 45 SUS a 100°F (37.8°C) or that contain suspended solids, or that have a tendency to form a surface film under test, or

(iii) Setaflash Closed Tester (see American National Standard Method of Test for Flash Point by Setaflash Closed Tester (ASTM D 3278–78))

Organic peroxides, which undergo autoaccelerating thermal decomposition are excluded from any of the flashpoint determination methods specified above.

"Foreseeable emergency" means any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.

"Hazard warning" means any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the hazards of the chemical(s) in the container(s).

"Hazardous chemical" means any chemical which is a physical hazard or a health hazard.

"Health hazard" means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. Appendix A provides further definitions and explanations of the scope of health hazards covered by this section, and Appendix B describes the criteria to be used to determine whether or not a chemical is to be considered hazardous for purposes of this standard.

"Identity" means any chemical or common name which is indicated on the material safety data sheet (MSDS) for the chemical. The identity used shall permit cross-references to be made

among the required list of hazardous chemicals, the label and the MSDS.

"Immediate use" means that the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

"Importer" means the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or manufacturing purchasers within the United States.

"Label" means any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

"Manufacturing purchaser" means an employer with a workplace classified in SIC Codes 20 through 39 who purchases a hazardous chemical for use within that workplace.

"Material safety data sheet (MSDS)" means written or printed material concerning a hazardous chemical which is prepared in accordance with paragraph (g) of this section.

"Mixture" means any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

"Organic peroxide" means an organic compound that contains the bivalent -O-O-structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

"Oxidizer" means a chemical other than a blasting agent or explosive as defined in § 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

"Physical hazard" means a chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

"Produce" means to manufacture, process, formulate, or repackage.

"Pyrophoric" means a chemical that will ignite spontaneously in air at a temperature of 130° F (54.4° C) or below.

"Responsible party" means someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

"Specific chemical identity" means the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

"Trade secret" means any confidential formula, pattern, process, device, information or compilation of information (including chemical name or other unique chemical identifier) that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.

"Unstable (reactive)" means a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.

"Use" means to package, handle, react, or transfer.

"Water-reactive" means a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

"Work area" means a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

"Workplace" means an establishment at one geographical location containing one or more work areas.

(d) *Hazard determination.* (1) Chemical manufacturers and importers shall evaluate chemicals produced in their workplaces or imported by them to determine if they are hazardous. Employers are not required to evaluate chemicals unless they choose not to rely on the evaluation performed by the chemical manufacturer or importer for the chemical to satisfy this requirement.

(2) Chemical manufacturers, importers or employers evaluating chemicals shall identify and consider the available scientific evidence concerning such hazards. For health hazards, evidence which is statistically significant and which is based on at least one positive study conducted in accordance with established scientific principles is considered to be sufficient to establish a hazardous effect if the results of the study meet the definitions of health hazards in this section. Appendix A shall be consulted for the scope of health hazards covered, and Appendix B shall be consulted for the criteria to be followed with respect to the completeness of the evaluation, and the data to be reported.

(3) The chemical manufacturer, importer or employer evaluating chemicals shall treat the following sources as establishing that the chemicals listed in them are hazardous:

(i) 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA); or,

(ii) *Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment,* American Conference of Governmental Industrial Hygienists (ACGIH) (latest edition).

The chemical manufacturer, importer, or employer is still responsible for evaluating the hazards associated with the chemicals in these source lists in accordance with the requirements of the standard.

(4) Chemical manufacturers, importers and employers evaluating chemicals shall treat the following sources as establishing that a chemical is a carcinogen or potential carcinogen for hazard communication purposes:

(i) National Toxicology Program (NTP), *Annual Report on Carcinogens* (latest edition),

(ii) International Agency for Research on Cancer (IARC) *Monographs* (latest editions); or

(iii) 29 CFR Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration.

Note.—The *Registry of Toxic Effects of Chemical Substances* published by the National Institute for Occupational Safety and Health indicates whether a chemical has been found by NTP or IARC to be a potential carcinogen.

(5) The chemical manufacturer, importer or employer shall determine the hazards of mixtures of chemicals as follows:

(i) If a mixture has been tested as a whole to determine its hazards, the results of such testing shall be used to determine whether the mixture is hazardous;

(ii) If a mixture has not been tested as a whole to determine whether the mixture is a health hazard, the mixture shall be assumed to present the same health hazards as do the components which comprise one percent (by weight or volume) or greater of the mixture, except that the mixture shall be assumed to present a carcinogenic hazard if it contains a component in concentrations of 0.1 percent or greater which is considered to be a carcinogen under paragraph (d)(4) of this section;

(iii) If a mixture has not been tested as a whole to determine whether the mixture is a physical hazard, the chemical manufacturer, importer, or employer may use whatever scientifically valid data is available to evaluate the physical hazard potential of the mixture; and

(iv) If the employer has evidence to indicate that a component present in the mixture in concentrations of less than

one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health hazard to employees in those concentrations, the mixture shall be assumed to present the same hazard.

(6) Chemical manufacturers, importers, or employers evaluating chemicals shall describe in writing the procedures they use to determine the hazards of the chemical they evaluate. The written procedures are to be made available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director. The written description may be incorporated into the written hazard communication program required under paragraph (e) of this section.

(e) *Written hazard communication program.* (1) Employers shall develop and implement a written hazard communication program for their workplaces which at least describes how the criteria specified in paragraphs (f), (g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met, and which also includes the following:

(i) A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas);

(ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas, and,

(iii) The methods the employer will use to inform any contractor employers with employees working in the employer's workplace of the hazardous chemicals their employees may be exposed to while performing their work, and any suggestions for appropriate protective measures.

(2) The employer may rely on an existing hazard communication program to comply with these requirements, provided that it meets the criteria established in this paragraph (e).

(3) The employer shall make the written hazard communication program available, upon request, to employees, their designated representatives, the Assistant Secretary and the Director, in accordance with the requirements of 29 CFR 1910.20(e).

(f) *Labels and other forms of warning.* (1) The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged or marked with the following information:

(i) Identity of the hazardous chemical(s);

(ii) Appropriate hazard warnings; and

(iii) Name and address of the chemical manufacturer, importer, or other responsible party.

(2) Chemical manufacturers, importers, or distributors shall ensure that each container of hazardous chemicals leaving the workplace is labeled, tagged, or marked in accordance with this section in a manner which does not conflict with the requirements of the Hazardous Materials Transportation Act (18 U.S.C. 1801 et seq.) and regulations issued under that Act by the Department of Transportation.

(3) If the hazardous chemical is regulated by OSHA in a substance-specific health standard, the chemical manufacturer, importer, distributor or employer shall ensure that the labels or other forms of warning used are in accordance with the requirements of that standard.

(4) Except as provided in paragraphs (f)(5) and (f)(6) the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the following information:

(i) Identity of the hazardous chemical(s) contained therein; and

(ii) Appropriate hazard warnings.

(5) The employer may use signs, placards, process sheets, batch tickets, operating procedures, or other such written materials in lieu of affixing labels to individual stationary process containers, as long as the alternative method identifies the containers to which it is applicable and conveys the information required by paragraph (f)(4) of this section to be on a label. The written materials shall be readily accessible to the employees in their work area throughout each work shift.

(6) The employer is not required to label portable containers into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer.

(7) The employer shall not remove or deface existing labels on incoming containers of hazardous chemicals, unless the container is immediately marked with the required information.

(8) The employer shall ensure that labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. Employers having employees who speak other languages may add the information in their language to the material presented, as long as the information is presented in English as well.

(9) The chemical manufacturer, importer, distributor or employer need not affix new labels to comply with this section if existing labels already convey the required information.

(g) *Material safety data sheets.* (1) Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet for each hazardous chemical which they use.

(2) Each material safety data sheet shall be in English and shall contain at least the following information:

(i) The identity used on the label, and except as provided for in paragraph (f) of this section on trade secrets:

(A) If the hazardous chemical is a single substance, its chemical and common name(s);

(B) If the hazardous chemical is a mixture which has been tested as a whole to determine its hazards, the chemical and common name(s) of the ingredients which contribute to these known hazards, and the common name(s) of the mixture itself; or,

(C) If the hazardous chemical is a mixture which has not been tested as a whole:

(*1*) The chemical and common name(s) of all ingredients which have been determined to be health hazards, and which comprise 1% or greater of the composition, except that chemicals identified as carcinogens under paragraph (d)(4) of this section shall be listed if the concentrations are 0.1% or greater; and,

(*2*) The chemical and common name(s) of all ingredients which have been determined to present a physical hazard when present in the mixture.

(ii) Physical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point);

(iii) The physical hazards of the hazardous chemical, including the potential for fire, explosion, and reactivity;

(iv) The health hazards of the hazardous chemical, including signs and symptoms of exposure, and any medical conditions which are generally recognized as being aggravated by exposure to the chemical;

(v) The primary route(s) of entry;

(vi) The OSHA permissible exposure limit, ACGIH Threshold Limit Value, and any other exposure limit used or

recommended by the chemical manufacturer, importer, or employer preparing the material safety data sheet, where available.

(vii) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) *Annual Report on Carcinogens* (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) *Monographs* (latest editions), or by OSHA.

(viii) Any generally applicable precautions for safe handling and use which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for clean-up of spills and leaks.

(ix) Any generally applicable control measures which are known to the chemical manufacturer, importer or employer preparing the material safety data sheet, such as appropriate engineering controls, work practices, or personal protective equipment.

(x) Emergency and first aid procedures.

(xi) The date of preparation of the material safety data sheet or the last change to it, and.

(xii) The name, address and telephone number of the chemical manufacturer, importer, employer or other responsible party preparing or distributing the material safety data sheet, who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

(3) If no relevant information is found for any given category on the material safety data sheet, the chemical manufacturer, importer or employer preparing the material safety data sheet shall mark it to indicate that no applicable information was found.

(4) Where complex mixtures have similar hazards and contents (i.e. the chemical ingredients are essentially the same, but the specific composition varies from mixture to mixture), the chemical manufacturer, importer or employer may prepare one material safety data sheet to apply to all of these similar mixtures.

(5) The chemical manufacturer, importer or employer preparing the material safety data sheet shall ensure that the information recorded accurately reflects the scientific evidence used in making the hazard determination. If the chemical manufacturer, importer or employer becomes newly aware of any significant information regarding the hazards of a chemical, or ways to protect against the hazards, this new information shall be added to the material safety data sheet within three months. If the chemical is not currently being produced or imported the chemical manufacturer or importer shall add the information to the material safety data sheet before the chemical is introduced into the workplace again.

(6) Chemical manufacturers or importers shall ensure that distributors and manufacturing purchasers of hazardous chemicals are provided an appropriate material safety data sheet with their initial shipment, and with the first shipment after a material safety data sheet is updated. The chemical manufacturer or importer shall either provide material safety data sheets with the shipped containers or send them to the manufacturing purchaser prior to or at the time of the shipment. If the material safety data sheet is not provided with the shipment, the manufacturing purchaser shall obtain one from the chemical manufacturer, importer, or distributor as soon as possible.

(7) Distributors shall ensure that material safety data sheets, and updated information, are provided to other distributors and manufacturing purchasers of hazardous chemicals.

(8) The employer shall maintain copies of the required material safety data sheets for each hazardous chemical in the workplace, and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s).

(9) Material safety data sheets may be kept in any form, including operating procedures, and may be designed to cover groups of hazardous chemicals in a work area where it may be more appropriate to address the hazards of a process rather than individual hazardous chemicals. However, the employer shall ensure that in all cases the required information is provided for each hazardous chemical, and is readily accessible during each work shift to employees when they are in their work area(s).

(10) Material safety data sheets shall also be made readily available, upon request, to designated representatives and to the Assistant Secretary, in accordance with the requirements of 29 CFR 1910.20(e). The Director shall also be given access to material safety data sheets in the same manner.

(h) *Employee information and training.* Employers shall provide employees with information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new hazard is introduced into their work area.

(1) *Information.* Employees shall be informed of:

(i) The requirements of this section;

(ii) Any operations in their work area where hazardous chemicals are present; and

(iii) The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and material safety data sheets required by this section.

(2) *Training.* Employee training shall include at least:

(i) Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);

(ii) The physical and health hazards of the chemicals in the work area;

(iii) The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

(iv) The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.

(i) *Trade secrets.* (1) The chemical manufacturer, importer or employer may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical, from the material safety data sheet, provided that:

(i) The claim that the information withheld is a trade secret can be supported.

(ii) Information contained in the material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed.

(iii) The material safety data sheet indicates that the specific chemical identity is being withheld as a trade secret; and,

(iv) The specific chemical identity is made available to health professionals, in accordance with the applicable provisions of this paragraph.

(2) Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a hazardous chemical is necessary for emergency or first-aid treatment, the chemical

manufacturer, importer, or employer shall immediately disclose the specific chemical identity of a trade secret chemical to that treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement. The chemical manufacturer, importer, or employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (i) (3) and (4) of this section, as soon as circumstances permit.

(3) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity, otherwise permitted to be withheld under paragraph (i)(1) of this section, to a health professional (i.e. physician, industrial hygienist, toxicologist, or epidemiologist) providing medical or other occupational health services to exposed employee(s) if:

(i) the request is in writing;

(ii) The request describes with reasonable detail one or more of the following occupational health needs for the information:

(A) To assess the hazards of the chemicals to which employees will be exposed;

(B) To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels.

(C) To conduct pre-assignment or periodic medical surveillance of exposed employees;

(D) To provide medical treatment to exposed employees;

(E) To select or assess appropriate personal protective equipment for exposed employees;

(F) To design or assess engineering controls or other protective measures for exposed employees; and,

(G) To conduct studies to determine the health effects of exposure.

(iii) The request explains in detail why the disclosure of the specific chemical identity is essential and that, in lieu thereof, the disclosure of the following information would not enable the health professional to provide the occupational health services described in paragraph (ii) of this section:

(A) The properties and effects of the chemical;

(B) Measures for controlling workers' exposure to the chemical;

(C) Methods of monitoring and analyzing worker exposure to the chemical; and,

(D) Methods of diagnosing and treating harmful exposures to the chemical;

(iv) The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information, and

(v) The health professional, and the employer or contractor of the health professional's services (i.e., downstream employer, labor organization, or individual employer), agree in a written confidentiality agreement that the health professional will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (i)(6) of this section, except as authorized by the terms of the agreement or by the chemical manufacturer, importer, or employer.

(4) The confidentiality agreement authorized by paragraph (i)(3)(iv) of this section:

(i) May restrict the use of the information to the health purposes indicated in the written statement of need;

(ii) May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and,

(iii) May not include requirements for the posting of a penalty bond.

(5) Nothing in this standard is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.

(6) If the health professional receiving the trade secret information decides that there is a need to disclose it to OSHA, the chemical manufacturer, importer, or employer who provided the information shall be informed by the health professional prior to, or at the same time as, such disclosure.

(7) If the chemical manufacturer, importer, or employer denies a written request for disclosure of a specific chemical identity, the denial must:

(i) Be provided to the health professional within thirty days of the request;

(ii) Be in writing;

(iii) Include evidence to support the claim that the specific chemical identity is a trade secret;

(iv) State the specific reasons why the request is being denied; and,

(v) Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity.

(8) The health professional whose request for information is denied under paragraph (i)(3) of this section may refer the request and the written denial of the request to OSHA for consideration.

(9) When a health professional refers the denial to OSHA under paragraph (i)(8) of this section, OSHA shall consider the evidence to determine if

(i) The chemical manufacturer, importer, or employer has supported the claim that the specific chemical identity is a trade secret,

(ii) The health professional has supported the claim that there is a medical or occupational health need for the information; and,

(iii) The health professional has demonstrated adequate means to protect the confidentiality.

(10) (i) If OSHA determines that the specific chemical identity requested under paragraph (i)(3) of this section is not a *bona fide* trade secret, or that it is a trade secret but the requesting health professional has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown adequate means to protect the confidentiality of the information, the chemical manufacturer, importer, or employer will be subject to citation by OSHA.

(ii) If a chemical manufacturer, importer, or employer demonstrates to OSHA that the execution of a confidentiality agreement would not provide sufficient protection against the potential harm from the unauthorized disclosure of a trade secret specific chemical identity, the Assistant Secretary may issue such orders or impose such additional limitations or conditions upon the disclosure of the requested chemical information as may be appropriate to assure that the occupational health services are provided without an undue risk of harm to the chemical manufacturer, importer, or employer.

(11) If, following the issuance of a citation and any protective orders, the chemical manufacturer, importer, or employer continues to withhold the information, the matter is referrable to the Occupational Safety and Health Review Commission for enforcement of the citation. In accordance with Commission rules, the Administrative Law Judge may review the citation and supporting documentation *in camera* or issue appropriate protective orders.

(12) Notwithstanding the existence of a trade secret claim, a chemical manufacturer, importer, or employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the chemical manufacturer, importer, or employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade

secret status can be made and the necessary protections can be implemented.

(13) Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process or percentage of mixture information which is trade secret.

(j) *Effective dates.* Employers shall be in compliance with this section within the following time periods.

(1) Chemical manufacturers and importers shall label containers of hazardous chemicals leaving their workplaces, and provide material safety data sheets with initial shipments by November 25, 1985.

(2) Distributors shall be in compliance with all provisions of this section applicable to them by November 25, 1985.

(3) Employers shall be in compliance with all provisions of this section by May 25, 1986, including initial training for all current employees.

Appeodix A to § 1910.1200—Health Hazard Definitions (Mandatory)

Although safety hazards related to the physical characteristics of a chemical can be objectively defined in terms of testing requirements (e.g. flammability), health hazard definitions are less precise and more subjective. Health hazards may cause measurable changes in the body—such as decreased pulmonary function. These changes are generally indicated by the occurrence of signs and symptoms in the exposed employees—such as shortness of breath, a non-measurable, subjective feeling. Employees exposed to such hazards must be apprised of both the change in body function and the signs and symptoms that may occur to signal that change.

The determination of occupational health hazards is complicated by the fact that many of the effects or signs and symptoms occur commonly in non-occupationally exposed populations, so that effects of exposure are difficult to separate from normally occurring illnesses. Occasionally, a substance causes an effect that is rarely seen in the population at large, such as angiosarcomas caused by vinyl chloride exposure, thus making it easier to ascertain that the occupational exposure was the primary causative factor. More often, however, the effects are common, such as lung cancer. The situation is further complicated by the fact that most chemicals have not been adequately tested to determine their health hazard potential, and data do not exist to substantiate these effects.

There have been many attempts to categorize effects and to define them in various ways. Generally, the terms "acute" and "chronic" are used to delineate between effects on the basis of severity or duration. "Acute" effects usually occur rapidly as a result of short-term exposures, and are of short duration. "Chronic" effects generally occur as a result of long-term exposure, and are of long duration.

The acute effects referred to most frequently are those defined by the American National Standards Institute (ANSI) standard for Precautionary Labeling of Hazardous Industrial Chemicals (Z129.1–1982)—irritation, corrosivity, sensitization and lethal dose. Although these are important health effects, they do not adequately cover the considerable range of acute effects which may occur as a result of occupational exposure, such as, for example, narcosis.

Similarly, the term chronic effect is often used to cover only carcinogenicity, teratogenicity, and mutagenicity. These effects are obvious a concern in the workplace, but again, do not adequately cover the area of chronic effects, excluding, for example, blood dyscrasias (such as anemia), chronic bronchitis and liver atrophy.

The goal of defining precisely, in measurable terms, every possible health effect that may occur in the workplace as a result of chemical exposures cannot realistically be accomplished. This does not negate the need for employees to be informed of such effects and protected from them.

Appendix B, which is also mandatory, outlines the principles and procedures of hazard assessment.

For purposes of this section, any chemicals which meet any of the following definitions, as determined by the criteria set forth in Appendix B are health hazards:

1. *Carcinogen:* A chemical is considered to be a carcinogen if:

(a) It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or

(b) It is listed as a carcinogen or potential carcinogen in the *Annual Report on Carcinogens* published by the National Toxicology Program (NTP) (latest edition); or,

(c) It is regulated by OSHA as a carcinogen.

2. *Corrosive:* A chemical that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact. For example, a chemical is considered to be corrosive if, when tested on the intact skin of albino rabbits by the method described by the U.S. Department of Transportation in Appendix A to 49 CFR Part 173, it destroys or changes irreversibly the structure of the tissue at the site of contact following an exposure period of four hours. This term shall not refer to action on inanimate surfaces.

3. *Highly toxic:* A chemical falling within any of the following categories:

(a) A chemical that has a median lethal dose (LD_{50}) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

(b) A chemical that has a median lethal dose (LD_{50}) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

(c) A chemical that has a median lethal concentration (LC_{50}) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

4. *Irritant:* A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for four hours exposure or by other appropriate techniques, it results in an empirical score of five or more. A chemical is an eye irritant if so determined under the procedure listed in 16 CFR 1500.42 or other appropriate techniques.

5. *Sensitizer:* A chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical.

6. *Toxic.* A chemical falling within any of the following categories:

(a) A chemical that has a median lethal dose (LD_{50}) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.

(b) A chemical that has a median lethal dose (LD_{50}) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between two and three kilograms each.

(c) A chemical that has a median lethal concentration (LC_{50}) in air of

more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than two milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour (or less if death occurs within one hour) to albino rats weighing between 200 and 300 grams each.

7. *Target organ effects.* The following is a target organ categorization of effects which may occur, including examples of signs and symptoms and chemicals which have been found to cause such effects. These examples are presented to illustrate the range and diversity of effects and hazards found in the workplace, and the broad scope employers must consider in this area, but are not intended to be all-inclusive.

a. Hepatotoxins	Chemicals which produce liver damage
Signs and Symptoms	Jaundice, liver enlargement
Chemicals	Carbon tetrachloride, nitrosamines
b. Nephrotoxins	Chemicals which produce kidney damage
Signs and Symptoms	Edema, proteinuria
Chemicals	Halogenated hydrocarbons, uranium
c. Neurotoxins	Chemicals which produce their primary toxic effects on the nervous system
Signs and Symptoms	Narcosis, behavioral changes, decrease in motor functions
Chemicals	Mercury, carbon disulfide
d. Agents which act on the blood or hematopoietic system	Decrease hemoglobin function, deprive the body tissues of oxygen
Signs and Symptoms	Cyanosis, loss of consciousness
Chemicals	Carbon monoxide, cyanides
e. Agents which damage the lung	Chemicals which irritate or damage the pulmonary tissue
Signs and Symptoms	Cough, tightness in chest, shortness of breath
Chemicals	Silica, asbestos
f. Reproductive toxins	Chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis)
Signs and Symptoms	Birth defects, sterility
Chemicals	Lead, DBCP
g. Cutaneous hazards	Chemical which affect the dermal layer of the body
Signs and Symptoms	Defatting of the skin, rashes, irritation
Chemicals	Ketones, chlorinated compounds
h. Eye hazards	Chemicals which affect the eye or visual capacity
Signs and Symptoms	Conjunctivitis, corneal damage
Chemicals	Organic solvents, acids

Appendix B to § 1900.1200—Hazard Determination (Mandatory)

The quality of a hazard communication program is largely dependent upon the adequacy and accuracy of the hazard determination. The hazard determination requirement of this standard is performance-oriented. Chemical manufacturers, importers, and employers evaluating chemicals are not required to follow any specific methods for determining hazards, but they must be able to demonstrate that they have adequately ascertained the hazards of the chemicals produced or imported in accordance with the criteria set forth in this Appendix.

Hazard evaluation is a process which relies heavily on the professional judgment of the evaluator, particularly in the area of chronic hazards. The performance-orientation of the hazard determination does diminish the duty of the chemical manufacturer, importer or employer to conduct a thorough evaluation, examining all relevant data and producing a scientifically defensible evaluation. For purposes of this standard, the following criteria shall be used in making hazard determinations that meet the requirements of this standard.

1. *Carcinogenicity:* As described in paragraph (d)(4) and Appendix A of this section, a determination by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA that a chemical is a carcinogen or potential carcinogen will be considered conclusive evidence for purposes of this section.

2. *Human data.* Where available, epidemiological studies and case reports of adverse health effects shall be considered in the evaluation.

3. *Animal data.* Human evidence of health effects in exposed populations is generally not available for the majority of chemicals produced or used in the workplace. Therefore, the available results of toxicological testing in animal populations shall be used to predict the health effects that may be experienced by exposed workers. In particular, the definitions of certain acute hazards refer to specific animal testing results (see Appendix A).

4. *Adequacy and reporting of data:* The results of any studies which are designed and conducted according to established scientific principles, and which report statistically significant conclusions regarding the health effects of a chemical, shall be a sufficient basis for a hazard determination and reported on any material safety data sheet. The chemical manufacturer, importer, or employer may also report the results of other scientifically valid studies which tend to refute the findings of hazard.

Appendix C to § 1900.1200—Information Sources (Advisory)

The following is a list of available data sources which the chemical manufacturer, importer, or employer may wish to consult to evaluate the hazards of chemicals they produce or import.

— Any information in their own company files such as toxicity testing results or illness experience of company employees.

— Any information obtained from the supplier of the chemical, such as material safety data sheets or product safety bulletins.

— Any pertinent information obtained from the following source list (latest editions should be used):

Condensed Chemical Dictionary
Van Nostrand Reinhold Co., 135 West 50th Street, New York, NY 10020

The Merck Index: An Encyclopedia of Chemicals and Drugs
Merck and Company, Inc., 126 E. Lincoln Avenue, Rahway, NJ 07065

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man
Geneva: World Health Organization, International Agency for Research on Cancer, 1972–1977. (Multivolume work)
49 Sheridan Street, Albany, New York

Industrial Hygiene and Toxicology, by F. A. Patty
John Wiley & Sons, Inc., New York, NY (Five volumes)

Clinical Toxicology of Commercial Products
Gleason, Gosselin and Hodge

Casarett and Doull's Toxicology: The Basic Science of Poisons
Doull, Klaassen, and Amdur, Macmillan Publishing Co., Inc., New York, NY

Industrial Toxicology, by Alice Hamilton and Harriet L. Hardy
Publishing Sciences Group, Inc., Acton, MA

Toxicology of the Eye, by W. Morton Grant
Charles C. Thomas, 301–327 East Lawrence Avenue, Springfield, IL

Recognition of Health Hazards in Industry
William A. Burgess, John Wiley and Sons, 605 Third Avenue, New York, NY 10158

Chemical Hazards of the Workplace
Nick H. Proctor and James P. Hughes, J. P. Lipincott Company, 6 Winchester Terrace, New York, NY 10022

Handbook of Chemistry and Physics
Chemical Rubber Company, 18901 Cranwood Parkway, Cleveland, OH 44128

Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom Environment with Intended Changes
American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Bldg. D–5, Cincinnati, OH 45211

Note.—The following documents are on sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Occupational Health Guidelines
NIOSH/OSHA (NIOSH Pub No 81-123)
NIOSH/OSHA Pocket Guide to Chemical Hazards
NIOSH Pub. No. 78-210
Registry of Toxic Effects of Chemical Substances
U S Department of Health and Human Services, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health (NIOSH Pub. No. 80-102)
The Industrial Environment—Its Evaluation and Control
U S Department of Health and Human Services, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health (NIOSH Pub. No. 74-117)
Miscellaneous Documents—National Institute for Occupational Safety and Health
1 Criteria for a recommended standard . . . Occupational Exposure to "——"
2. Special Hazard Reviews
3 Occupational Hazard Assessment
4 Current Intelligence Bulletins

Bibliographic Data BAses

Service Provider and *File Name*

Bibliographic Retrieval Services (BRS), Corporation Park, Bldg 702, Scotia, New York 12302
AGRICOLA
BIOSIS PREVIEWS
CA CONDENSATES
CA SEARCH
DRUG INFORMATION
MEDLARS
MEDOC
NTIS
POLLUTION ABSTRACTS
SCIENCE CITATION INDEX
SSIE

Lockheed—DIALOG, Lockheed Missiles & Space Company, Inc., P O Box 44481, San Francisco, CA 94144
AGRICOLA
BIOSIS PREV 1972-PRESENT
BIOSIS PREV. 1969-71
CA CONDENSATES 1970-71
CA SEARCH 1972-76
CA SEARCH 1977-PRESENT
CHEMNAME
CONFERENCE PAPERS INDEX
FOOD SCIENCE & TECH. ABSTR.
FOODS ADLIBRA
INTL. PHARMACEUTICAL ABSTR.
NTIS
POLLUTION ABSTRACTS
SCISEARCH 1978-PRESENT
SCISEARCH 1974-77
SSIE CURRENT RESEARCH

SDC—ORBIT, SDC Search Service, Department No 2230, Pasadena, CA 91051
AGRICOLA
BIOCODES
BIOSIS/BIO6973
CAS6771/CAS7276
CAS77
CHEMDEX
CONFERENCE
ENVIROLINE
LABORDOC
NTIS
POLLUTION
SSIE

Chemical Information System (CIS), Chemica Information Systems Inc , 7215 Yorke Road, Baltimore, MD 21212
Structure & Nomeclature Search System
Acute Toxicity (RTECS)
Clinical Toxicology of Commercial Products
Oil and Hazardous Materials Technical Assistance Data System

National Library of Medicine, Department of Health and Human Services Public Health Service, National Institutes of Health, Bethesda, MD 20209
Toxicology Data Bank (TDB)
MEDLIN
TOXLINE
CANCERLIT
RTECS

[FR Doc 83-31527 Filed 11-22-83 8 45 am]
BILLING CODE 4510-26-M

APPENDIX E

North Carolina Department of
Crime Control & Public Safety
512 N. Salisbury Street P. O. Box 27687 Raleigh 27611-7687 (919) 733-2126

James B. Hunt, Jr., Governor Heman R. Clark, Secretary

November 7, 1984

TO THE MEMBERS OF THE LEGISLATIVE RESEARCH COMMISSION STUDY COMMITTEE ON HAZARDOUS SUBSTANCES LABELLING AND IDENTIFICATION:

As requested in your September 21, 1984 memorandum, the Department of Crime Control and Public Safety hereby submits a study regarding the needs and requirements of emergency personnel concerning hazardous chemical substances.

Respectfully submitted,

Heman R. Clark, Secretary
Department of Crime Control
and Public Safety

Report to the

Legislative Research Commission
Study Committee
on
Hazardous Substances
Labeling & Identification

NEEDS & REQUIREMENTS OF EMERGENCY PERSONNEL

PREPARED BY
N.C. DEPT. OF CRIME CONTROL & PUBLIC SAFETY
DIV. OF EMERGENCY MANAGEMENT

BACKGROUND

On September 21, 1984, the Legislative Research Commission Study Committee on Hazardous Substances Labelling and Identification requested the Department of Crime Control and Public Safety to "1. Study the needs and requirements of emergency personnel concerning hazardous chemical substances in and from the workplaces of employers; and 2. Report your findings and proposals to this Committee no later than Novoember 15, 1984." The responsibility for conducting this study was assigned to the Division of Emergency Management. A meeting was held November 1, 1984, to which representatives of the various emergency service organizations were invited. The recommendations and discussions contained in this document are a result of that meeting and reflect the concurrence of the participants.

RECOMMENDATIONS

1. That the National Fire Protection Association Marking Code 704 be adopted statewide.

2. That the Material Data Safety Sheets required by the U. S. Department of Labor Occupational Safety and Health Administration (29 CFR Part 1910) be made available by industry upon request of responding emergency service units and that a computerized central repository of these Material Safety Data Sheets be established within State government.

3. That users of hazardous chemical substances be required to develop emergency plans and coordinate these plans with the appropriate emergency response agencies.

4. That the State of North Carolina develop a standardized hazardous material training course and that this course be made available to all emergency service personnel.

DISCUSSION

Without exception, all the emergency services represented expressed a need to have advance knowledge of any hazardous substances stored in a facility to which they may be required to respond. The best way to gather this information is by personal contact of the emergency services with the user. Plans and procedures based on the hazardous that these substances pose need to be developed and buildings or sites containing these hazardous substances need to be marked. This ultimate solution involves a great deal of personnel time--time that many emergency service organizations do not have available. The NFPA Code 704 Marking System would provide a minimum level of knowledge to all responding units. The Code in itself is not perfect, but does provide a basis for which emergency decisions can be made.

In order to develop adequate plans and procedures, there must be a free and open exchange of information. The information contained on the Material Safety Data Sheets would in many instances be invaluable to the emergency services in developing their plans. OSHA regulations do not required that users share this information with emergency service personnel. The State needs to address this issue in developing its regulations.

Here again, the wide range of resources available to and the sophistication of emergency service organizations must be recognized. Some of the larger departments will, no doubt,

develop a system in which this information is made available to the responders. Some of the larger cities already are beginning to computerize this data. The smaller organizations do not have resources or time available to allow for such an internal system; therefore, it is essential that a central repository for these Material Safety Data Sheets be established at the State level. This central repository must be accessible on a 24 hours a day, 7 days a week basis. The sheer number of Data Sheets required under OSHA regulations will mandate that for this central repository to be readily accessible and to be effective, it must be computerized. It was the concensus of this group that unless adequate funding was provided to allow for this computerization, the establishment of this repository would be futile.

Currently under North Carolina General Statutes generators of hazardous wastes are required to develop and submit emergency plans. There is no such requirement for users of hazardous substances. It was the concensus of this committee that these plans should be required, and that the State of North Carolina should provide some assistance in the develoment of these plans by issuing either prototype plans or guidelines. The effectiveness of these plans will largely be dependent upon the degree of involvement of the local responding units. By requiring plans and the sharing of the information contained on the Data Sheets, the State is encouraging the active involvement of emergency response organizations. Those entities opting for this involvement should find their job made easier by the State's requirements. At the same time, those organizations which either choose not to or cannot become actively involved will have this

information available to them at the time of the emergency through the repository.

Each emergency service has different responsibilities and levels of expertise required in their response to accidents involving hazardous chemical substances; therefore, each will require specialized training. However, there remains a need for all organizations to have identical core knowledge, to understand each agency's responsibilities, to realize the necessary interplay, and to use the same terminology. There are many organizations, both within and from without North Carolina, providing some training in hazardous chemicals. The differences in this training, both technically and philosophically, can cause confusion and may even prove to be dangerous. The State should develop this standardized core training. It could be disseminated to emergency service personnel through the various training avenues that now exist, thus helping to eliminate this confusion.

During the discussion which resulted in these four recommendations, some of the emergency service personnel expressed a concern regarding the additional expenses that their agencies incur in planning, training, and equipping to respond to accidents involving hazardous substances. A suggestion was made that some type of permit system be established for users of hazardous substances. The fees from these permits could then be used to help offset these additional expenses.

In summary, the emergency services represented seemed to be very unified in their concerns, appreciative of the opportunity to assist in making these recommendations, and hopeful that these

develop a system in which this information is made available to the responders. Some of the larger cities already are beginning to computerize this data. The smaller organizations do not have resources or time available to allow for such an internal system; therefore, it is essential that a central repository for these Material Safety Data Sheets be established at the State level. This central repository must be accessible on a 24 hours a day, 7 days a week basis. The sheer number of Data Sheets required under OSHA regulations will mandate that for this central repository to be readily accessible and to be effective, it must be computerized. It was the concensus of this group that unless adequate funding was provided to allow for this computerization, the establishment of this repository would be futile.

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In summary, the emergency services represented seemed to be very unified in their concerns, appreciative of the opportunity to assist in making these recommendations, and hopeful that these

recommendations could be enacted. Each contributor also realizes that the recommendations contained herein are not perfect. They will, no doubt, need further definition prior to any rule making and will continue to need modification as they are implemented. However, we do feel that these recommendations will be a very important first step in providing for the increased safety of emergency service personnel.

STATE OF NORTH CAROLINA

LEGISLATIVE RESEARCH COMMISSION

STATE LEGISLATIVE BUILDING

RALEIGH 27611

21 September 1984

MEMORANDUM

TO: Heman R. Clark
Secretary, Department of Crime Control
and Public Safety

FROM: Legislative Research Commission Study Committee
Hazardous Substances Labelling and Identification

RE: Assistance to Committee

The Legislative Research Commission Study Committee on Hazardous Substances Labelling and Identification met on September 21, 1984, and voted to request that you direct the appropriate divisions of your department to do the following:

1. Study the needs and requirements of emergency personnel concerning hazardous chemical substances in and from the workplaces of employers; and

2. Report your findings and proposals to this Committee no later than November 15, 1984.

We sincerely appreciate your cooperation in this matter.

Senator Ollie Harris
Co-Chairman

Representative Harry Payne
Co-Chairman

Attachment 1

North Carolina Department of
Crime Control & Public Safety
116 West Jones Street Raleigh 27611

James B. Hunt, Jr., Governor
Herman R. Clark, Secretary

Division of Emergency Management
(919) 733-3867

October 17, 1984

Mr. Ned Perry, Chief
Cary Fire Department
100 N. Academy Street
Cary, NC 27511

Dear Chief Perry:

The Legislative Research Commission Study Committee on Hazardous Substances, Labelling, and Identification has requested the Department of Crime Control and Public Safefty to "study the needs and requirements of emergency personnel concerning hazardous chemical substances in and from the workplaces of employers."

The Division of Emergency Management has been tasked to accomplish this action and provide the committee with its findings and proposals. To assist the Division in its task and to provide input from the many emergency service organizations within the State, representatives are being asked to provide information and/or comments for the report which is to be submitted to the committee by November 15. Specific items that need to be addressed are:

Is the NFPA Code 704 Marking System adequate and sufficient and should it be adopted on a statewide basis?

Does there need to be a central repository of Material Safety Data Sheets that would be accessible to emergency workers on a 24-hours a day, 7-days a week basis, and can this best be handled at a local or state level?

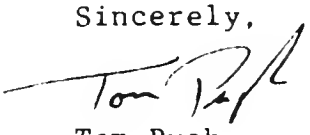
Should users of hazardous materials be required to develop emergency plans and to coordinate these with the appropriate responding agency?

Attachment 2

To insure that the recommendations made to the Study Committee reflect the actual needs of emergency responders, we need your assistance. A meeting has been scheduled in the Board Room, Independent Insurance Agents Building, 1506 Hillsborough Street, Raleigh, on November 1, 1984, at 10:00 a.m., for the purpose of developing a coordinated response for the committee. It is proposed that an oral presentation, limited to 15 minutes, on the subject matter be made by each representative followed by general comments, discussion, and a working session. Limited written presentations will be accepted for enclosure in the report. Copies of the report to be submitted to the committee will be furnished each agency which attends the meeting or submits comments.

Participants will be eligible for travel and per diem reimbursement in accordance with State policies.

Sincerely,



Tom Pugh

kl

Enclosures

cc: Heman R. Clark, Secretary
Crime Control and Public Safety

PROPOSED AGENDA

November 1, 1984
10:00 a.m.

10:00 a.m.	Opening Comments	Tom Pugh
	Overview	Jon Spurling
	Presentations from Attendees	
12:00 Noon	Lunch (on your own)	
1:30 p.m.	Workshop to Prepare Comments	

INVITEES

Mr. Ken Farmer
Executive Director
State Fire Commission
Raleigh, North Carolina

Mr. Bob Bailey
Emergency Medical Services
1330 St. Mary's Street
Raleigh, North Carolina

Mr. Gordon Joyner
N.C. State Assn. of Rescue Squads
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Goldsboro, NC 27530-0041

Mr. Luther L. Fincher, Director
Charlotte/Mecklenburg EM Office
851 S. Independence Blvd.
Charlotte, NC 28202

Ms. Paula Peace, President
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High Point, NC 27261

Lt. William S. Ethridge
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3318 Old Garner Road
Raleigh, North Carolina

Mr. Howard Kramer
N.C. Sheriff's Association
P. O. Box 67
Raleigh, NC 27602

Mr. K. K. Roberson, President
N.C. Law Enforcement Assn.
P. O. Box 25428
Raleigh, NC 27611

Mr. S. T. Eudy
Hazardous Material Response Team
Raleigh Fire Department Training Center
105 W. Hoke Street
Raleigh, North Carolina

Mr. Dave Cauble, President
N.C. Fire Marshal's Association
124 W. Elm Street
Graham, NC 27253

Mr. Ned Perry, Chief
Cary Fire Department
100 N. Academy Street
Cary, NC 27511

Mr. Russell Capps, Coordinator
Wake Co. Emergency Management Agenc
P. O. Box 550
Raleigh, NC 27602

CONTRIBUTORS

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State Fire Commission

Ms. Paula Peace, President
N. C. Emergency Management Association

Lt. William S. Ethridge
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Hazardous Material Response Team
Raleigh Fire Department

*Mr. Ned Perry, Chief
Cary Fire Department

Mr. Russell Capps, Coordinator
Wake County Emergency Management Agency

*Mr. Bob Bailey
Emergency Medical Services
N. C. Department of Human Resources

Mr. Charles Jeffress, Assistant Commissioner
N. C. Department of Labor

Mr. Dan Spurling, Planning Officer
N. C. Division of Emergency Management

Mr. Tom Pugh, Director
N. C. Division of Emergency Management

*Submitted written comments which are included in this package.

STATE OF NORTH CAROLINA
DEPARTMENT OF HUMAN RESOURCES
Division of Facility Services
P. O. BOX 12200 RALEIGH 27605-2200

JAMES B. HUNT, JR
GOVERNOR

SARAH T. MORROW, M.D., M.P.H.
SECRETARY

I. O. WILKERSON, JR.
DIRECTOR

TELEPHONE
(919) 733-2285

October 24, 1984

Mr. Tom Pugh, Director
Division of Emergency Management
116 West Jones Street
Raleigh, North Carolina 27611

Dear Tom:

Thank you for your letter of October 17, 1984 inviting me to meet with you to discuss the NFPA Code 704 Marking System for hazardous materials. Unfortunately, I will be out of state on November 1st and will be unable to attend the meeting.

I feel that the NFPA 704 standards for identification of fire hazards of materials is something that needs to be discussed. Since this standard was designed primarily with fire fighting personnel in mind, they should have the major input into whether or not it is accepted as a standard for North Carolina. However, Emergency Medical Services (EMS) personnel are exposed to hazardous situations and some standard needs to be agreed to and disseminated to the EMS as well as fire service organizations throughout the State. Whether this standard should be the NFPA Code 704 Marking System or some other standard is open to debate.

There are pros and cons to your statement regarding a central repository of Material Safety Data Sheets accessible to emergency workers on a 24-hours a day, 7-days a week basis. A single statewide toll free number available to emergency workers 7-days a week could be worthwhile by having only one number to remember and data sheets in one location. Unfortunately, the cost of establishing such a system and of maintaining the current status of the Material Safety Data Sheets may scuttle this alternative. On the other hand, having each of the 100 local counties carry out this role seems an unrealistic duplicative approach, particularly when you take into account mutual aid systems.

My final comment refers to your question regarding the users of hazardous materials being required to develop emergency plans and to coordinate these plans with the appropriate responding agencies. While I personally think this is appropriate and should already be taking place between users and local fire officials, I am not sure how this can be mandated. However, if it is, then EMS response units that have occasion to respond to factories, etc., should also be incorporated into these emergency plans and included in updates, drills, etc.

If there are further discussions regarding this issue after the November meeting, I would appreciate the opportunity to participate.

Thank you for contacting me. If I can answer any questions or be of any assistance, please let me know.

Sincerely,

Bob W. Bailey, Deputy Chief
Office of Emergency Medical Services

BWB:vmh

NFPA 704M SYSTEM

1. Not required by Federal Ligislation
2. Identifies Hazards of,
   a. Health - Blue
   b. Flammability - Red
   c. Chemical Reactivity - Yellow
3. By Five Members 0-4
4. Severity of Hazard increases from 0-4
   a. Symbol 0 refers to absence of Hazard
5. Three symbols employed and occupy bottom Quadrant
   a. Radiation Hazard Symbol
   b. Letter W against application of water
   c. Letters OXY identify an oxidant
6. This system is adequate if employed with detailed preplanning and with material safety data sheets. Fire inspections need to be very strict.
7. Disadvantage - It places emphasis on hazards rather than emergency action.
8. It will help first in Emergency Responders to recognize the fact that there are hazards in the structure.

MATERIAL SAFETY DATA SHEETS

1. At present there are two computerized systems
   a. HACS - Hazard Assessment Computer System - National Response Center at Coast Guard Headquarters in Washington, D. C. - 900 Chemicals.
   b. OHM-TADS - Oil and Hazardous Materials Technical Assistance Data System - 1,000 Chemicals.
2. The above systems give emergency actions to be taken but do not include an inventory of individual companies.
3. A central repository of individual company inventories would greatly benefit Emergency Responders.
   a. Volunteer Departments do very little preplanning or inspecting and do not have inventories or files on companies that have Haz-Mats on hand.
   b. When a Haz-Mat Unit is requested the Material Safety Data Sheets could be requested by radio.
   c. The information should be stored in a print out type computer data bank.
   d. Due to the small number of HMRT's in the State, the Central Repository should be maintained at the State level.
   e. I would suggest that all the information be stored on an OSHA Form 20 for simplicity in reading by all First Responders.
   f. These Form 20's are available from OSHA, free of charge and can be copied.
   g. These forms are required to be preserved and available for inspection for a period of three (3) months from the data of the completion of a job by each company.
      a. Required by CFR 29 Section 1915.57c
      b. Required by CFR 29 Section 1916.57c
      c. Required by CFR 29 Section 1917.57c

EMERGENCY PLANS BY USERS OF HAZ-MATS.

1. Hazardous Waste Management Plan is required by RCRA - The Resource Conservation and Recovery Act of 1976, Public Law 94-580.

2. Under CFR 40 265.51, each owner or operator must have a contingency plan for his facility.

3. Under CFR 40 265.53 (b) a copy of the contingency plan must be submitted to all local Police Departments, Fire Departments, Hospitals, and State and Local Emergency Response Teams that may be called upon to provide Emergency Service.

4. Organization for Incipient Stage Fire Fighting is required by OSHA 29 CFR, Part 1910, Section 1910.156.

5. Users of Haz-Mats. should be required to develop emergency plans and coordinate these with the appropriate responding agency.
   a. The first few minutes of Emergency Action have a great bearing on the outcome of any incident.
   b. Local Rescue, Fire and Police Departments will greatly benefit by preplanning and inspecting.
   c. A general knowledge of the Haz-Mats stored, used or generated could save many lives should an incident occur.
   d. If the Employees are trained in emergency plans they could save the public time, money and lives.
   e. By having an Emergency Plan the Local Fire Departments will know how to help and support a Hazardous Material Response Team from another community.

The fire service has traditionally been the leader in community response to emergencie Although its initial function was to handle only fire-related incidents, there has been a logical expansion of the Fire Department's responsibilities into non-fire related emergenci

Many fire departments are now jumping on the bandwagon of organizing a hazardous materials response team because they feel it is currently the "in" thing to do.

Many fire service administrators do not realize the commitments that are necessary whe the decision is made to establish a response team. In addition to the very obvious needs of having a response vehicle and control equipment (which all must be spark resistant, elth brass or aluminum), consideration must be given to some initial very expensive training and re-training, maintenance and the cost of replenishing expendable items.

No standard or guideline has been developed that defines what is expected of a respon team in terms of minimum training and equipment requirements. The result is a lot of uncoordinated and inadequately funded approaches to controlling hazardous material emergencies. Local government emergency preparedness plans are too frequently inadequate.

In order that communities throughout North Carolina may avoid re-inventing the wheel in regards to developing a hazardous materials team, purchasing equipment, developing training programs and developing operation S.O.P.'s. I believe the state should prepare some model "community hazardous materials emergency plans" for different size communities in North Carolina. These plans could be used as drafted or modified as needed by local governments.

1. These plans would tend to encourage the use of similar, basic procedures and strategie
2. These plans could be the basis for developing some good training through our community colleges.
3. They could make mutual aid responses to hazardous materials incidents more compatible and manageable.
4. They could provide common terminology or language for state, county and municipal emergency employee groups.
5. They can help identify areas of responsibility or if you will, eliminate battles over turf control.
6. Any plan should be as close as possible to those used for day-to-day operations.

I feel that an effective emergency response to incidents involving hazardous materials should involve the "3 C's" --- COMMUNICATION - COOPERATION and COORDINATION.

We could strengthen our COMMUNICATIONS by:

1. Establishing procedures to follow in notifying emergency units.
2. Establishing a proper chain of command.
3. Deciding who declares a state of emergency, if conditions warrant.
4. Planning evacuation;
   - Who gives the order,
   - Who does the evacuation,
   - Who provides the shelter.
5. Determining how to mobilize community resources.
6. Establishing who communicates with the media.
7. Deciding who should report to the proper state and federal agencies.
8. Establishing "who is in charge".

5

Improve interpersonal relations or COOPERATION by:

1. Defining the role of each agency that may become involved.
2. Explaining the need for each to work together if we are to create an effective team.
3. Highlighting the need for discipline.

And strengthen our COORDINATION if we:

1. Identify an on-scene coordinator.

   The on-scene coordinator would direct the activities of all emergency agencies responding to the accident.

   It is very important that ALL agencies agree in advance who will be the on-scene coordinator.

Most experts believe disaster frequency actually will increase during the next decade.

New disaster potentials are emerging as a result of technological developments and greater governmental controls. Where a gasoline spill used to be regarded as a simple washdown, it is now a hazardous materials incident. Same problem .... different response.

There is no such thing as a typical disaster. Depending on such factors as:

. Degree of warning
. Speed of onset
. Duration and scope of impact
. Extent of casualties
. Property damage and
. Disruption of on-going social order,

disasters can range from anywhere from relatively moderate to catastrophic.

Our goal should be to take effective control of factors that are within our control and MANAGE THE RISK. I feel there should be at least four phases in a management program.

PREPAREDNESS:

Those actions which enhance our ability to effectively respond to an emergency situati Examples include:

. Developing and testing emergency preparedness plans; and
. Conducting disaster exercises.

MITIGATION:

Actions which alleviate or diminish the potential effects of an emergency situation. Examples include:

. Building code enforcement;
. Zoning and land use management; and
. Right to know legislation.

RESPONSE:

Actions which provide assistance to the injured, reduce the probability of secondary damage occurring, and speed recovery operations following an emergency. Examples include:

. Search and rescue operations, and
. Evacuation of residents.

RECOVERY:

Actions which are designed to restore the community to pre-emergency conditions. Ther are two phases of recovery:

. Short-term recovery returns vital life support systems to operating standards; and
. Long-term recovery, which may continue for several years, returns the community to pre-disaster conditions or to new improved conditions. Examples include loans, gran and insurance programs, and reconstruction and rehabilitation.

I feel the State of North Carolina should require all users of hazardous materials to y local governments of how much they have in storage, where it is stored, and what d be done if the material is spilled.

I personally believe that users should be primarily responsible economically for aining preparedness for cleaning up hazardous material spills. I am aware that if the , County or Local Government is not in charge of a clean-up of a hazardous material , that we cannot depend on the quality of the clean-up. In summary, I guess what I am g to say is that the State of North Carolina should require keepers and users of any dous material to pay directly to the Local Government where the material is kept, ts of money sufficient to support hazardous material vehicles, equipment and training sary to provide safety to other taxpayers in the locality.

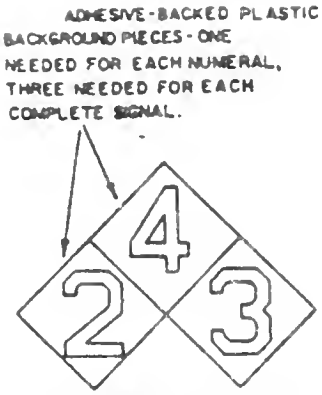

Fig. 1. For Use Where Specified Color Background is Used with Numerals of Contrasting Colors.

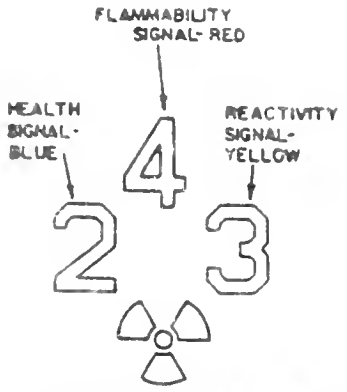

Fig. 2 For Use Where White Background is Necessary.

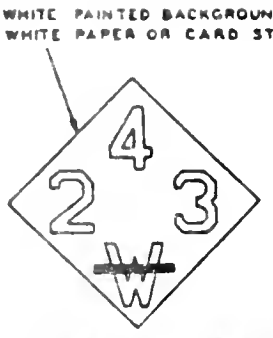

Fig. 3. For Use Where White Background is Used With Painted Numerals, or, For Use When Signal is in the Form of Sign or Placard

ARRANGEMENT AND ORDER OF SIGNALS — OPTIONAL FORM OF APPLICATION

Distance at Which Signals Must be Legible	Minimum Size of Signals Required
50 feet	1"
75 feet	2"
100 feet	3"
200 feet	4"
300 feet	6"

NOTE:
This shows the correct spatial arrangement and order of signals used for identification of materials by hazard

IDENTIFICATION OF MATERIALS BY HAZARD SIGNAL ARRANGEMENT

Identification of Health Hazard Color Code: BLUE		Identification of Flammability Color Code: RED		Identification of Reactivity (Stability) Color Code: YELLOW	
	Type of Possible Injury		Susceptibility of Materials to Burning		Susceptibility to Release of Energy
Signal		Signal		Signal	
4	Materials which on very short exposure could cause death or major residual injury even though prompt medical treatment were given.	4	Materials which will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature, or which are readily dispersed in air and which will burn readily.	4	Materials which in themselves are readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures.
3	Materials which on short exposure could cause serious temporary or residual injury even though prompt medical treatment were given.	3	Liquids and solids that can be ignited under almost all ambient temperature conditions.	3	Materials which in themselves are capable of detonation or explosive reaction but require a strong initiating source or which must be heated under confinement before initiation or which react explosively with water.
2	Materials which on intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical treatment is given.	2	Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.	2	Materials which in themselves are normally unstable and readily undergo violent chemical change but do not detonate. Also materials which may react violently with water or which may form potentially explosive mixtures with water.
1	Materials which on exposure would cause irritation but only minor residual injury even if no treatment is given.	1	Materials that must be preheated before ignition can occur.	1	Materials which in themselves are normally stable, but which can become unstable at elevated temperatures and pressures or which may react with water with some release of energy but not violently.
0	Materials which on exposure under fire conditions would offer no hazard beyond that of ordinary combustible material.	0	Materials that will not burn.	0	Materials which in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water.

Standard System for the Identification of the Fire Hazards of Materials

NFPA 704-1980

Chapter 1. Scope and Application

1-1 This standard applies to facilities for the manufacturing, storage or use of hazardous materials. It is concerned with the health, fire, reactivity and other related hazards created by short term exposure as might be encountered under fire or related emergency conditions. This standard applies to industrial and institutional facilities. It does not apply to transportation or to use by the general public.

1-2 This standard provides a simple system of readily recognizable and easily understood markings, which will give at a glance a general idea of the inherent hazards of any material and the order of severity of these hazards as they relate to fire prevention, exposure and control. Its objectives are to provide an appropriate signal or alert and on-the-spot information to safeguard the lives of both public and private fire fighting personnel during fire emergencies. It will also assist in planning for effective fire fighting operations. This system should also find useful application by design engineers, and plant protection and safety personnel. It is recognized that local conditions will have a bearing in evaluating hazards; therefore, the discussions are kept in general terms.

1-3 This system identifies the hazards of a material in terms of three principal categories, namely, "health," "flammability," and "reactivity (instability)"; and indicates the order of severity numerically by five divisions ranging from "four (4)," indicating a severe hazard, to "zero (0)," indicating no special hazard. This information is presented by a *spatial* system of diagrams *with "health" always being on the left; "flammability" at the top; and, "reactivity (instability)" on the right.* Examples of spatial arrangement are shown on page 15. For the sake of uniformity *and understanding*, the spatial arrangements shown in the examples shall be followed. *Supplementing the spatial arrangement, color backgrounds or numbers are used for the three categories — blue for "health" hazard, red for "flammability," and yellow for "reactivity (instability)".*

1-4 The fourth space in the diagram (see Figure 1) shall be used to indicate unusual reactivity with water. The recommended signal to indicate this unusual reactivity with water and to alert the fire fighting personnel *to the possible hazard of using water* is the letter W with a line through the center (~~W~~). This space also may be used to indicate other additional information such as radioactivity (see Figure 1), proper fire extinguishing agent, or protective equipment required in case of fire or other emergency.

1-5 This system is intended to give basic information to fire fighting and emergency personnel enabling them to decide better whether to evacuate the area or to fight the fire and will guide them in the solution of fire fighting techniques and protective measures.

1-6 While this system is basically simple in application, the hazard evaluation which is required for the precise use of the signals in a specific location shall be performed by experienced, technically competent persons. Their judgment shall be based on factors encompassing a knowledge of the inherent hazards of different materials, including the extent of change in behavior to be anticipated under conditions of exposure to fire or to fire control procedures. For additional information see *Hazardous Chemicals Data*, NFPA No. 49-1975; *Fumigation*, NFPA No. 57-1973; and *Fire Hazard Properties of Flammable Liquids, Gases, Volatile Solids*, NFPA No. 325M-1969

1-7 The system for ranking degrees of hazard is based on relative rather than absolute values. Therefore, it is anticipated that conditions of storage and use may result in different degrees being assigned to the same material by different people of equal competence. Furthermore, the suggestions for criteria in the following chapters are limited. For example, flash point has been selected as the major guide in ranking degrees of flammability for flammable liquids, but there are many other guides that can be used when the degree to be assigned to a specific material is not immediately self-evident. These guides include, but are not limited to: ignition temperature, flammable range, and susceptibility of a container to rupture by an internal combustion explosion or to metal failure while under pressure, because of heat from external fire. In the case of ranking for reactivity, emphasis has been placed on the ease of initiation of energy producing reactions and the amount of energy released. Thus true explosives capable of ready initiation of detonation would be in degree 4; substances requiring high temperatures or confinement or extremely large stimuli, would be in degree 3; etc. Finally, under health hazard, there is consideration not only of the degree of hazard but also of the protective measures which may be taken to minimize the hazards of short term exposure.

1-8 In some situations, such as in a building, room or other localized area, a wide variety of materials may be stored having varying degrees of hazards. In such cases, the identifying symbol shall indicate the most severe degree of hazard in each category except when a high hazard rating would be misleading because of the presence of an insignificant quantity of the material requiring the rating.

Right-to-Know Options

Item: Information for emergency personnel. The laws of some states and local governments require firms that use or store hazardous materials to provide information about these materials to local emergency personnel, such as fire departments, to aid them in protecting their employees and the public in responding to emergencies.

How the federal OSHA and North Carolina hazard communication standards will deal with this issue when they become fully effective, May 25, 1986: No such provision.

How other states and local governments deal with this issue:

Alaska: No such provision.

California: The state statute does not include such a provision. However, about 20 California communities have passed right-to-know ordinances that assure the availability of material safety data sheets (MSDS's) to local emergency personnel.

Connecticut: Employers must provide the local fire marshall information in writing about the presence and location of hazardous materials in their workplaces, including the "hazard class" as specified in 29 CFR 172.101. Notification of the name of the substance is not required. Fire marshals must pass this information on to local firefighters, but neither may release it to any other person.

Illinois: Employers must provide material safety data sheets (MDSD's) to emergency services within 10 days of a written request.

Maine: Employers must provide material safety date sheets (MSDS's) to local fire chiefs on request.

Massachusetts: Every employer must file "upon request with the municipal coordinator for the city or town in which the workplace of the employer is located, a copy of an MSDS for each toxic or hazardous substance listed on the Massachusetts substance list and present in the employer's workplace." A municipal coordinator may give the MSDS to another municipal official in the same town if there is an "imminent threat to public health and safety" and the MSDS is critical to the other officials performance of a duty required by law.

Michigan: No such provisions.

Minnesota: No such provisions.

New Hampshire: Employers must "Send a copy of each material safety data sheet with details of the specific locations of each toxic substance and available extinguishing agents to the local fire department."

New Jersey: Employers are required to complete "environmental surveys" of their workplaces which include information about environmental hazardous substances. Copies of these surveys must be provided county health departments, and local police and fire departments.

New York: No such provision.

Oregon: No such provision.

Rhode Island: Employers must provide to the person responsible for the local fire department a list of work areas where designate substances are present, including the chemical and common names of such substances. This information may be passed on to fire suppression and inspection divisions in the same jurisdiction and to fire department employees or their representatives.

West Virginia: No such provisions.

Wisconsin: No such provisions.

Cincinnati: Employers must provide to the city fire division an MSDS for every toxic or hazardous substance in their workplaces, and the MSDS's must include the chemical name, trade name, common name, CAS number, and any other commonly used name of the substance.

Philadelphia: Employers who store or use more than 500 pounds or 55 gallons of hazardous chemicals (and smaller amounts of especially dangerous substances, as determined by the fire department) must obtain a license from the city. The license application must be accompanied by material safety data sheets (MSDS's) for the hazardous chemicals the employer will use or store. The licensing agency provides copies of the MSDS's to the fire department.

Durham (Proposed ordinance) Businesses using or handling more than 500 pounds or 55 gallons of toxic in hazardous substances must file a "hazardous substance public disclosure form" with the city business license office. This office provides copies of the form to the city public safety department, the local health department, and other public offices designated by the city council. The "hazardous substance public disclosure form" includes a copy of the MSDS for each toxic or hazardous substance used by the employer, as well as the chemical name, any common name, and the CAS number.

Prepared by Mercer Doty, Division of Occupational Safety and Health, N.C. Department of Labor, August, 1984.

RECORD, AND TELL YOU THAT WE REALLY ARE QUITE SERIOUS ABOUT THIS. AND I WOULD HOPE THAT INDUSTRY WOULD TAKE A VERY PROGRESSIVE ATTITUDE TOWARDS THIS KIND OF LEGISLATION BECAUSE IT'S THE KIND OF THING THAT WE FEEL VERY STRONGLY THE PUBLIC IS VERY MUCH ON OUR SIDE AND THAT IF WE HAVE TO, THAT THE LEGISLATURE IS GOING TO BE DEMANDED SOME VERY SERIOUS AND FAR-REACHING LEGISLATION IN THIS AREA. AND WE'RE NOT AFRAID OF TAKING ON THE JOB BLACKMAIL ISSUE IN THE LEGISLATURE OR ELSEWHERE. BUT THANK YOU, COMMISSIONER BROOKS.

COMMISSIONER BROOKS: WE APPRECIATE YOUR BEING HERE. THANK YOU. CHARLES DUNN? ARE THERE OTHERS WHO HAVE SIGNED, OR IF THEY HAVEN'T SPOKEN, WISH TO SPEAK THIS AFTERNOON? COME FORWARD IF YOU WILL.

MR. BALBONI: MY NAME IS HENRY BALBONI AND I'M SPEAKING ON MY OWN BEHALF. I'M A CHEMICAL ENGINEER.

COMMISSIONER BROOKS: CAN I GET YOU TO SPEAK A LITTLE LOUDER?

MR. BALBONI: I'M HENRY BALBONI. OKAY. I'M A CHEMICAL ENGINEER, A PROFESSIONAL REGISTED ENGINEER. AND FOR THE PAST 20 YEARS, MY WORK HAS BEEN TRAINING EMPLOYEES IN CHEMICAL SAFETY AND HEALTH. SOME OF THE

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THINGS THAT I HEARD TODAY--THIS IS MY FIRST TIME AT ONE OF THESE HEARINGS--THERE ARE MANY RULES ALREADY THAT COVER THINGS LIKE EMISSIONS. AND THAT'S PUBLIC KNOWLEDGE. THE INDUSTRY DOES HAVE TO PROVIDE THAT INFORMATION ON AIR AND WATER EMISSIONS. CONCERNING CONFINED SPACES, THE VIDEO FILM WE SAW, THERE ARE RULES ON CONFINED SPACES. YOU DON'T GO INTO A TANK WITHOUT PROTECTIVE BREATHING DEVICES. THAT KIND OF A TANK IS RANKED CLASS ONE BY THE OSHA DEFINITION. THOSE LAWS ARE ALREADY THERE. NEW LAWS OR ADDITIONAL LAWS, I DON'T THINK WOULD CHANGE THAT IF CERTAIN INDUSTRIES DON'T FOLLOW THE LAWS THAT ARE THERE ALREADY.

ONE CONCERN I DO HAVE IS THAT MANY INDUSTRIES ALREADY HAVE THINGS IN PLACE THAT ARE BEYOND AND FAR SUPERIOR TO BOTH THE RIGHT-TO-KNOW REQUIREMENTS AND THIS PROPOSED NORTH CAROLINA 1339 REQUIREMENT WHICH WOULD IN SOME CASES REDUCE THE EFFECTIVENESS OF COVERAGE. AN EXAMPLE IS ON LABELING. THE LABELING IN THAT STANDARD IS THE OLD N.F.P.A. LABEL, WHICH IS PROBABLY 40 YEARS OLD. AND MANY INDUSTRIES GOT RID OF THAT LABEL ABOUT TEN OR 15 YEARS AGO, IT WASN'T GOOD ENOUGH. IT DOESN'T COVER CORROSIVENESS, JUST SKIN AND

EYES. IT'S THE DIAMOND. THE NFPA DIAMOND. IT ONLY COVERS WHAT HAPPENS TO A CHEMICAL IN CASE OF A FIRE. AND THAT'S NOT THE USUAL CONCERN. YOU ARE CONCERNED, REALLY, IN HOW DOES THE EMPLOYEE WORK WITH THE CHEMICAL AT HIS WORK PLACE? HIS BREATHING. IF HE CONTACTS IT ON HIS SKIN OR IN HIS EYES. AND THERE ARE MANY LABELS THAT ARE FAR BETTER THAN THAT, AND IF YOU SURVEY INDUSTRY, YOU'LL FIND OUT THAT MANY OF THEM DO HAVE VERY VASTLY SUPERIOR LABELS AND THE 1339 STANDARD WOULD NOT ALLOW YOU TO USE THOSE LABELS. YOU'D HAVE TO GO BACK TO THE OLD NFPA DIAMOND, WHICH WOULD BE SOME REGRESSION.

CONCERNING THE CHEMICAL NAMES, IN HAVING TRAINED EMPLOYEES FOR ABOUT 20 YEARS IN CHEMICAL SAFETY--FIRST OF ALL, THE FEDERAL STANDARD DOES REQUIRE THAT YOU PUT THE CHEMICAL NAME AND THE COMMON NAME ON THE M.S.D.A. SHEETS. AND FURTHER, IT STATES THAT THE NAME MOST LIKELY RECOGNIZED IS THE ONE YOU SHOULD PUT ON THE LABEL. BUT THAT NAME HAS TO ALSO APPEAR ON THE M.S.D.A. SHEET, AND YOU ALSO HAVE TO USE THAT SAME NAME IN YOUR TRAINING. SO THERE'S CONTINUITY BETWEEN THE LABEL, THE DATA SHEET AND TRAINING. AND THE REASON

IS OBVIOUS: SO THE EMPLOYEE KNOWS IN ALL CASES WHAT YOU'RE CALLING A PARTICULAR MATERIAL.

NOW, IF YOU USE A NAME LIKE GENOSOLVE ON A LABEL, MOST PEOPLE RECOGNIZE THINGS LIKE FREEON. GENOSOLVE IS FREEON. IF YOU USE THE NAME 1-1-2-TRICHLORO, AND 1-1-2-TRICHLOROETHANE, THAT'S GENOSOLVE. BUT YOU TRY TO TEACH EMPLOYEES IN THOSE KINDS OF TERMS--THAT ENCAPSULATING MATERIAL THAT WE SAY, THAT'S PROBABLY AN EPOXY AND PEOPLE KNOW WHAT EPOXIES ARE. YOU CAN TRAIN ON EPOXIES, YOU CAN TRAIN ON THE MEAN CONTACT PROBLEM, THE SENSITIZATION THAT THAT CAUSES. YOU CAN TRAIN ON THE EPOXIDE ITSELF AND THE CONCERNS WITH THAT MATERIAL. BUT IF YOU USE THE STRICT CHEMICAL NAME YOU'RE GOING TO LOSE EMPLOYEES. THEY JUST CAN'T FOLLOW THAT. AND MOST CHEMICALS--RED DYE NUMBER TWO. YOU CAN FAMILIARIZE YOURSELF WITH THAT. YOU'VE PROBABLY HEARD ABOUT IT. YOU KNOW SOME OF THE CONCERNS OF DIFFERENT DYES. BUT TRY TO DESCRIBE THE CHEMICAL NAME FOR THAT MATERIAL. YOU JUST CAN'T DO IT. YOU CAN PUT THE CHEMICAL NAME ON THE DATA SHEET AND THAT'S WHERE IT BELONGS. BUT I THINK THAT YOU SHOULD USE--AND NOT REALLY STRICT, BUT PREVENT THE COMMONLY ACCEPTED NAME

OR LABEL. OR YOU REALLY WILL CAUSE A DISASTER IN TRAINING. AND I GIVE PROBABLY TWO TRAINING CLASSES A WEEK IN CHEMICAL SAFETY. AND IF I HAD TO USE OR STICK TO CHEMICAL NAMES, IT WOULD JUST--YOU JUST COULD NOT TRAIN EMPLOYEES VERY WELL.

WELL, I GUESS MY SUMMARY IS, I'M SATISFIED WITH THE FEDERAL STANDARD BECAUSE, YOU KNOW, WE HAVE THINGS IN PLACE THAT GO FAR BEYOND THAT ALREADY. MEETING THAT DOESN'T REALLY PRESENT ANY KIND OF A PROBLEM. I DO HAVE THE CONCERNS WITH STANDARDS THAT ARE SPECIFIC, ORIENTED TYPE STANDARDS RATHER THAN PERFORMANCE STANDARDS. AND STANDARDS THAT SPECIFY THAT YOU SHALL DO THIS AND PUT THIS IN PLACE, OR THIS AS A SPECIFIC TYPE THING. WHICH MAY SEEM GOOD TO SOME PEOPLE, WHO ARE LOOKING AT INDUSTRIES TO HAVE NOTHING. BUT KEEP IN MIND THAT YOU MIGHT BE DAMNING SOMETHING THAT'S BETTER IN OTHER INDUSTRIES. SO, I BELIEVE, BEFORE YOU PASS ANY REGULATIONS, TAKE AN ALL AROUND LOOK AND NOT JUST AT THE FAR EXTREME CASES BUT THERE'S ANOTHER END TO THAT WHOLE SPECTRUM. THANK YOU VERY MUCH.

COMMISSIONER BROOKS: THANK YOU VERY MUCH. APPRECIATE YOUR BEING HERE. ARE THERE ANY OTHERS WHO

FEDERAL LAWS AND REGULATIONS: RECORDKEEPING AND REPORTING REQUIREMENTS, AND INFORMATION AVAILABLE TO THE PUBLIC

There are numerous existing federal statutes and corresponding regulations which have been enacted to protect the public's health and the environment from potential risks of exposure to hazardous substances. Under those Acts, and through the Freedom of Information Act, the public has access to records dealing with these statutes. These major statutes, including FOIA and examples of major recordkeeping regulations promulgated thereunder, are briefly described below. This list is not exhaustive.

1. FREEDOM OF INFORMATION ACT 5 U.S.C 552 et seq. (1976)

The Freedom of Information Act (FOIA) is the basic disclosure statute within the federal government. Under the FOIA the public has access to certain records of federal agencies which are not otherwise specifically available by statute. FOIA provides that a federal agency must respond to a request for information within ten days and may only deny a request if it is for data which falls into one of the nine exemption categories which deal primarily with internal personnel documents, national security documents, and trade secret information.

40 CFR 2

40 CFR Part 2 Subparts A (Public Information) and B (Confidential Business Information) are the FOIA-like regulations applicable to U.S. EPA. The regulations state EPA's policy on records disclosure:

> "(a) EPA will make the fullest possible disclosure of records to the public, consistent with the rights of individuals to privacy, the rights of persons in business information entitled to confidential treatment, and the need for EPA to promote frank internal policy deliberations and to pursue its official activities without undue disruption.
>
> (b) All EPA records shall be available to the public unless they are exempt from the disclosure requirements of 5 U.S.C 552.
>
> (c) All nonexempt EPA records shall be available to the public upon (written) request regardless of whether any justification or need for such records has been shown by the requestor."

2. Clean Air Act 42 U.S.C 7401 et seq. (1981)

The purpose of the Clean Air Act (CAA) is to protect and enhance the quality of the nation's air resources by regulating emissions, conducting research, and making technical information available to state and local governments.

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The Clean Air Act directs EPA to set primary and secondary national ambient air quality standards (NAAQS) to protect public health and welfare, respectively. Plants located in portions of the country that are not in compliance with a national air quality standard (nonattainment areas) must reduce pollutant emissions to bring the area into attainment. Terms of this reduction are dictated by a federally approved state implementation plan. The Act also limits pollution from new sources in areas of the country where the air quality is better than the NAAQS through a prevention of significant deterioration (PSD) permit review. A ceiling on allowable increases in pollutant concentrations (increments) is specified by law, and new emission sources must demonstrate that they will not cause the increments to be exceeded.

Under Title I of the Act, states are required to develop plans which provide for implementation, maintenance, and enforcement of ambient air quality standards. The plan must include: (1) emission limitations, schedules and timetables for compliance with such limitations; (2) provisions for the establishment and operation of devices and methods needed to model and/or monitor, compile and analyze ambient air quality data; (3) an enforcement program; and (4) regulations addressing the modification and construction of stationary sources of air pollution. Additionally, states may develop and seek approval of plans for implementing and enforcing emission standards of hazardous air pollutants.

Title II of the Clean Air Act authorizes emissions control regulations for mobile sources of air pollution.

40 CFR 51

Pursuant to the state implementation plans described above, 40 CFR 51 Subpart Q requires that states annually submit emissions data (particulates, SO_x, hydrocarbons, CO, $_x$, lead) to the EPA Regional Offices.

40 CFR 52

40 CFR 52.05 and 52.15 require that emission data and state implementation plans be publicly available.

40 CFR 58

This part of the Clean Air Act regulations contains criteria and requirements for ambient air quality monitoring and reporting of ambient air quality data. It applies to state and local air pollution control agencies and owners or operators of proposed air pollution sources.

40 CFR 60

40 CFR Part 60 is a compilation of standards for categories of new stationary sources. 40 CFR 60.7 itemizes the general notification and recordkeeping requirements for such sources. Notice must be given to EPA Regional Offices regarding the construction of certain new sources. Records must be kept regarding startup, shutdown and malfunction in the operation of a facility. Additional records must be kept of all measurements. Quarterly reports must be submitted to the EPA Regional Offices for excess emissions from continuous monitors.

40 CFR 61

Hazardous air pollutant control regulations are the subject of 40 CFR 61. 40 CFR 61.10 requires that owners or operators of existing sources of designated air pollutants submit reports to the appropriate Regional Office within 90 days of the effective date of any Part 61 standards. This subsection also itemizes the information which must be contained in the report. 40 CFR 61.15 makes any such information, subject to 40 CFR 2, available to the public.

40 CFR 62

This part sets forth requirements for state plans addressing designated pollutants and air pollution sources. 40 CFR 62.08 requires that any such state plans contain provisions for emissions inventories, maintaining records, making reports, and submitting information. A majority of states have approved plans for fluoride emissions and sulfuric acid mist.

40 CFR 85

40 CFR 85 addresses air pollution control regulations from motor vehicles and motor vehicle engines. Subpart E (85.407) requires that manufacturers participating in the NO_x research program submit annual reports summarizing their findings. Subpart S (85.1806) requires that manufacturers establish and maintain records and prepare reports in the event of product recall. Subpart T contains emission defect reporting requirements applicable to manufacturers of 1974 or later vehicles. Those requirements cover classes or models of motor vehicles.

40 CFR 86

This part establishes certification and test procedures for the control of air pollutants from new motor vehicles. 40 CFR 86.078-7 requires that manufacturers establish and maintain general and individual certification records as prescribed in this subpart.

3. Clean Water Act (Federal Water Pollution Control Act) 33 U.S.C 1251 et seq.(1983

The Clean Water Act (CWA) was enacted to restore and protect the quality of the nation's waters by regulating pollutants released into waters of the United States. It prohibits any discharge to public waters without a National Pollutant Discharge Elimination System (NPDES) permit. The Act requires pollution control via water quality standards and technology-based standards. Currently, all facilities have permits designating a level of pollution control based on Best Engineering Judgement or Best Practicable Control Technology (BPT). However, the EPA has prepared more stringent pollution control requirements for numerous industrial categories. This Best Available Technology (BAT) is intended to minimize the release of toxic pollutants, and BAT must be installed by 1984. Those plants discharging to a municipal sewage treatment system rather than public waters will be required to comply with pretreatment regulations now being developed by the Agency. All information

obtained by the Agency during the development of effluent limitations or new source performance standards for certain industrial categories is part of the rulemaking record and is available to the public through a FOIA request of is available for reviewing in Washington, D.C., and at the EPA Regional Offices. The information includes wastewater characterization, facility descriptions, and technology costs.

Section 311 of the Act requires that all spills to navigable waters of listed substances in excess of reportable quantities must be reported to the National Response Center of EPA.

40 CFR 25

This part of EPA's regulations outlines requirements for public participation in programs under the CWA, the Resource Conservation and Recovery Act, and the Safe Drinking Water Act. The following objective to be implemented by government agencies are listed in these regulations:

> (1) To assure that the public has the opportunity to understand official programs and proposed actions, and that the government fully considers the public's concerns;
> (2) To assure that the government does not make any significant decision on any activity covered by this part without consulting interested and affected segments of the public;
> (3) To assure that government action is as responsive as possible to public concerns;
> (4) To encourage public involvement in implementing environmental laws;
> (5) To keep the public informed about significant issues and proposed project or program changes as they arise;
> (6) To foster a spirit of openness and mutual trust among EPA, States, substate agencies and the public; and
> (7) To use all feasible means to create opportunities for public participation, and to stimulate and support participation.

40 CFR 110

40 CFR Part 110 requires that persons in charge of vessels or facilities must immediately notify the appropriate government agency of an oil discharge.

40 CFR 112

This part generally requires that procedures, methods, and equipment be developed and obtained to prevent the discharge of oil from non-transportation related onshore and offshore facilities into navigable waters. 40 CFR 112.3 specifically requires the developemnt and implementation of Spill Prevention Control and Countermeasure (SPCC) Plans.

40 CFR 122

These regulations govern the EPA administered, consolidated permit

programs (NPDES, hazardous waste, and underground injection control.) 40 CFR 122.11 states requirements for recording and reporting of monitoring results according to the permit provisions. 40 CFR 122.19 states that NPDES permit applications and permits are public information.

40 CFR 123

40 CFR Part 123 addresses state permit program requirements. 40 CFR 123.10 mandates that the appropriate state and federal government agencies shall share submitted information.

40 CFR 124

This part requires that ocean dumping permittees under Section 102 of the CWA maintain records regarding the types of material dumped, and the time and location of dumping. Periodic reports of this recorded information must be submitted to EPA.

40 CFR 403

40 CFR 403 is the general pretreatment regulations. 40 CFR 403.12 contains the reporting requirements for publicly owned treatment works (POTW) and their industrial users. Industrial users must report: (1) identifying information, (2) facility description, (3) list of environmental control permits, (4) flow measurement data, and (5) sampling results.

4. Comprehensive Environmental Response, Compensation, and Liability Act 42 U.S.C 9601 et seq.(1982)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund") contains a number of provisions designed to allow the federal government to identify, respond to, and assess liability for spills and other releases into the environment of hazardous substances. Section 103(a) of CERCLA requires that companies immediately notify the National Response Center of releases of hazardous substances in greater than reportable quantities. Section 103(c) requires that certain persons notify the EPA of the existence of former hazardous wastes sites by June 3, 1981. The Act further provides for a $1.6 billion fund to be accumulated through a feedstock tax on petroleum and other chemicals over the next five years. This fund shall be used to cover the costs for cleanup of identified former hazardous waste sites according to the National Contingency Plan. CERCLA also imposes strict liability on companies for cleanup costs and national resource damages resulting from hazardous substances releases.

40 CFR 117, 302

These two sets of regulations require that notice be given to the appropriate government agency in the event of a release of a listed substance(s) in excess of the corresponding reportable quantity.

40 CFR 300

The National Contingency Plan (NCP) regulations (40 CFR 300) require

that the On-Scene Coordinator (OSC) collect and coordinate the documentation of any remedial action. 400.56 requires that the OSC prepare reports on the response operations and remedial actions taken within 60 days of a major discharge.

5. Consumer Product Safety Act 15 U.S.C 2051 et seq.(1983)

The purposes of the Consumer Product Safety Act are to protect the public against unreasonable risks of injury associated with consumer products, to assist consumers in evaluating the comparative safety of consumer products, and to develop uniform safety standards including warning and instructions. The Consumer Product Safety Commission maintains an Injury Information Clearinghouse to collect, investigate, analyze, and disseminate injury data and information obtained from manufacturers. This information is available to the public unless it is privileged under FOIA. The Commission has the authority under this Act to ban hazardous products which present an unreasonable risk of injury and for which no feasible safety standard can be promulgated protecting the consumer against such unreasonable risk.

6. Federal Insecticide, Fungicide, and Rodenticide Act 7 U.S.C 136 et seq.(1980)

The goal of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) of 1947, as amended by the Federal Environmental Pesticide Control Act of 1972, is to control environmental contamination of potentially toxic pesticides by assuring that the chemicals are produced and used in a manner that will avoid unreasonable adverse effects on health or the environment. As such, the Act provides for the registration of pesticides and producing facilities, classifies pesticides into general, restricted, and experimental use categories, and charges the Environmental Protection Agency with developing a program to control transportation and disposal.

40 CFR 162

This Part of the FIFRA regulations outlines the requirements for the registration of pesticides. 40 CFR 162.8 lists the information requirements for registration and classification. 40 CFR 162.18-2 lists the data which must be submitted to EPA in support of conditional registration of a pesticide.

40 CFR 167

40 CFR 167.5 requires that annual pesticide reports be submitted to EPA by pesticide producers, including foreign producers. The report contains the name and address of the producer, the type and amount of pesticide product, and the sales or distribution of the pesticide product.

40 CFR 169

All pesticide producers shall maintain for two years records as prescribed by this Part. The information required is comprehensive including identification, production, distribution, disposal, labeling, and research data.

40 CFR 172

This Part (40 CFR 172.11) mandates that applications and approvals for experimental use permits shall be noticed in the Federal Register. The notice includes descriptive information regarding the experimental pesticide use.

7. Federal Food, Drug and Cosmetic Act 21 U.S.C 301 et seq.(1980)

The Food, Drug and Cosmetic Act is another consumer protection law. It was enacted in 1938 and has been significantly amended several times. Especially noteworthy are: the Pesticide Chemicals Amendment of 1954; the Food Additive Amendment of 1958, including the Delaney Clause which embodies the concept of zero-risk for carcinogenic food additives; the Color Additive Amendments of 1960; and the Drug Amendments of 1962. The existing law: (1) requires truthful and informative labeling; (2) provides consumer protection against false weights and measures through the promulgation of standards; and (3) attempts to provide for the safety of foods, and the safety and effectiveness of drugs. The law contains general prohibitions against adulteration and misbranding. It also provides for premarketing controls on certain drugs and food, such as food additives, color additives, and pesticide chemicals.

8. Hazardous Materials Transportation Act 49 U.S.C 1801 et seq.(1978)

The Hazardous Materials Transportation Act authorizes the Secretary of Transportation to promulgate regulations controlling the transportation in commerce of hazardous materials. The regulations apply to persons who move hazardous materials by any mode. These safety regulations include specifications, packsing, handling, mailing, placarding, and routing of hazardous materials in commerce. Shipping papers must also accompany transported hazardous materials.

49 CFR 171

49 CFR 171 itemizes the general regulatory requirements of the Hazardous Materials Transportation Act. 49 CFR 171.15 requires immediate notice to the Department of Transportation (DOT) of certain hazardous materials incidents. 49 CFR 171.16 requires detailed, written reports of such hazardous materials incidents. 49 CFR 171.17 requires notice to the Coast Guard of discharges of hazardous substances in excess of reportable quantities.

49 CFR 191

This Part requires that leaks from pipelines be reported to the DOT Materials Transporation Bureau.

49 CFR 195

This Part requires that accidents caused by the transportation of hazardous liquids through pipelines be reported to the DOT Materials Transportation Bureau.

9. Occupational Safety and Health Act 29 U.S.C 651 et seq.(1974)

The Occupational Safety and Health Act (OSHAct) requires the Occupational Safety and Health Administration (OSHA) to promulgate mandatory standards protecting workplace health and safety. OSHA is also allowed to conduct inspections to enforce the requirements of this Act. It also creates the Occupational Safety and Health Review Commission to conduct adjucatory hearings. The OSHAct provides for research and recommendations for standards relating to occupational safety and health to be conducted by the National Institute for Occupational Safety and Health. States may seek authorization for the federal program through the submission of Plan to OSHA.

29 CFR 1904

Employers are required to log and summarize occupational injury and illness records. These records must be maintained for five years and must be posted annually. The Bureau of Labor Statistics is authorized to periodically collect, analyze and publish occupational safety and health statistics according to 29 CFR 1904.20.

29 CFR 1907

This Part prescribes criteria and procedures for the accreditation of laboratories which test for safety specified products, devices, systems, materials, or installations.

29 CFR 1910

29 CFR 1910 contains the general industry standards. 29 CFR 1910.20 provides employees and their designated representatives access to relevant exposure and medical records. Such records must be maintained for thirty years. Recordkeeping requirements are also listed under each of the substance specific standards, 29 CFR 1910.1001 thru 1050. Also, OSHA has proposed a hazard communication rule, 29 CFR 1910.1200, which makes material safety data sheets and training available to employees and their designated representatives.

10. National Environmental Policy Act 42 U.S.C 4341 (1975)

The National Environmental Policy Act (NEPA) established the Council on Environmental Quality (CEQ) and stated a national environmental policy. Regulations promulgated under NEPA require the preparation of an environmental impact statement (EIS) whenever an action may significantly impact on the environment.

11. Resource Conservation and Recovery Act 42 U.S.C 3251 et seq.(1982)

The Resource Conservation and Recovery Act of 1976 (RCRA) imposes requirements on the management and recycling of all solid wastes, but its principal regulations focus on hazardous waste. A national "cradle-to-grave" manifest system to track hazardous wastes from generation through transportation to the site of disposal has been instituted. Permits are required for new and existing facilities that store, treat, or dispose of hazardous waste.

40 CFR 25

This Part of EPA's regulations outlines requirements for public participation in programs under the Clean Water Act, RCRA, and the Safe Drinking Water Act. (See CWA.)

40 CFR 122

These regulations govern the EPA administered, consolidated permit programs (NPDES, hazardous waste, and underground injection control.) (See CWA.)

40 CFR 123

40 CFR 123 addresses state permit program requirements. (See CWA.)

40 CFR 260

Part 260 is the general hazardous waste management system regulations. Part 260.2 makes any information provided to EPA under Parts 260 through 265 available to the public subject to FOIA restrictions and Section 3007(b) of RCRA.

40 CFR 262

40 CFR Part 262 prescribes hazardous waste generator regulatory requirements. Subpart D establishes recordkeeping and reporting requirements for generators. Generators must maintain copies of each manifest, annual report and exception report for three years (40 CFR 262.40). Generators must submit annual reports (40 CFR 262.41). If a generator does not receive a returned, completed manifest, he/she must file with EPA an exception report within 45 days (40 CFR 262.42).

40 CFR 264

These regulations prescribe standards for owners and operators of hazardous waste treatment, storage, and disposal facilities. Each subpart contains recordkeeping and/or reporting requirements. Subpart B contains transfer notice, waste analysis, self-inspection and personnel training requirements. Subpart C mandates that arrangements be made with local authorities to prepare for potential emergencies. Such arrangements must be documented. A contingency plan containing emergency procedures for the facility must be prepared and submitted (Subpart D). The manifest system requires that owners or operators maintain such transportation records and submit annual reports to EPA and/or the state. A groundwater plan must be prepared, records maintained, and periodic reports submitted for land treatment, storage, or disposal facilities. Subpart G requires that a closure and post-closure plan be prepared and maintained for the facility. Financial responsibility documentation must be submitted to the government (Subpart H).

40 CFR 265

Part 265 contains interim status standards for owners and operators of hazardous waste treatment, storage, and disposal facilities. The same types of recordkeeping and reporting requirements described under 40 CFR 264 apply to interim status facilities.

12. SAFE DRINKING WATER ACT 42 U.S.C. 300f et seq.(1980)

The Safe Drinking Water Act (SDWA) was passed in 1974. With a stated purpose of assuring the public an adequate supply of uncontaminated drinking water, the Act provides for regulations to protect water supplies. The Environmental Protection Agency was given the task of setting primary and secondary standards. The primary standards, designed to protect public health, were initially issued in 1975 and have been revised periodically as new information on toxics has become available. The secondary standards, dating from 1977, set limits for aesthetically disturbing contaminants and are designed to protect the public welfare. The Act also authorized the development of State Programs for controlling the underground injection of wastes, with special protection for the recharge zones of sole source aquifers.

40 CFR 25

These regulations outline requirements for public participation in programs under the CWA, RCRA, and SDWA. (See CWA.)

40 CFR 122

These regulations govern the EPA administered, consolidated permit programs. (NPDES, RCRA, and underground injection control.) (See CWA.)

40 CFR 123

40 CFR Part 123 addresses state permit program requirements. (See CWA.)

40 CFR 141

Part 141 establishes the National Interim Primary Drinking Water regulations. Subpart D outlines recordkeeping and reporting requirements. 40 CFR 141.31 mandates that water suppliers report test measurements and analytical results to the appropriate state agency. Exceedances must be reported within 48 hours. Continuing failure to comply with the primary drinking water standards mandates public notice (141.32). Owners or operators of public water systems must maintain analytic records, variance records, and records of action taken for at least five years (40 CFR 141.33).

40 CFR 142

This part outlines implementation and enforcement of the national primary drinking water regulations. 40 CFR 142.14 and 142.15 establish state recordkeeping and reporting requirements. 40 CFR Part 146 outlines the underground injection control program. The regulations require reporting of certain information for each injection well class. The quarterly reporting requirements include characterization of injection fluids, monthly flow rates, and monitoring results.

13. TOXIC SUBSTANCES CONTROL ACT 15 U.S.C. 2601 et seq.(1981)

The purpose of the Toxic Substances Control Act (TSCA) is to develop health and environmental effects data on chemicals. EPA has published an inventory of greater than 55,000 existing chemicals. Section 4 authorizes EPA to

promulgate rules that require manufacturers and/or processors to test specified chemical substances or mixtures in order to evaluate their human health or environmental effects. Such testing can be required for chemicals that are suspected of being harmful or that have uncommonly large human or environmental exposure. Under certain circumstances, EPA may prescribe the procedures and methodology used to conduct testing. Testing costs are to be borne by manufacturers and/or processors of the test chemical. If these firms cannot allocate test costs on a voluntary basis, EPA is empowered to make such an allocation itself. To assist EPA in developing testing priorities, the statute creates an Interagency Testing Committee comprised of representatives from various federal agencies.

Section 5 empowers EPA to screen new chemical substances and existing chemical substances employed for significant new uses before the commencement of manufacture. To facilitate such screening, a notice describing the chemical and its uses must be submitted to EPA at least 90 days before the scheduled start of production. EPA has broad power to prevent or limit manufacture or use if the Agency concludes that the chemical is hazardous or if it may present an unreasonable risk and significant unanswered questions exist concerning its safety. Over 600 premanufacture notices have been submitted since the initiation of this program in 1979.

Section 6 authorizes EPA to impose a range of regulatory controls when it finds that the manufacture, processing, distribution, use, or disposal of a chemical substance or mixture presents an "unreasonable risk of injury to health or the environment." These restrictions, which must be imposed by rule, include banning the substance or mixture entirely, prohibiting or limiting certain uses, or requiring labeling or other forms of public notification. In applying the all-important concept of unreasonable risk, EPA must balance a chemical's harm to human health or the environment against the economic and social disadvantages of eliminating or restricting the chemical's availability.

Section 8 authorizes EPA to require the gathering, retention, and reporting of information concerning the health or environmental effects of chemical substances and mixtures. Section 8(a) authorizes EPA to promulgate rules requiring such recordkeeping and reporting of information as EPA "may reasonably require." In addition, EPA is directed to compile an inventory of all chemical substances in commerce (Section 8(b)), may require companies to keep records of allegations of significant adverse reactions caused by chemicals (Section 8(c)), may require the submission of lists and copies of health and safety studies (Section 8(d)), and may require companies to notify EPA of substantial health or environmental risks caused by chemicals (Section 8(e)).

40 CFR 704

Part 704 addresses recordkeeping and reporting requirements under TSCA. Subpart E--Specific Chemical reporting--prescribes information requirements which must be submitted to EPA from persons who manufacture or import polybrominated biphenyls (PBB).

40 CFR 707

EPA requires that exporting chemical manufacturers submit certain information under Part 707.

40 CFR 710

40 CFR Part 710 governs the inventory reporting by firms of chemicals which are manufactured, imported or processed for a commercial purpose.

40 CFR 712

This part establishes procedures for chemical manufacturers and processors to report production, use, and exposure-related information on listed chemical substances.

40 CFR 717

This rule requires manufacturers and certain processors of chemical substances and mixtures to keep records of significant adverse reactions to health or the environment alleged to have been caused by a substance or mixture. Reporting of such records is also required. This part implements Section 8(c) of TSCA. Section 8(c) requires that allegations of adverse reactions be kept for thirty (30) years.

40 CFR 761

Subpart J of Part 761 requires that records be maintained for the manufacturing, processing, distribution, use, disposal, storage and marking of polychlorinated biphenyls (PCB).

40 CFR 762

This rule mandates general and annual reporting requirements for manufacturers and processors of fully halogenated chlorothioroalkanes.

40 CFR 763

This part governs asbestos reporting requirements.

APPENDIX F

SUMMARY OF: AN ACT REGARDING THE IDENTIFICATION AND LABELLING OF TOXIC AND HAZARDOUS SUBSTACES

SHORT TITLE: HAZARDOUS CHEMICALS RIGHT TO KNOW ACT

The purpose of this Act is to ensure that all emergency personnel, the public and all workers have adequate information about the hazardous substances to which they are exposed.

Worker Right to Know-The bill adopts the Federal Hazard Communication Standard that has been adopted by the N.C. Department of Labor. This standard requires:

*Labeling of each container of hazardous chemicals with the chemical or common name;

*Material Safety Data Sheets(MSDS's),including the chemical and common name,be obtained for each chemical and be available to employees during work hours and to the Department of Labor upon request;

*A list of hazardous chemicals used in the workplace be compiled and made available to employees and the Department of Labor upon request.

This standard only covers manufacturing workers. (N.C. Department of Labor is considering expanding coverage)

The Hazardous Chemicals Right to Know Act covers all workers, ensuring that all workers have access to information about their exposures to hazardous substances. The Act requires that the chemical and common name be on labels, to give workers the information that will enable them to more readily research the chemical. The Act also clarifies that employees using the act shall not be discriminated against for exercising their rights herein; may refuse to work with unlabeled hazardous substances if an employer does not identify the chemical within five days; and special training must be given to employees when a new hazardous substance is introduced to the work area. The Department of Labor will administer these provisions.

Public Safety, Emergency Response and Community Right to Know-The Act requires that signs complying with the National Fire Protection Marking Code be posted on buildings containing hazardous substances. The Act designates an Emergency and Environmental Hazardous Substance List which includes chemcials that may be particularly hazardous to the environment, emergency personnel or the public. This is a somewhat expanded list than that designated in the Federal Standard. Each employer will be required to list each hazardous chemical they use that appears on the emergency and environmental hazardous substance list and include back-up information such as quantities and volumes of hazardous substances; storage methods and sites; and emissions into the environment. This information will be submitted to the Department of Crime Control and Public Safety and updated annually. Employers will provide MSDS's to the Department of Crime Control and Public Safety upon reqeust. The Department will maintain this information and make it available to local emergency personnel and the public on request.

Employers may withold the identity of emergency and environmental hazardous substances that are trade secrets. In a medical emergency if the specific chemical identity of an emergency and environmental hazardous substance trade secret is necessary for treatment the employer must immediately disclose the chemical name to a treating health care provider. The employer may request the signing of a confidentiality agreement as soon as circumstances permit. In non-emergency situations, a treating health care provider must request the identity in writing, stating the medical need for the information. Employers may request the signing of a confidentiality agreement. If an emergency and environmental substance trade secret claim is questioned the Department of Crime Control and Public Safety will require employers to justify the claim with strict provisions to ensure confidentiality and employer appeals.

Enforcement, Funding and Implementation-Enforcement will be provided through the Departments of Crime Control and Public Safety and Labor with the assistance of other departments (Natural Resources and Community Development and Human Resources) for inspection and investigation as necessary. Funding will be through fees set by the Departments of Crime Control and Public Safety and Labor. Implementation will be coordinated by the Departments of Crime Control and Public Safety and Labor, with the cooperation of other departments upon request.

SESSION 19 85

INTRODUCED BY:

Referred to:

A BILL TO BE ENTITLED

AN ACT REGARDING THE IDENTIFICATION AND LABELLING OF TOXIC AND HAZARDOUS SUBSTANCES.

The General Assembly of North Carolina enacts:

Section 1. Chapter 130A of the General Statutes is amended by adding a new Article to read:

Article 17

Identification of Toxic or Hazardous Substances

Part 1. General Provisions

130A-430 Short Title. This Article shall be cited as the Hazardous Chemicals Right to Know Act.

130A-431 Legislative Findings. The General Assembly finds as follows:

(1) The proliferation of hazardous chemicals in the environment poses a growing threat to the public health, safety, and welfare.

(2) The constantly increasing number and variety of hazardous chemicals and the many routes of exposure to them make it difficult and expensive to adequately monitor and detect any adverse health effects attributable to the hazardous chemicals.

(3) Individuals are often able to detect and thus minimize effects of exposure to hazardous chemicals if they are aware of the identity of the chemicals and the early symptoms of unsafe exposure.

(4) Individuals have an inherent right to know the full

range of the risks they face so that they can make reasoned decisions and take informed action concerning their employment and their living conditions.

(5) Local fire and other government emergency response departments require detailed information about the identity, characteristics, and quantities of hazardous chemicals used and stored in communities within their jurisdictions, in order to adequately plan for, and respond to, emergencies, and enforce compliance with applicable laws and regulations concerning these chemicals.

(6) The extent of the toxic contamination of the air, water, and land has caused a high degree of concern and much of this concern is needlessly aggravated by the unfamiliarity of the chemicals.

(7) There is a need to coordinate the existing regulatory and reporting responsibilities on hazardous chemical users and producers, with particular attention to coordination with 13 North Carolina Administrative Code 7C.0101 (98), as adopted by the North Carolina Department of Labor on February 1, 1984.

130A-432. Definitions. As used in this Article, unless the context requires otherwise:

(1) "Employer" means a person engaged in business who has employees, including the State and its political subdivisions but excluding an individual whose only employees are domestic workers or casual laborers who hired to work at the individual's residence;

(2)"Emergency and environmental hazardous substance" means any substance on the emergency and environmental hazardous substance list.

(3) "Emergency and environmental hazardous substance list" includes any chemicals in the most recent version of the

National Library of Medicine's Toxicology Data Bank, as well as other substances that the Department of Crime Control and Public Safety, in consultation with the other State agencies, determines should be added to the list. These additions shall include, but not be limited to, substances used, manufactured, stored, packaged, repackaged, or disposed of or released into the environment of the State which, in the Department's determination, may be linked to the incidence of cancer; genetic mutations; physiological malfunctions, including malfunctions in reproduction; and other diseases; or which by virtue of their physical properties, may pose a threat to the public health and safety.

(4) "Emergency and environmental chemical hazard survey" means a written form prepared by the Department of Crime Control and Public Safety, in conjunction with other State agencies and transmitted to an employer, on which the employer shall provide certain information concerning each of the environmental hazardous substances at his facility, including, but not limited to the following:

(a) The chemical name and Chemical Abstracts Service number of the environmental hazardous substance;

(b) A description of the use of the environmental hazardous substance at the facility;

(c) The quantity of the environmental hazardous substance produced at the facility;

(d) The quantity of the environmental hazardous substance brought into the facility;

(e) The quantity of the environmental hazardous substance consumed at the facility;

(f) The quantity of the environmental hazardous

substance shipped out of the facility as or in products;

(g) The maximum inventory of the environmental hazardous substance stored at the facility, the method of storage, and the frequency and methods of transfer;

(h) The total stack or point-source emissions of the environmental hazardous substance;

(i) The total estimated fugitive or non-point source emissions of the environmental hazardous substance;

(j) The total discharge of the environmental hazardous substance into the surface or groundwater, the treatment methods, and the raw wastewater volume and loadings;

(k) The total discharge of the environmental hazardous substance into public-owned treatment works;

(l) The quantity, and methods of disposal, of any wastes containing an environmental hazardous substance, the method of on-site storage of these wastes, the location or locations of the final disposal site for these wastes, and the identity of the hauler of the wastes.

(5) "Emergency and environmental substance trade secret" means any formula, plan, pattern, process, production date information, or compilation of information, which is not patented, which is known only to an employer and certain other individuals, and which is used in the fabrication and production of an article of trade or service, and which gives the employer possessing it a competitive advantage

over businesses who do not possess it, or the secrecy of which is certified by an appropriate official of the federal government as necessary for national defense purposes. The chemical name and Chemical Abstracts Service number of a substance shall be considered a trade secret only if the employer can establish that the substance is unknown to competitors and that the identity of the substance cannot be discovered by analytical techniques, laboratory procedures, or other means available to a competitor at a reasonable expense. In determining whether a trade secret is valid pursuant to this Act, the Department of Crime Control and Public Safety shall consider material provided by the employer concerning (1) the extent to which the information for which the trade secret claim is made is known outside the employer's business; (2) the extent to which the information is known by employees and others involved in the employer's business; (3) the extent of measures taken by the employer to guard the secrecy of the information; (4) the value of the information, to the employer or the employer's competitor; (5) the amount of effort or money expended by the employer in developing the information; and (6) the ease or difficulty with which the information could be disclosed by analytical techniques, laboratory procedures, or other means.

(6) "Material Safety Data Sheets"mean chemical information sheets drawn up in conformity to standards for material safety data sheets in 13 North Carolina Administrative Code 7C.0101(98)

130A-433 to 130A-438: Reserved for future codification purposes.

Part 2. Worker Right to Know

130A-439 Information Required. An employee in this State has the right to be informed about the hazardous chemicals to which the employee may be

exposed in the workplace, the potential health hazards of the hazardous chemicals, and the proper handling techniques for the hazardous chemicals. An employer shall provide or make available to an employee information as required by this Part. This Part applies to all employers in the State.

(b) The Department of Labor shall administer this Part under 13 North Carolina Administrative Code 7C.0101 (98), except as specifically modified by this Part.

(c) All employers in this State shall comply with these regulations, except as specifically modified by this Part, including but not limited to the requirements on labelling, training, hazardous chemical list, trade secrets, and material safety data sheets without regard to whether an employer is covered by the State regulation.

(d) The chemical manufacturer, importer, or distributor shall ensure that each container of hazardous chemicals leaving the workplace is labelled, tagged or marked with the following information:

(1) Identity of the hazardous chemical(s), including its chemical and common name(s);

(2) Appropriate hazard warnings; and

(3) Name and address of the chemical manufacturer, importer, or other responsible party.

(e) In addition to the chemical information required to be reported under 13 N.C. Administrative Code 7C.0101 (98), the Department of Labor may adopt by rule additional hazardous chemical information to be regulated.

130A-440. Employee Rights. (a) An employee may request the chemical name and material safety data sheet for an

unlabelled container suspected to contain a hazardous chemical. If an employer fails to provide the information within five working days, the employee may refuse to work with the toxic or hazardous substance for which the information was requested until the employer provides the information.

(b) An employer shall not discharge or in any other manner discriminate against an employee because the employee has filed a complaint or brought an action under this section or has cooperated in bringing an action against an employer. An employee may file a complaint with the Commissioner of Labor alleging discharge or discrimination within thirty days after an alleged violation occurs. Upon receipt of the complaint, the Commissioner shall cause an investigation to be made to the extent the Commissioner deems appropriate. If the Commissioner determines from the investigation that this subsection has been violated, the Commissioner shall bring an action in the appropriate district court against the person. The superior court has jurisdiction, for cause shown, to restrain violations of this subsection and order appropriate relief including rehiring or reinstatement of the employee to the former position with back pay.

130A-441. Special Training. An employer shall provide special training when the employer either assigns an employee to a special assignment or task which increases the employee's potential exposure to a hazardous chemical or the employer contracts with a person outside the employ of the employer if the person is under the supervision of the employer and may be exposed to hazardous chemicals. The training shall be available for review and approval upon inspection by the Labor Commissioner and shall be designed to inform the

employee or the outside contractor of the presence of the hazardous chemical, the nature of the chemical and the health hazards it presents, and the proper handling procedures for the hazardous chemical.

130A-441 to 130A-449. Reserved for future codification purposes.

Part 3. Public Safety and Emergency Response Right to Know.

130A-450. Signs Identifying Hazardous Chemicals. (a) If a building or structure has a floor space of five thousand square feet or less, an employer shall post signs on the outside of the building or structure identifying the type of each emergency and environmental hazardous substance contained in the building or structure. If the building has more than five thousand square feet, the employer shall post a sign at the place within the building where each emergency and environmental hazardous substance is permanently stored to identify the type of emergency and environmental hazardous substance. If the emergency and environmental hazardous substance or a portion of the emergency and environmental hazardous substance is moved within the building, the employer shall also move the sign or post an additional sign at the location where the emergency and environmental hazardous substance is moved. All letters and figures on signs required by this section sahll be at least three inches in height. However, upon the written application of an employer, the Department of Crime Control and Public Safety may permit less stringent sign posting requirements.

(b) The signs shall comply with the National Fire Protection Association's standard system for the identification of fire hazards of materials, based upon NFPA 704-1980. The Department of Crime Control and Public Safety shall adopt rules exempting employers from the requirements of this section when a building or structure or a portion of a building or structure does not contain significant

amounts of an emergency and environmental hazardous substance.

130A-451. Information for Emergency Response Departments.

(a) All employers who manufacture, process, use, store or produce substances on the emergency and environmental hazardous substance list shall submit to the Department of Crime Control and Public Safety a completed emergency and environmental chemical hazards survey, to be updated annually.

(b) All employers who manufacture, process, use, store or produce substances on the emergency and environmental hazardous substance list shall maintain updated material safety data sheets for these chemicals. On request, these material safety data sheets will be provided to the Department of Crime Control and Public Safety.

(c) The Department of Crime Control and Public Safety shall maintain a central respository of all information on emergency and environmental chemical hazards surveys. The Department of Crime Control and Public Safety will make this information available to any public agency (Such as police, fire emergency response, environmental management, or local health department) on request in a timely manner.

130A-452. Withholding Trade Secrets.

If an employer believes that disclosing the chemical identity of a substance will reveal an emergency and environmental substance trade secret, he may withhold the specific chemical identity, including the chemical name and other specific identification of a hazardous chemical from the emergency and environmental chemical hazard survey and the material safety data sheet provided that:

(1) The claim that the information withheld is an emergency and environmental substance trade secret can be supported;

(2) Information contained in the emergency and environmental chemical hazard survey and material safety data sheet concerning the properties and effects of the hazardous chemical is disclosed.

(3) The material safety data sheet and emergency and environmental chemical hazard survey indicate that the specific chemical identity is being withheld as a trade secret, and

(4) The specific chemical identity is made available to health professionals on request.

130A-453. Trade Secret Claims and Appeals. (a) If any party questions the validity of the emergency and environmental substance trade secret determination, the Department of Crime Control and Public Safety shall request a completed emergency and environmental substance trade secret claim from the employer within 45 days. The emergency and environmental substance trade secret claim must document in detail how the chemical in question meets all the criteria of an emergency and environmental substance trade secret, as outlined in the definition.

(b) The Department shall act to make a determination on the validity of an emergency and environmental substance trade secret claim when a request is made pursuant to the provisions of this Act for the disclosure of the information for which the trade secret claim was made, or at any time that the Department deems appropriate. Upon making a determination on the validity of an emergency and environmental substance trade secret claim, the Department shall inform the employer of the determination by certified mail. If the Department determines that the employer's emergency and environmental trade secret claim is not valid, the employer shall have 45 days from the receipt of

the department's determination to file with the Department a written request for an administrative hearing on the determinati in accordance with the provisions of the Administrative Procedure Act. If the employer does not file such a request within 45 days, the Department shall take action to provide that the information for which the emergency and environmental substance trade secret claim was made be disclosed pursuant to the provisions of this Act. If an employer requests an administrative hearing pursuant to the provisions of the Administrative Procedures Act, the hearing shall be held within 45 days in county in which the question concerning the trade secret claim origina The Department's action shall be considered the final agency action and shall be subject only to judicial review as provided in the Administrative Procedures Act, except as herein modified The Department shall inform the employer of its decision by certified mail. If the Department determines that the emergenc and environmental substance trade secret claim is not valid, th employer shall have 15 days to notify the department in writing of his intention to appeal the Department's decision in the cou and 30 days in which to perfect the appeal by filing an action in the Superior Court. If the employer does not so notify the Department, the Department shall take action to provide that the information for which the emergency and environmental substance trade secret claim was made be disclosed pursuant to the provisions of this act.

(c) The subject of any emergency and environmental substance trade secret claim pending or approved shall be trea as confidential information. Except as otherwise provided, the

Department shall not disclose any confidential
any person except an officer or employee of the
with the official duties of the officer or employee
law for the protection of public health, or to
the State and their employees if in the opinion of
the disclosure is necessary for the completion of
tracted for in connection with the implementation

(d) The provisions of this section shall
the disclosure of information concerning emissions

130A-453. Penalties for Unlawful Disclosure.

(a) Any person who has access to confidential
information solely pursuant to this Act and who
closes it to any person not authorized to receive
guilty of a Class I felony.

(b) If any state agency or department fails
the confidentiality of the information claimed as
and environmental substance trade secret, the
liable for actual damages to the aggrieved party

130A-454. Emergency and non-emergency situations.

(a) Where a treating health care professional
that a medical emergency exists and the specific
of a hazardous chemical is necessary for emergency
treatment, the chemical manufacturer, importer,
shall immediately disclose the specific chemical
emergency and environmental substance trade secret
that treating physician or nurse, regardless of
a written statement of need or a confidentiality
The chemical manufacturer, importer, or employer

written statement of need and a confidentiality agreement as soon as circumstances permit. The confidentiality agreement (1) may restrict the use of the information to the health purposes indicated in a written statement of need; (2) may provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and (3) may not include requirements for the posting of a penalty bond. The parties are not precluded from pursuing non-contractural remedies to the extent permitted by law.

(b) In non-emergency situations, a chemical manufacturer, importer, or employer shall, upon request, disclose a specific chemical identity, otherwise permitted to be withheld under this section, to a health professional (i.e., physical, industrial hygienist, toxicologist, registered nurse or epidemiologist) providing medical or other occupational health services to exposed persons if the request is in writing and states the medical need for the information. The employer may require that the health care provider sign a confidentiality agreement.

(c) If the chemical manufacturer, importer or employer denies a written request for emergency and environmental trade secret release, or does not provide this information within 30 days, the Department of Crime Control and Public Safety will initiate the trade secret claim determination process imeediately on request of the health care provider.

130A455 to 130A-460. Reserved for future codification purposes.

Part 4. Community Right to Know

130A-461. Community Information on Hazardous Chemicals.

(a) The public has a right to be informed about the presence of hazardous chemicals in the community and the potential health and environmental hazards that the chemicals pose.

(b) Any person living or working in North Carolina may request from the Department of Crime Control and Public Safety any information included on the emergency and environmental chemical hazards survey, including material safety data sheets, if available. The Department of Crime Control and Public Safety shall transmit the requested information, including the material safety data sheets, if available, within 30 days. Any request shall be treated by the Department as confidential as to the name and address of the requester. Materials shall be available at a fee not to exceed the cost of reproducing them.

130A-462 to 130A-465. Reserved for future codification purposes.

Part 5. Implementation, Enforcement and Funding.

130A-466. Enforcement

(a) Emergency response agencies, governmental agencies and other parties entitled to information under this act, may file a complaint regarding any violation of the Act to the Department of Crime Control and Public Safety or the Department of Labor. The North Carolina Department of Labor will be the lead agency in coordinating investigations of all complaints. Complaints must be in writing. The identity of the complainant shall not be disclosed. Investigations shall be conducted to assure compliance with the act within 30 days. The Departments of Natural Resources and Community Development and Human Resources shall, upon request, cooperate and assist the N. C. Department of Labor and the Department of Crime Control and Public Safety

in making inspections and investigating complaints.

130A-467. Department of Labor Citations.

(a) The N. C. Department of Labor may issue a citation against an employer if, upon inspection or investigation, the employer is found not in compliance with this Article. Each citation shall:

(1) state with particularity the nature of the violation;

(2) fix a reasonable time for abatement of the violation;

(3) state the penalty for the violation, if any; and

(4) state that the employer may contest the citation or the proposed penalty by filing a writen notice with the Commissioner of Labor of his desire to do so within 15 days of the issuance of the citation. If the employer does not notify the Commissioner within the time allowed, the citation and the proposed penalty abatement are final and are not subject to review by any court. An employer who contests a citation or proposed penalty shall be provided a hearing before the OSHA Commission. After the hearing the Commission shall issue an order, based on findings of fact, affirming, modifying, or vacating the Commissioner citation or proposed penalty or directing other appropriate relief. This order shall become final 30 days after its issuance.

(b) If the Commissioner finds that an employer has failed to correct a violation within the time allowed by a citation, the Commissioner shall issue a citation to the employer for this failure. If the employer contested the former citation, the time allowed for abatement of the violation shall not begin

to run until the entry of an order by the OSHA Commission.

(c) If, after a complaint and investigation, the Commissioner fails to issue a citation for an alleged violation, the complaining party may institute an action for injunctive relief in the superior court of the county in which the alleged violation occurred. Reasonable attorneys' fees may be awarded to the prevailing party.

(d) The Commissioner may impose an administrative penalty on an employer for violating this Article. Each day of a continuing violation constitutes a separate offense. The size of the penalty shall reflect the seriousness of the offense but may not exceed five thousand dollars ($5,000) for each day the violation continues.

130A-468. Funding.

The Department of Crime Control and Public Safety and the Department of Labor shall together establish fees payable by an employer when submitting an emergency and environmental chemical hazard survey to cover the cost of processing these surveys and administering the act. All fees and civil penalties collected pursuant to this article may be used only to improve emergency protection, occupational and environmental health in the state.

130A-469. Implementation.

(a) The Department of Crime Control and Public Safety in conjunction with the Department of Labor, the Department of Human Resources and the Department of Natural Resources and Community Development shall develop the emergency and environmental hazardous substance survey.

(b) Additional chemicals may be added to the emergency and environmental hazardous substance list the the Department of Crime Control and Public Safety in consultation with the Department of Labor, Department of Human Resources and Department of Natural Resources and Community Development, through the rule-making process as defined by the Administrative Procedures Act.

130A-470. Exemptions to Article.

This Article does not apply to the following:

(1) Toxic or hazardous substances while being transported in interstate commerce into or through this State; and

(2) Toxic or hazardous substances contained in consumer products and food stuffs packaged for distribution to and use by the general public, except that the Secretary of Crime Control and Public Safety may require an employer to submit a material safety data sheet or a public disclosure form for a substance if, because of the quantity of the substance stored by the employer, the Secretary determines that the interests of employee and public health warrant the disclosure of this information.

130A-471. Severability.

If any provision of this act or its application to any person or circumstances is held invalid by any court or competent jurisdiction, the invalidity will not affect other provisions or applications that can be given effect without the invalid provision or application; and to this end the provisions of the act are severable.

Sec. 2. This act shall be effective upon ratification.