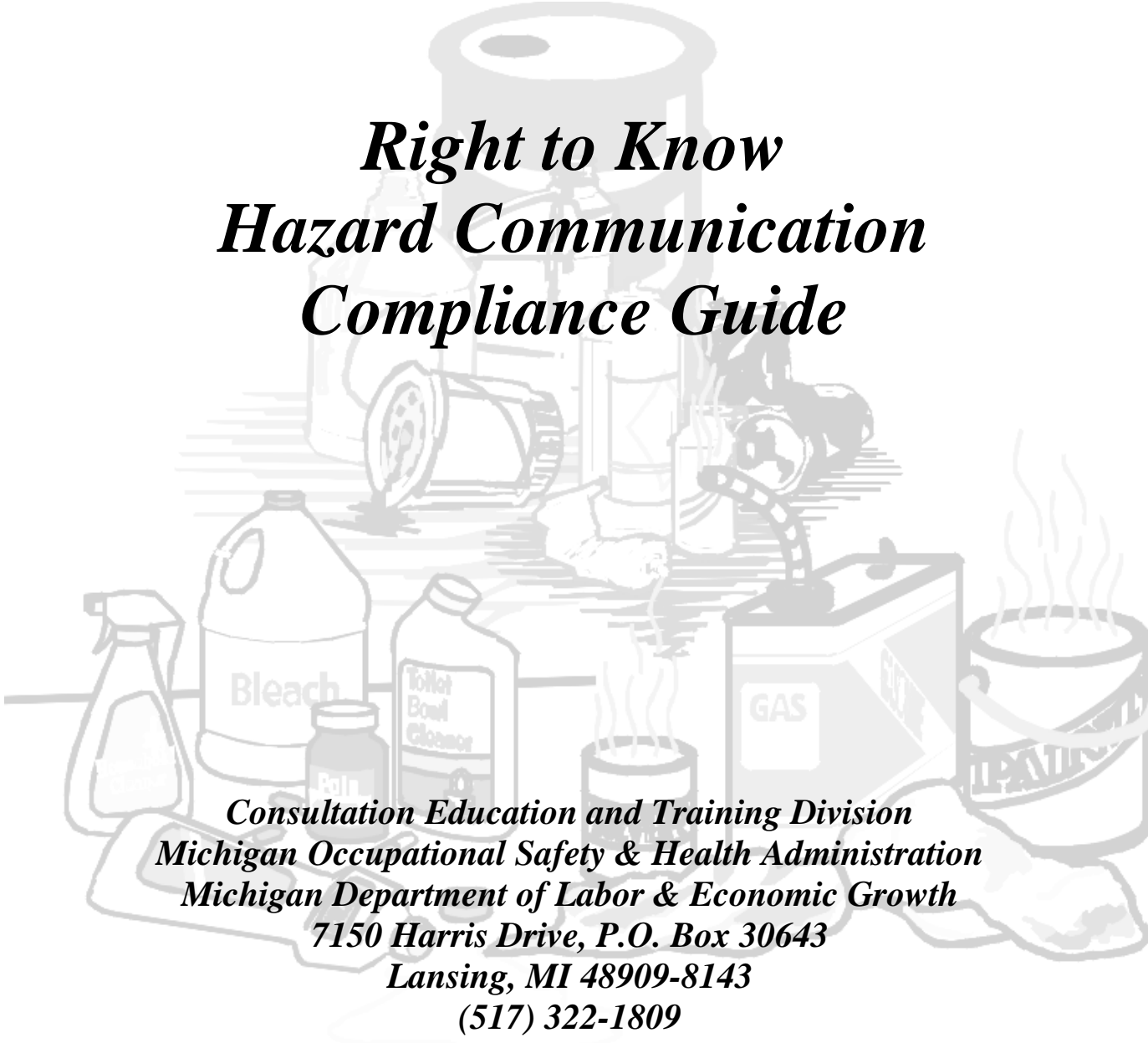




Right to Know Hazard Communication Compliance Guide



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NOTE:

This guidebook is not a substitute for Michigan's Right to Know Law, Michigan's Firefighter Right to Know Law, and Michigan's Community Right to Know Law. For details consult the standards which are available from:

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Introduction

The history of the Federal Occupational Safety and Health Act's Hazard Communication Standard (FHCS) began in 1975. At that time, OSHA initiated programs calling for chemical manufacturers to label containers of hazardous chemicals. By 1977, OSHA had filed in the Federal Register for the standardization of hazardous chemical labeling. OSHA proposed the Hazard Communication Standard again in March 1982, when it outlined five goals that together serve as the cornerstone for the current Hazard Communication Standard. The requirements were the following:

- 1) A manufacturer must evaluate all chemicals produced to determine which are hazardous.
- 2) A manufacturer must label all hazardous chemicals as such.
- 3) An employer must develop a written hazard communication program and make it accessible to all employees.
- 4) An employer must maintain Material Safety Data Sheets (MSDSs) and see that they are accessible to employees.
- 5) An employer must provide employees with the proper training for working safely with hazardous chemicals.

The Hazard Communication Standard was promulgated to ensure that all employers receive the information they need to inform and train their employees properly on the hazardous substances they work with and to help design and put in place employee protection programs. It also provides necessary hazard information to employees so they can participate in and support protective measures in place at their workplaces.

On April 7, 1986, a three-bill, Michigan Right to Know package was signed into law. The package, which is essentially an enhanced version of the Federal Right to Know program, requires all employees that work with hazardous chemicals to conform with the law regardless of their employer's status as manufacturer or non-manufacturer. The Right to Know Law is performance oriented. That means that you have the flexibility to adapt the rule to the needs of your workplace rather than having to follow specific, rigid requirements. It also means that you have to exercise more judgment to implement an appropriate and effective program. Michigan's Right to Know Law has three major sections.

- 1) **Michigan's Right to Know Law** - provides access to chemical information to workers whose jobs involve the routine use of hazardous chemicals. Five requirements characteristic of the federal standard (29 C.F.R. 1910.1200) were adopted by the Michigan Right to Know Law - Part 92. Hazard Communication. They are:
 - a) the evaluation of hazardous chemicals by the manufacturer,
 - b) the labeling of hazardous chemicals,
 - c) maintaining current Material Safety Data Sheets (MSDSs),
 - d) the implementation of employee hazardous chemical awareness training, and
 - e) the development of a written hazard communication program.
- 2) **Michigan's Firefighter Right to Know Law** - provides the fire chief of the organized fire department for the jurisdiction in which the person is located the right to request and receive a list of chemicals and MSDSs used at a specified location. Under the law, if the fire chief requests it, the following information must be provided within ten working days of the query:
 - a) a listing of all hazardous chemicals at the location,
 - b) MSDSs for all hazardous chemicals at the location and,
 - c) information pertaining to the quantity and location of the chemicals.

In addition, an employer must provide the fire chief with a written update when there is a significant change relating to fire hazards and the quantity, location or presence of hazardous chemicals in the workplace.

- 3) **Michigan's Community Right to Know Law** - This law made it possible for any resident of an employer's county to request a listing of and MSDSs for all hazardous chemicals present at that employer's workplace. We say made because the 1986 Superfund Amendment and Reauthorization Act (SARA) replaced the Community Right to Know Law, enforced by EPA. Under Title III of SARA, an employer is required to provide an even more comprehensive statement regarding hazardous chemicals in the workplace to members of the community.

Scope

The Right to Know Law applies to all Michigan employers. The rules establish requirements to ensure that the hazards of all chemicals produced or imported by chemical manufacturers or importers are evaluated and that information concerning the hazards is transmitted to affected employers and communicated to employees. These rules establish requirements to ensure that markings, placards, and labels required on hazardous materials and explosives, both in transportation and at stationary facilities, are retained until the materials have been removed to the extent they no longer pose a hazard.

All workers who may be exposed to hazardous chemicals during the course of routine work or in a foreseeable emergency are included under the Right to Know Law. Employees working in laboratories are covered under the Laboratory Safety Standard Chemical Hygiene Program.

Chemical Inventory

One component of the Written Hazard Communication Program is the inventory of hazardous chemicals and products. The inventory indicates that the company has investigated hazardous chemicals or products stored on the site and updated the inventory as necessary, adding new chemicals or products and deleting ones no longer stored on-site.

The inventory may begin by examining purchasing records for the past year (and MSDSs) to determine which products may contain hazardous chemicals. After identification of the hazardous substances, examine the warehouses, storage areas, machine shops, parts departments, and general work areas for any additional hazardous chemicals or products. If a suspected product containing one or more hazardous chemicals has no label information, the manufacturer can supply an MSDS for the product. The law requires the chemical manufacturer or importers to furnish a copy of the MSDS.

The written Hazard Communication Program must include the hazardous chemical or product inventory. It is the basis for completing the rest of the requirements of Michigan's Right to Know Law. Your written Hazard Communication Program must also include commonly used and stored products. Typical examples include: gasoline, diesel fuel, motor oil, lubricants hydraulic fluid, pesticides, wood preservatives, wood finishes, solvents, some hand cleaners, and parts cleaners. It is the responsibility of the employer, by examining the MSDS, to determine which products are hazardous and must be included in the program. Employees should have access to this inventory upon request.

A chemical inventory is indispensable to emergency responders in the event of an accident. Additionally, an initial inventory is an excellent opportunity to review your chemical storage procedures and to dispose of outdated chemicals. See Appendix A for an example of a Chemical Inventory List that can be used to create your own chemical inventory.

Evaluation of Hazardous Chemicals

The standard's design is simple. Employers must figure out what materials in their workplace are hazardous. Most of the chemicals used are purchased from companies who manufacture and/or distribute chemicals. This law requires these companies to tell employers if these materials are hazardous at the time they are purchased. Included with any hazardous material, the companies are required to supply a Material Safety Data Sheet (MSDS) and container labels.

What is a hazardous material? There are many substances common to any workplace that you do not think of as "hazardous materials". For example: heating and cooling fluids, cleansers, soaps, paints, varnishes, lacquers, copying fluid, gasoline, antifreeze, or brake and hydraulic fluid could all be considered hazardous under the right conditions. A general rule of thumb to follow is if the manufacturer has determined that it is hazardous, or it is a pure (single, non-compounded) hazardous chemical, or if the material could burn, explode, corrode, or otherwise injure an employee under reasonable, foreseeable circumstances, it should be listed in your inventory.

An employer may produce its own hazardous materials as products for sale or as by-products of research. When this happens, the employer is responsible for developing MSDSs and container labels for these materials.

Written Hazard Communication Program

Employers must develop, implement and maintain at the workplace a written, comprehensive Hazard Communication Plan that includes provisions for container labeling, employee access to MSDSs and an employee-training program. The plan must also contain an inventory of the hazardous chemicals or products in each work area and detail how the employer will inform employees of the hazards associated with these substances. The employer, upon written request, must provide the written plan to employees, their designated representatives and MIOSHA representatives.

When outside contractors work at a facility, the resident company must ensure their safety from hazardous chemicals or products and include the following in the written Right to Know Program:

- How the facility will provide the outside contractor with copies of appropriate MSDSs.
- How the company will inform the contractor of any precautionary measures they should take to protect employees during normal operations and during foreseeable emergencies.
- How the company will inform the contractor of the labeling system in use. The contract should specify the contractor's responsibility for training his/her employees with regard to the hazards associated with chemicals or products to which there may be exposure.

Written Program

Yes/No

Do you have a copy of the written RTK program available for employees to review?

Do employees know how to obtain a copy of the written plan?

Note: See Appendix B for a Sample Written Hazard Communication Program.

Labeling of Hazardous Chemicals

The Michigan Right to Know law requires that containers housing hazardous substances be labeled. The intent of the law is to ensure that employees are fully informed as to the identities of the materials they are exposed to and any inherent danger to that employee if that substance is handled. Labels provide employees with an immediate source of information and should not under any circumstances be removed or defaced. Generally speaking, it is the manufacturer's responsibility to label all hazardous chemicals shipped out of the company's facility. However, if a hazardous chemical is transferred from a large container to a smaller (secondary) container, or a label falls off, you may find it necessary to produce or update a label.

According to the standard's definition of hazard warning, the label must specifically convey the hazard of the chemical. If the inhalation of a given substance causes lung damage, then that is what the label should read, not "harmful if inhaled". Your label should list the constituents of the product and the hazard(s) of the substance. The hazard warning may be any type of message, words, pictures or symbols that conveys the hazards of the chemical or product in the container. Labels must be legible, printed in English (plus other languages, if desired) and prominently displayed. There are three exceptions to the labeling requirements:

- 1) Consumer products - Cans of spray paint, toilet bowl cleaner, turpentine; in short, anything available over the counter to the general public is exempt from labeling requirements, provided that the item has appropriate consumer warnings on the factory label.
- 2) Stationary process containers - The standard states that an employer may use signs, placards, process sheets, batch tickets or other such written materials instead of actually affixing labels to process containers - such as tanks. If your unit is working with some sort of chemical process, for example electro-plating, it may not be practical to permanently label your stationary containers. In this case, a warning sign could be generated and stood or hung proximate to the work area. The sign or placard must convey the same information that a label would and be visible to employees in the area throughout the work shift.
- 3) Portable containers - The Hazard Communication Standard states, "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** by the employee who performs the transfer."

"Immediate use" in this case 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." If hazardous material is going to be in the container after the employee who filled it leaves work, or if another employee is going to use the material, it must be labeled. All this aside, it would be in everyone's best interest if all containers, even portable ones, were labeled.

Containers of hazardous chemicals coming into the workplace must be inspected to ensure that the manufacturer has observed proper labeling procedures. If an improperly labeled container arrives, it must be re-labeled.

Michigan's Right to Know Law further extends the federal standard by including the concept of "imminent danger", which is defined as follows: "**Imminent danger means a condition or practice in a place of employment which is such that a danger exists which could reasonably be expected to cause death or serious physical harm either immediately or before the danger can be eliminated through the enforcement of procedures otherwise provided. A container of an unknown and unlabeled chemical or a container of hazardous chemicals that is not labeled or for which a Material Safety Data Sheet is not available as required by the standard incorporated by reference in section 14a shall be considered an imminent danger after meeting the provisions of section 31.**" In other words, unlabeled containers of hazardous chemicals in the work area may constitute an imminent danger situation.

Another requirement outlined by the Michigan Right to Know is pipe labeling. Employees have the right to be informed, either by label or placard, of the hazards of any chemicals in pipes or pipe systems. An employer must also establish an entry procedure to ensure that employees are aware of the effects that any residual hazardous material or leaks in the pipes might present. Appendix C provides a sample table for potentially hazardous materials contained in piping systems. The table can be used as a guide for identifying potentially hazardous piping systems that must be labeled.

Chemical Labeling

Yes/No

Do employees know how to interpret chemical labels?

Are employees informed of procedures for maintaining and replacing labels on incoming containers?

Maintaining Material Safety Data sheets (MSDSs)

The Material Safety Data Sheet (MSDS) is a source of detailed information on a chemical or product and provides information of the hazards associated with the chemical or product. MIOSHA requires that copies of the MSDSs for hazardous chemicals or products be readily accessible to employees at each work site and during each work shift. Federal law requires manufacturers and distributors of products containing hazardous substances to furnish customers with MSDSs for each such substance or product. If you do not have a current MSDS and need to request an MSDS from the manufacturer, refer to Appendix D. The manufacturer is responsible for developing an MSDS for any product containing a hazardous chemical. Refer to Appendix E for additional information about Understanding a MSDS. A blank, sample MSDS can be found in Appendix F.

Although OSHA specifies that hazard and protective measures information be included on an MSDS, it does not prescribe the exact format for a MSDS. OSHA does require that the MSDS be divided into eight sections. The eight sections that follow explain MSDSs, which play a vital role in a MIOSHA's Hazard Communication Program.

Section I. Chemical Identity: identifies the product by both its chemical and common names.
 The names must be the same names as are on the label of the product they represent since some chemicals or products have several different names. This section may also identify the manufacturer of the chemical or product. Other information that may appear includes a description of the substance and the Chemical Abstract System (CAS) number of the chemical.

Section II. Hazardous Ingredients: identifies the hazardous ingredients of a product or the hazards associated with the overall product.
 The MSDS will list both the chemical and common names of those chemicals known to be hazardous and that represent more than one percent of the product. Chemicals that are known to be carcinogenic and represent greater than one tenth of one percent of the overall product will appear on the MSDS. Chemicals considered a health hazard in exposure levels below those outlined by OSHA's Permissible Exposure Limit (PEL) or the American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Value (TLV) will also appear.

Threshold limit value (TLV), developed by the ACGIH, refers to the concentration of an air contaminant in the working environment to which nearly all workers may be exposed repeatedly, day after day without adverse effect.

Permissible Exposure Level is the cumulative amount of air contaminate a worker may be exposed to for an 8-hour period. For details, and for formula to determine when the exposure level is reached, refer to OSHA regulations in subpart Z of CFR 29 Part 1910.1000 (d)(1).

Section III. Physical and Chemical Characteristics: lists physical and chemical characteristics of hazardous chemicals or products.

The list includes such items as vapor pressure, boiling or freezing points, density, solubility and specific gravity. This section also includes a description of the chemical or product appearance and odor, and is helpful when developing policies and procedures for safe work practices.

Section IV. Fire and Explosion Data: describes the potential for fire and explosion of chemicals or products.

This section also describes the conditions under which the product, or its chemical constituents, may constitute a fire hazard. It will also include recommended fire-fighting procedures for the hazardous material.

Section V. Reactivity Data: describes how the chemical will react with other products or chemicals it may come in contact with.

Also covered here are the hazards associated with the decomposition of the chemical or product by natural or other means. For instance, it will identify potentially toxic gases produced as a result of fire.

Section VI. Health Hazards: lists health hazards associated with the chemical or product, both acute and chronic, and symptoms of overexposure.

Some terms defined by OSHA for this section are toxins, irritants, sensitizes, mutagens, carcinogens and corrosives. This section identifies the routes of entry of the chemical or product into the body, the recommended exposure limit established by OSHA or the manufacturer, and the possible carcinogenicity of the chemical or product.

Section VII. Precautions for Safe Handling and Use: recommends industrial hygiene practices and clean-up procedures in case of a spill.

Information on EPA waste disposal procedures and Department of Transportation requirements included here.

Section VIII. Control Measures: lists generally applicable control measures.

As required by the Hazard Communication Standard, this section of the MSDS lists control measures, including engineering controls, personal protective equipment, administrative controls, or a combination of all three. It should also include specific information on the type of personal protective equipment required when using the product.

These eight requirements for MSDSs are the minimum required by OSHA. Additional information may be added to ensure safe use of the hazardous chemical or product. OSHA does allow some flexibility with regard to the format and the presentation of information of the MSDS within the eight sections.

Posting Requirements

Provided for you in Appendix G are two Michigan Right to Know posters that can be used to meet the posting requirements of the standard (you may also choose to develop your own posters provided all required information is included). The first poster (CET-2105) is designed to serve as a reminder to workers of their rights under the Michigan Right to Know Law and to provide information on how to locate MSDSs and the RTK program for the worksite. The second poster (CET-2106) informs workers of any changes recently made to one or more MSDSs. Whenever you receive or create an updated Material Safety Data Sheet, you must provide the necessary information on the poster within 5 days of receipt and display it in a prominent manner for a minimum of 10 days. (See Appendix G)

Training of Employees

Each employee who may be “exposed” to hazardous chemicals when working must be provided information and be trained **prior to initial assignment** to work with a hazardous chemical, and **whenever the hazard changes**. “Exposure” or “exposed” under the rule means “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.”

Information and training is a critical part of the Right to Know Program. Information regarding hazards and protective measures are provided to workers through written labels and MSDSs. However, through effective information and training, workers will learn to read and understand such information, determine how it can be obtained and used in their own workplaces, and understand the risks of exposure to the chemicals in their workplaces as well as the ways to protect themselves. A properly conducted training program will ensure comprehension and understanding. It is not sufficient to just read material to the workers, have workers watch a video, or just simply hand them materials to read. You want to create a climate where workers feel free to ask questions. If you are going to do the training yourself, you will have to understand the material and be prepared to motivate the workers to learn. This is not always an easy task, but the benefits are worth the effort.

All employees should be thoroughly briefed by their supervisors on how the Michigan Right to Know Law (MRTKL) affects them and their rights and responsibilities under the law. Employees must be trained on specific operations in their work area where hazardous chemicals are present, the hazards of chemicals in unlabeled pipes, the location of the hazard communication program, and the required list of hazardous chemicals and MSDSs. Finally, the MRTKL requires that employee training include:

- 1) Methods and observations that may be used to detect the presence or releases 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);
- 2) The physical and health hazards of the chemicals in the work area;
- 3) 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
- 4) The details of the hazard communication program, including an explanation of the labeling system (procedure) and MSDS, as well as how employees can obtain and use the appropriate hazard information.

A company’s written program should provide enough details about the employer’s plans in this area to assess whether or not a good faith effort is being made to train employees. MIOSHA does not expect that every worker will be able to recite all the information about each chemical in the workplace. In

general, the most important aspects of training under the Michigan Right to Know Law are to ensure that employees are aware that they are exposed to hazardous chemicals, that they know how to read and use labels and MSDSs, and that, as a consequence of learning this information, they are following the appropriate protective measures established by the employer.

MIOSHA compliance officers will be talking to employees to determine if they have received training. If they know they are exposed to hazardous chemicals, and if they know where to obtain substance-specific information on labels and MSDSs. In addition to these specific items, compliance officers may also be asking the following questions in assessing the adequacy of the program: Does a list of the hazardous chemicals exist in each work area or at a central location? Are methods the employer will use to inform employees of the hazards of non-routine tasks outlined? Are employees informed of the hazards associated with chemicals contained in unlabeled pipes in their work areas?

The employer is ultimately responsible for ensuring that employees are adequately trained. If the compliance officer finds that the training is deficient, the employer may be cited for the deficiency regardless of who actually provided the training on behalf of the employer.

<u>Employee Training</u>	<u>Yes/No</u>
Are the following topics being covering in employee training?	_____
General requirements of Right to Know Law?	_____
Chemical and physical hazards specific to their workplace?	_____
New chemical and physical hazards as they arise?	_____
Methods of detection of chemical hazards in the workplace?	_____
The location of the Right to Know Program in the workplace?	_____
Is the training being documented?	_____

Note: See Appendix H for Right to Know Compliance Checklist.
See Appendix I for Sample MSDS Quiz
See Appendix J for Key to Sample MSDS Quiz

APPENDIX A

Chemical Inventory Instructions

MIOSHA Chemical Inventory Instructions

1. Create a spreadsheet using programs such as Excel, Lotus, or Quattro Pro providing the information listed in section 2. (Recommended).
2. Complete each section as listed:
 - a. Inventory taken by: List the name of the person who conducted the inventory.
 - b. Company.
 - c. Phone number.
 - d. Date inventory initially compiled.
 - e. Date of most recent revision.
 - f. Supervisor/administrator.
 - g. Product/chemical name as it appears on the container label
 - h. Maximum quantity to be stored.
 - i. Location of product in the building.
3. Sample inventory:

Below is an example of how an employer might maintain a chemical inventory.

Example Chemical Inventory List			
Inventory Taken by:	John Jones	Date inventory initially compiled:	06/30/96
Company:	ABC Widgets	Date of most recent revision:	12/26/96
Phone:	313/123-4567	Supervisor:	Bill Smith
Product/Chemical Name		Maximum Quantity*	Location*
Acetone		15 gallons	Warehouse North Wing
Mineral Spirits		20 gallons	Warehouse North Wing
Sulfuric Acid		5 gallons	Laboratory

Note: Inventory quantity and location required under the Michigan Firefighters Right to Know Law, but not required for the Michigan Right to Know Chemical Inventory List.

APPENDIX B

Sample Format for a Written Hazard Communication Program

Sample Written Hazard Communication Program, 1910.1200 Paragraph (e)(I)(ii) General Industry Std. Part 92. Hazard Communication

General

The following hazard communication program has been established for *(insert name of company)*. This program will be available for review by all employees.

I. Hazard Determination [See paragraph (d) of Part 92. Hazard Communication]

(insert name of company) will rely on material safety data sheets obtained from product suppliers to meet hazard determination requirements.

II. Labeling [See paragraph (f) of Part 92. Hazard Communication]

A. *(insert name or job title)* will be responsible for seeing that all containers entering the workplace are properly labeled.

B. All labels shall be checked for:

1. Identity of the material
2. Appropriate hazard warning for the material (Words/Symbols/Pictures);
3. Name and address of the responsible party.

C. Each *(insert employee or supervisor)* shall be responsible for ensuring that all portable containers used in their work area are labeled with the appropriate identify and hazard warning.

III. Material Safety Data Sheets (MSDSs) [See paragraph (g) of Part 92. Hazard Communication]

A. *(insert name or job title)* will be responsible for compiling and maintaining the master MSDS file. The file will be kept in/at *(insert location)*.

B. Additional copies of MSDSs for employee use are located in/at *(insert location)*.

C. MSDSs will be available for review to all employees during each work shift. Copies will be available upon request to *(insert name or job title)*.

D. Posters identifying the person responsible for maintaining MSDSs and where the MSDSs are located are posted at *(insert location)*. Posters notifying employees when new or revised MSDSs are received with (5) days of receipt will be located in the same location(s).

E. If a required MSDS is not received, *(insert name or job title)* shall contact the supplier, in writing, to request the MSDS. If an MSDS is not received after two such requests *(insert name or job title)* shall contact the Michigan Department of Labor and Economic Growth, the General Industry Safety and Health Division at (517) 322-1831, or the Construction Safety and Health Division at (517) 322-1856 for assistance in obtaining the MSDS.

IV. Employee Information and Training [See paragraph (h) of Part 92. Hazard Communication]

- A. **(Insert name or job title)** shall coordinate and maintain records of employee hazard communication training.
- B. Before starting work, at the time of their initial assignment, each new employee will attend a hazard communication training class. The class will provide the following information:
1. Chemicals in the workplace and their hazards.
 2. How to lessen or prevent exposure to these chemicals.
 3. What the company has done to lessen or prevent employee exposure to hazardous chemicals.
 4. Procedures to follow if they are exposed to hazardous chemicals.
 5. Where to locate MSDSs and who to contact to obtain copies of MSDSs.
 6. How to read and interpret labels and MSDSs.
- C. The employee shall be informed that:
1. The employer is prohibited from discharging, or discriminating against, an employee who exercises his/her rights to obtain information regarding hazardous chemicals used in the workplace.
 2. As an alternative to requesting an MSDS from the employer, the employee can seek assistance from the Michigan Department of Labor and Economic Growth, General Industry Safety and Health Division at (517) 322-1831 or the Construction Safety and Health Division at (517) 322-1856. A sign will be posted with the address and telephone number of the departments responsible for such requests.
- D. Attendance will be taken at training sessions. **(Insert name of job title)** will maintain the records.
- E. Before any new hazardous chemical is introduced into the workplace, each employee who may be exposed to the substance will be given information in the same manner as during the hazard communication training class.

V. Hazardous Non-Routine Tasks [See paragraph (e)(1)(ii) of Part 92. Hazard Communication (Delete section if not applicable)]

- A. Occasionally, employees are required to perform non-routine tasks, (i.e., clean reactor vessels, enter confined spaces, etc.). Prior to starting work in such areas, each employee will be given information about the hazards of the area procedure. This information will include:
1. Specific chemical hazards.
 2. Protection/safety measures the employee can take to lessen risks of performing the task.
 3. Measures the company has taken to eliminate or control the hazard(s), including:
 - (a) air monitoring,
 - (b) ventilation requirements
 - (c) use of respirators
 - (d) use of attendants to observe procedures, and
 - (e) emergency procedures
- B. It is the policy of **(insert company name)** that no employee will begin work in a confined space, or any non-routine task, without first receiving appropriate safety and health training.
- C. Hazardous non-routine tasks we have at our facility include: **(List hazardous non-routine tasks)**.

VI. Multi-Employer Workplaces [see paragraph (e)(2) of Part 92. Hazard Communication] (Delete section if not applicable)

- A. Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed (for example, employees of a construction contractor working on-site) shall additionally ensure that the hazard communication programs developed and implemented under this paragraph (e) include the following:
1. Methods the employer will use to provide the other employer(s) on-site access to MSDSs for each hazardous chemical the other employer(s)' employees may be exposed to while working;
 2. The methods the employer will use to inform the other employer(s) of any precautionary measures that need to be taken to protect employees during the normal operating conditions and in foreseeable emergencies; and,
 3. The methods the employer will use to inform the other employer(s) of the labeling system used in the workplace.
- B. It is the responsibility of (the) *(insert name or job title)* to obtain chemical information from contractors when they will expose our employees to hazardous chemicals which they may bring into our workplace.

VII. Pipes and Piping Systems [See Act 154 Section 14(c)]

Information on the hazardous contents of pipes and piping systems will be identified by: *List means of identification for pipes and piping systems (i.e., label, sign, placard, written operating instructions, process sheet, batch ticket, or a substance identification system that conveys the same information required to be displayed on a label by the standard incorporated by reference in Section 14a (29 C.F.R. 1910.1200/Michigan Right to Know Law – Part 92. Hazard Communication Standard). Natural gas, steam and compressed air lines (with pressures exceeding 25 psig) must be identified in all industrial facilities. ANSI A13.1-1981 recommends the following colorations: blue for low-medium pressure oxygen and compressed air lines, yellow for variable-high pressure oxygen and compressed air lines, and yellow for acetylene and natural gas lines.*

VIII. Hazardous Chemical Inventory [See paragraph (e)(i) of Part 92. Hazard Communication]

A list of all hazardous chemicals used by *(insert company name)* is attached to this document. Further information regarding any of these chemicals can be obtained by reviewing its respective MSDS. Materials which can be purchased by the ordinary household consumer, and which are used in the same fashion and amount as by the ordinary household consumer, are not required to be included in this list. *(Note: It is recommended that you maintain a separate list of all materials you consider to be “consumer use” materials.)*

Example Chemical Inventory List		
Inventory Taken by:	Insert Name	Date inventory initially compiled:
Company:	Insert Name	Date of Most recent Revision:
Phone:	Insert Number	Supervisor: Insert Date:
Product/Chemical Name	Maximum Quantity*	Location*

- **Note: Inventory quantity and location required under the Michigan Firefighters Right to Know Law, but not required for the Michigan Right to Know Chemical Inventory List.**

APPENDIX C

Pipe Labeling Guidelines

Pipe Labeling Guidelines

Listed below is a sample table that may be used to identify potentially hazardous materials contained in piping systems. For questions regarding Pipe Labeling Requirements, contact the Michigan Department of Labor and Economic Growth, CET Division at (517) 322-1809, General Industry Safety and Health Division at (517) 322-1831, or Construction Safety and Health Division at (517) 322-1856.

Information on the hazardous contents of pipes and piping systems will be identified by a label, sign, placard, written operating instructions, process sheet, batch ticket, or a substance identification system that conveys the same information required to be displayed on a label by the standard (29 C.F.R 1910.1200/Michigan Right to Know Law - Part 92. Hazard Communication Standard) incorporated by reference in Section 14a of Act 154.

Pipe Labeling Guidelines				
PIPE SYSTEM	POTENTIAL HAZARD	PROTECTIVE EQUIPMENT	HAZARD CLASS	COMMENTS
Sanitary Sewer	Biological contamination	Skin & eye protection	Not applicable	Wash skin if contacted, decon with bleach
Hot Water Supply/Return	Temperature burns	Skin and eye protections	Not applicable	
Natural Gas	Explosion and asphyxiation	Eye protection Fire extinguisher	Flammable gas	Prevent sparks, may fill confined space, ventilate
Compressed Air	Particulate impact damage	Eye protection	Not applicable	Do not use to clean clothing
Steam and Steam Condensate	Temperature burns	Skin and eye protection	Not applicable	
High Pressure Steam	Temperature burns	Skin and eye protection	Not applicable	
Oxygen	Fire, hyperoxia	Fire extinguisher	Oxidizer	High concentrations may cause fire, ventilate

APPENDIX D

MSDS Request Form

TO: CHEMICAL MANUFACTURER, IMPORTER OR DISTRIBUTOR

As you are aware, MIOSHA requires employers to provide training to their employees concerning the hazards of chemicals or other hazardous materials.

To properly train our employees, we need a Material Safety Data Sheet (MSDS) for one of your products,

Your prompt attention is necessary to maintain a proper level of safety for our employees. Please send the MSDS for the requested hazardous chemical/material no later than _____

Sincerely,

APPENDIX E

Understanding the MSDS

A **Material Safety Data Sheet** is a written information sheet about a specific hazardous chemical. Provided for your information is a sample MSDS in Appendix G that meets the requirements of the Michigan Right To Know Law. In order to facilitate your understanding of the MSDS, a component explanation and glossary of abbreviations has been included.

Section 1 *Manufacturer and Address* - Self explanatory

Section 2 *Hazardous Ingredients/Identity* - Here the chemical and common names of all constituents should be listed. If the product's hazard determination was made as a mixture or compound then the common name of the product or chemical name of the compound will suffice.

Section 3 *Physical/Chemical Characteristics* - this section will tell you what to expect from the chemical. This is particularly important to guarantee proper handling, fire and spill address procedures.

BOILING POINT - the temperature at which the material boils. If the material is a mixture, a range might be given.

VAPOR PRESSURE - tells how much vapor the material may produce. A high vapor pressure indicates that the material will readily evaporate.

VAPOR DENSITY – tells how heavy a vapor is relative to an equal amount of air. A high vapor density means that the vapor will tend to accumulate at the bottom of tanks.

SOLUBILITY IN WATER - indicates the solubility of the substance in water. Solubility is generally indicated numerically in weight percent. Solubility might also be expressed as follows:

Water Solubility Table	
Negligible	less than 0.1 percent solubility
Slight	0.1 to 1 percent solubility
Moderate	1 to 10 percent solubility
Appreciable	more than 10 percent solubility
Complete	soluble in all proportions

SPECIFIC GRAVITY - Indicates how heavy the material is relative to water.

Specific Gravity Table	
1.0	same as water
Above 1.0	heavier than water
Below 1.0	lighter than water

EVAPORATION RATE - you must exercise caution when interpreting evaporation rate data.

There are two commonly used bases from which to derive a figure. Ethyl ether is used as the basis for determining evaporation rates of highly volatile solvents. In this case, values

higher than 1 indicate less rapid evaporation than ether. Butyl acetate is the standard used for less volatile solvents and values greater than 1 indicate evaporation rates greater than butyl acetate.

MELTING POINT - Temperature at which a solid material melts.

APPEARANCE AND COLOR - Self-explanatory.

Section 4 **Fire and Explosion Hazard Data** - this information is intended to help you in case of an emergency. Special attention should be taken to understand how to interpret the data in this section quickly and correctly.

FLASH POINT - this figure indicates the temperature at which a material will ignite. There are two general methods used to determine flash point (closed cup and open cup), so the method used in the determination should be specified.

FLAMMABLE LIMITS - this gives the range of concentrations of a gas or vapor (percent by volume of air), which will burn or explode if exposed to an ignition source. Upper explosive limit (UEL) and lower explosive limits (LEL) are given.

EXTINGUISHING MEDIA - cites the appropriate fire extinguishing media for the material.

SPECIAL FIRE FIGHTING PROCEDURES - A list of special provisions including personal protective equipment and procedures.

UNUSUAL FIRE AND EXPLOSION HAZARDS - lists any peculiarities the material may demonstrate during fire fighting procedures. For example, this section could contain the following: "extremely flammable, water reactive, vapors heavier than air and could flow along floor to alternate ignition sources."

Section 5 **Reactivity Data** - This information helps the user determine safe storage procedures. This section should provide information on material stability and reactivity and should state what other chemicals or substances to avoid when handling the material.

STABILITY - Tells how easily a material becomes self-reactive and under what conditions it is most likely to do so.

INCOMPATIBILITY - Tells what chemicals that the material might come in contact with that should be avoided.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS - Lists hazardous chemicals that are produced if the material is burned, oxidized or heated.

HAZARDOUS POLYMERIZATION - Usually a yes or no response indicative of whether or not hazardous polymerization is likely to occur. If "yes" then conditions by which the reaction could take place should be listed.

Section 6 **Health Hazard Data** - This section gives pertinent health data and effects of exposure.

ROUTES OF ENTRY - this information tells you how the chemical is most likely to enter the body. Also indicated should be any potential routes of entry in a foreseeable emergency situation. A foreseeable emergency is one that might be expected as a consequence of something going wrong during the normal course of an employee's job, e.g. a tank explosion, burst pipe, accidental inhalation, ingestion, etc.

HEALTH HAZARDS - indicates what the potential health effects of exposure to the material are and whether the effects are acute or chronic. Acute effects are those that

occur from a concentrated dose of the material over a relatively short period of time. Chronic conditions are usually associated with continuous, low-level exposures, and do not appear for days, months, or even years after the initial exposure.

CARCINOGENICITY - tells if the material is carcinogenic or not. A material is considered carcinogenic if it is specified as such by the National Toxicology Program's, Annual Report on Carcinogens, the International Agency for Research on Cancer, or OSHA.

SIGNS AND SYMPTOMS OF EXPOSURE - the most common symptoms of exposure are described in this section. Specific allergic reactions are rarely listed so there may be other danger signs not mentioned by the MSDS.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE - those medical conditions generally recognized as aggravated or complicated by exposure to the material.

EMERGENCY FIRST AID PROCEDURES - Self-explanatory for the most part. It should be noted that these are first aid procedures only and a qualified medical person should be contacted and apprised of the situation as soon as possible.

Section 7 ***Precautions for Safe Handling and Use*** - this section provides specific guidelines for handling chemical spills, for storage of chemicals and for hazardous waste disposal.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED - may specifically recommend materials to clean up/absorb a spill, and actions to take to protect employees following a spill.

WASTE DISPOSAL METHOD - recommendations for waste disposal meeting local, state and federal regulations may be listed.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE - this section recommends storage methods and hazards to avoid during storage, i.e., sparks, open flames.

OTHER PRECAUTIONS - Other hazards that should be noted will be specifically addressed.

Section 8 ***Control Measures*** - this section lists protective equipment to be used, types of ventilation and general precautions to consider.

RESPIRATORY PROTECTION - Type of respirator to use.

VENTILATION - Type of ventilation suggested for work with the material.

PROTECTIVE GLOVES - Gives construction (type of material) of the glove recommended for work with the substance.

EYE PROTECTION - Indicates type of eye protection.

OTHER PROTECTIVE CLOTHING AND/OR EQUIPMENT - Tells when special suits or protective equipment of any kind should be used.

WORK / HYGIENIC / MAINTENANCE PRACTICES - Indicates personal hygienic practices for working with the material, like washing hands, etc.

Glossary of Terms Used on an MSDS

<u>Acute-</u>	Short term period of action. Readily apparent.
<u>Acute Effect -</u>	An adverse effect with severe symptoms occurring very quickly, as a result of a single excessive overexposure to a substance.
<u>Acute Toxicity -</u>	The adverse effects resulting from a single excessive overexposure to a substance. Usually a figure denoting relative toxicity.
<u>Asphyxiate -</u>	A gas or vapor that can cause injury, unconsciousness or death by suffocation by reducing the amount of oxygen sufficient to promote life.
<u>Boiling Point -</u>	A temperature at which a liquid turns to a vapor state. This term is usually associated with the temperature at sea level pressure when a flammable liquid gives off sufficient vapors to promote combustion.
<u>Carcinogen -</u>	A substance or agent capable of producing cancer in mammals.
<u>“C” or Ceiling -</u>	In terms of exposure concentrations, this is the concentration that should never be exceeded, even for a short period, for a substance.
<u>Chronic -</u>	A long time period of action.
<u>Chronic Effect -</u>	An adverse effect with symptoms that develop or recur very slowly, or over long periods of time.
<u>Combustible -</u>	A term used to classify liquids, gases, or solids that will burn readily. This term is often associated with ‘flash point’, which is a temperature at which a given material will generate sufficient vapors to promote combustion.
<u>Combustible Liquid -</u>	A liquid having a flash point at or above 100 ⁰ F but below 200 ⁰ F. This definition does not include mixtures containing one or more constituents with flash points outside the parameters indicated.
<u>Compressed Gas -</u>	<ol style="list-style-type: none">1) a gas or mixture of gases having in a container an absolute pressure exceeding 40 pounds per square inch at 70⁰F, or2) a gas or mixture of gases having in a container an absolute pressure exceeding 104 pounds per square inch at 130⁰F, regardless of the pressure at 70⁰F, or3) a flammable liquid having a vapor pressure exceeding 40 pounds per square inch absolute pressure at 100⁰F, as determined by the American National Standard Method of Test for Vapor Pressure of Petroleum Products.
<u>Concentration -</u>	A figure used to define relative quantity of a particular material. Such as a mixture in air of 5 ppm Acetone in air.
<u>Corrosive Material -</u>	A chemical capable of causing visible and irreversible damage to human skin tissue at the site of contact. Many acids are classified as corrosives.
<u>Decomposition -</u>	The breakdown of materials or substances into other substances or parts of compounds. Usually associated with heat or chemical reactions.
<u>Dermal -</u>	Used on or applied to the skin.
<u>Dermal Toxicity -</u>	The adverse effects resulting from exposure of a material to the skin. Usually associated with lab animal tests.

<u>Evaporation Rate</u> -	The rate at which a liquid material is known to evaporate, usually associated with flammable materials. The faster a material will evaporate, the sooner it will become concentrated in the air, creating either an explosive/combustible mixture or toxic concentration, or both.
<u>Explosive</u> -	A chemical that produces a sudden release of pressure, gas and/or heat when subjected to sudden shock, pressure or high temperature.
<u>Exposure</u> -	Contact of an individual with a hazardous material during the course of employment through any route of entry.
<u>Flammable Material</u> -	A substance that meets any of the following specifications: A flammable aerosol is a chemical substance or mixture, dispensed from a container as a mist, spray or foam by a propellant under pressure, which yields a flame of at least 18 inches at full valve opening, or a flashback (flame extending back through the valve) at any opening. A flammable gas is a gas which, at normal atmospheric pressure and temperature and at a concentration of 13 percent or less, forms a flammable mixture, or that forms a range of flammable mixtures with air greater than 12 percent regardless of the lower limit. A flammable liquid for our purposes, is defined as having a flash point below 100°F except that this does not include any mixture where any one constituent has a flash point at or above 100°F and makes up 99 percent or more of the total volume of the mixture. A flammable solid is a material (other than an explosive) that causes fire through friction, absorption of moisture, spontaneous chemical change, retained heat from manufacturing or processing, or that can be readily ignited and can remain so even after the ignition source is removed.
<u>Flash Point</u> -	The minimum temperature at which a substance produces enough vapor to promote combustion (be ignited). Generally, the lower the flash point, the greater the danger of combustion.
<u>General Exhaust</u> -	A term used to define a system for exhausting or ventilating air from a general work area. Not as site specific as localized exhaust.
<u>“g”, gram</u> -	A unit of weight. One ounce equals about 28.4 grams.
<u>Hazardous Chemical</u> -	Is a substance considered as one or more of the following: a toxic material, a carcinogen, a corrosive material, an irritant, a strong sensitizer, a dangerously reactive material, a flammable material, a combustible liquid, a pyrophoric material, a strong oxidizer, an explosive material, or a compressed gas. Any chemical which is either a physical or health hazard or both.
<u>Health Hazard</u> -	A relative term generally referring to any substance that has been shown by at least one established scientific study to produce acute or chronic detrimental health effects to exposed personnel.
<u>Ignitable</u> -	A term used to define any liquid, gas or solid which has the ability to be 'ignited' which means having a flash point of 140 degrees F., or less.
<u>Incompatible</u> -	Materials that could cause dangerous reactions from direct contact with one another.
<u>Ingestion</u> -	Taking in of a substance through the mouth.
<u>Inhalation</u> -	The breathing in of a substance in the form of a gas, liquid, vapor, dust, mist or fume.

<u>Inhibitor</u> -	A chemical added to another substance to prevent an unwanted change from occurring.
<u>Irritant</u> -	A chemical substance or mixture, other than a corrosive, that when contacted with the skin produces a reversible inflammatory reaction to the affected area and/or surrounding areas. Normally, irritants affect the eyes, nose, mouth and respiratory system.
<u>LC</u> -	Lethal Concentration - In lab animal tests, this is the concentration of a substance which is sufficient to kill the tested animal.
<u>LC₅₀</u> -	Median Lethal Concentration - The concentration in air of gas, vapor, mist, fume or dust for a given period of time that will kill 50 percent of the test animals using a specified test procedure. Inhalation is the primary route of entry.
<u>LD₅₀</u> -	Median Lethal Dose - The dosage of a substance that will kill 50 percent of the test animals to which the substance is administered using a specified test procedure. Various routes of entry can be used for testing purposes.
<u>LEL</u> -	Lower Exposure Limit - The lowest concentration of a gas or vapor in air that will ignite or explode if an ignition source is introduced.
<u>(MSDS)</u> -	Material Safety Data Sheet - An informational document that contains relevant information about a specific chemical or mixture. Also lists the hazards of the chemical, appropriate emergency response procedures, protective equipment that should be worn, etc.
<u>Mutagen</u> -	A material that affects organisms at the genetic level and whose effects may be seen in subsequent generations. Normally associated with carcinogens.
<u>NFPA</u> -	National Fire Protection Association - An organization that promotes fire protection/prevention and establishes safeguards against loss of property and/or life by fire. The NFPA has established a series of codes identifying hazardous materials by symbol and number for fire fighting purposes. These codes also classify materials in their order of flammability. With 0 being not burnable up to 4 which means it will burn spontaneously at room temperature.
<u>Olfactory</u> -	Relating to the sense of smell.
<u>Oral</u> -	Used in or taken through the mouth into the body.
<u>Oral Toxicity</u> -	A term used to denote the degree at which a substance will cause adverse effects when taken through the mouth. Normally associated with lab animals.
<u>Oxidizer</u> -	A chemical that yields oxygen readily and promotes combustion in other materials. The definition does not include explosives.
<u>Oxidizing Agent</u> -	A chemical or substance that brings on oxidation reactions, by providing the oxygen to promote oxidation.
<u>PEL</u> -	Permissible Exposure Limit - An exposure concentration established by the Occupational Safety & Health Community which indicates the maximum concentration for which no adverse effects will follow.
<u>PPM</u> -	Parts per Million - A unit of measurement for the concentration of a gas or vapor in air. Usually expressed as number of parts per million parts of air.

<u>PPB</u> -	Parts per Billion - As above, only expressed as number of parts per billion parts of air.
<u>Physical Hazard</u> -	A chemical that is either a combustible liquid, a compressed gas, an explosive, is flammable, an organic peroxide, an oxidizer, is pyrophoric, is reactive or water-reactive.
<u>Pyrophoric Material</u> -	A chemical substance or mixture that will ignite spontaneously in dry or moist air at below 130 ⁰ F.
<u>Reactive Material</u> -	A chemical substance or mixture that may vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure or temperature. Includes chemical substances that can be classified as explosive, organic peroxide, a pressure generating material or a water reactive material.
<u>Reactivity</u> -	The term that describes the tendency of a substance to undergo a chemical change with the release of energy, often as heat.
<u>Reducing Agent</u> -	In an oxidation reaction, this is the material that combines with oxygen.
<u>Respiratory System</u> -	The breathing system, including the lungs, and air passages, plus their associated nervous and circulatory components.
<u>STEL</u> -	Short Term Exposure Limit - The maximum allowable concentration of a substance that one can be exposed to for less than 15 minutes and not produce adverse health effects.
<u>Sensitizer</u> -	A chemical substance or mixture which on first exposure causes little or no reaction; however, with repeated exposure will induce a marked response not necessarily limited to the exposure site. Usually associated with skin sensitization.
<u>Specific Gravity</u> -	The weight of a material compared to the weight of an equal volume of water. Usually expresses a materials heaviness. A material with a specific gravity of greater than 1.0 will sink to the bottom of water, whereas a material with a specific gravity of less than 1.0 will float on top of water.
<u>Teratogen</u> -	A substance or agent, usually associated with cancer, that when exposed to a pregnant female will cause malformation of the fetus. Usually associated with lab animal.
<u>TLV</u> -	Threshold Limit Values - These are the upper exposure limits of airborne concentrations of chemicals that are accepted as safe for employees to be exposed to on a day-in, day-out basis.
<u>TWA</u> -	Time Weighted Average - This is the maximum airborne concentration of a material that employees working eight hours per day, 40 hours per week can be exposed to with no adverse physical effects.
<u>Toxic</u> -	Refers to any chemical or substance that falls into any of the following categories: <ol style="list-style-type: none"> 1) A chemical that has a median lethal dose of more than 50 milligrams per kilogram but not more than 1000 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each; 2) A chemical that has a median lethal dose of more than 200 milligrams per kilogram but not more than 1000 milligrams per kilogram of body

weight when administered by continuous contact for 24 hours or less with the bare skin of albino rabbits weighing between 2 and 3 kilograms each; or,

- 3) A chemical that has a median lethal concentration in air of more than 200 ppm but not more than 2000 ppm by volume of gas 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 to albino rats weighing between 200 and 300 grams each.

UEL - Upper Explosive Limit - The highest concentration of a gas or vapor in air that will sustain or support combustion, when an ignition source is present.

Unstable - A chemical or substance in a pure state (nothing added) that will readily polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure or temperature.

Vapor Density - A term used to define the weight of a vapor or gas as compared to the weight of an equal volume of air. Materials lighter than air have a vapor density of less than 1.0, whereas materials heavier than air have a vapor density greater than 1.0.

Vapor Pressure - A number used to describe the pressure that a saturated vapor will exert on top of its own liquid in a closed container. Usually, the higher the vapor pressure, the lower the boiling point, and therefore the more dangerous the material can be, if flammable.

Abbreviations commonly found on an MSDS:

AQTX	Aquatic Toxicity	LD50	Median lethal dose
atm	Atmosphere	LEL	Lower explosive limit
bp	Boiling point	LFM	Linear feet per minute
ca	(circa) about	m ³	Cubic meter
CAR	Carcinogenic effects	MESA	Mining Enforcement and Safety Administration
cc	Cubic centimeter	mHg	Milliliters of Mercury
CC	Closed Cup	mp	Melting point
CFR	Code of Federal Regulations	mg	Milligram
CNS	Central Nervous System	ml	Milliliter
COC	Cleveland Open Cup	MLD	Mild irritation effects
conc	concentration .	MSDS.	Material Safety Data Sheets
decomp	decompose	MW	Molecular weight
G.I. or GI	Gastrointestinal	NEO	Neoplastic effects
g or gms	Grams	No _x	Oxides of Nitrogen
HW	Hazardous waste	PMCC	Pensky-Martens Closed Cup
I	Intermittent	RDS	Primary irritation dose
inhl	Inhalation	Ox	Oxides of Phosphorous
insol	Insoluble	ppb	Parts per billion
IRR	Irritant effects (systemic)	TLV	Threshold limit value
kg	Kilogram	UEL	Upper exposure limit
l	Liter		
LC50	Median lethal concentration		

APPENDIX F

Sample MSDS

NATIONAL SOLVENT -- 020205, MINERAL SPIRITS

NATIONAL SOLVENT -- 020205, MINERAL SPIRITS
MATERIAL SAFETY DATA SHEET
FSC: 8010
NIIN: 00N032085
Manufacturer's CAGE: 02186
Part No. Indicator: A
Part Number/Trade Name: 020205, MINERAL SPIRITS

General Information

Company's Name: NATIONAL SOLVENT CORP
Company's Street: 955 WEST SMITH RD
Company's City: MEDINA
Company's State: OH
Company's Country: US
Company's Zip Code: 44256
Company's Emergency Ph #: 800/424-9300(CHEMTREC)
Company's Info Ph #: 216/725-4991
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 06MAY87
Safety Data Review Date: 29JUN92
MSDS Serial Number: BNSKK
Hazard Characteristic Code: NK
Report for NIIN: 00N032085

Ingredients/Identity Information

Proprietary: NO
Ingredient: HYDROTREATED HEAVY NAPHTHA (PETROLEUM); (PETROLEUM NAPHTHA)
Ingredient Sequence Number: 01
Percent: 100
NIOSH (RTECS) Number: 1002859HN
CAS Number: 64742-48-9
OSHA PEL: 500 PPM (MFR)
ACGIH TLV: 100 PPM (MFR)

NATIONAL SOLVENT -- 020205, MINERAL SPIRITS

Physical/Chemical Characteristics

Appearance And Odor: CLEAR, COLORLESS, SOLVENT ODOR.

Boiling point: >300F, >149C

Vapor Pressure (MM Hg/70 F): 6

Vapor Density (Air=1): 3.9

Specific Gravity: 0.79 (H²O=1)

Evaporation Rate and Ref: 70

Solubility In Water: NIL

Percent Volatiles by Volume: 100

pH: N/A

Magnetism (Milligauss): N/P

Fire and Explosion Hazard Data

Flash Point: 105F, 41C

Flash Point Method: N/P

Lower Explosive Limit: 0.8%

Upper Explosive Limit: 5%

Extinguishing Media: FOAM, CO² OR DRY CHEMICAL

Special Fire Fighting Proc: WEAR NIOSH/MSHA APPROVED SCBA & FULL PROTECTIVE EQUIPMENT (FP N).

Unusual Fire and Expl Hazards: NONE

Report for NIIN: 00N032085

Reactivity Data

Stability: YES

Condition To Avoid (Stability): HEAT, SPARKS & FLAMES.

Materials To Avoid: STRONG OXIDIZING AGENTS.

Hazardous Decomp Products: CO, CO².

Hazardous Poly Occur: NO

Conditions To Avoid (Poly): NOT RELEVANT

Health Hazard Data

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.

Route of Entry - Inhalation: YES

Route of Entry - Skin: NO

Route of Entry - Ingestion: YES

CONTACT: CAN CAUSE IRRITATION, DEFATTING, DERMATITIS. INHAL: CAN CAUSE IRRITATION, DIZZINESS, NAUSEA, HEADACHE. INGEST: CAN CAUSE GI IRRITATION, NAUSEA, VOMITING & DIARRHEA.

Carcinogenicity - NTP: NO

Carcinogenicity - IARC: NO

Carcinogenicity - OSHA: NO

Health Hazard Data cont..

Explanation Carcinogenicity: NOT RELEVANT

Signs/Symptoms of Overexp: SEE HEALTH HAZARDS.

Med Cond Aggravated by Exp: NONE KNOWN

Emergency/First Aid Proc: INGEST: CALL MD. DO NOT INDUCE VOMITING.

INHAL: REMOVE PERSON TO FRESH AIR. GIVE ARTIFICIAL RESPIRATION IF BREATHING

WASH W/SOAP & WATER.

NATIONAL SOLVENT-- 020205, MINERAL SPIRITS

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: PREVENT IGNITION, STOP LEAK. VENTILATE AREA. ABSORB W/INERT MATERIAL, CONTAINERIZE FOR DISPOSAL.

Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Method: LIQUID INCINERATION. CONTAMINATED ABSORBENT MAY BE DEPOSITED IN LANDFILL I/A/W LOCAL, STATE & FEDERAL REGULATIONS.

Precaution-Handling/Storing: KEEP FROM SPARKS & OPEN FLAMES. AVOID PROLONGED SKIN CONTACT.

Other Precautions: NONE

Control Measures

Respiratory Protection: USE NIOSH/MSHA APPROVED SCBA.

Ventilation: LOCAL EXHAUST VENTILATION RECOMMENDED.

Protective Gloves: SOLVENT RESISTANT GLOVES.

Eye Protection: CHEMICAL WORKERS GOGGLES (FP N).

Other Protective Equipment: NONE

Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.

Suppl. Safety & Health Data: NONE SPECIFIED BY MANUFACTURER.

Report for NIIN: 00N032085

Transportation Data

Trans Data Review Date: 92272

DPT PSN Code: GJL

DOT Proper Shipping Name: FLAMMABLE LIQUIDS, N.O.S.

DOT Class: 3

DOT ID Number: UN1993

DOT Pack Group: III

DOT Label: FLAMMABLE LIQUID

IMO PSN Code: HIA

IMO Proper Shipping Name: FLAMMABLE LIQUIDS, N.O.S.

IMO Regulations Page Number: 3345

IMO UN Number: 1993

IMO UN Class: 3.3

IATA PSN Code: MCA

IATA UN ID Number: 1993

IATA Proper Shipping Name: FLAMMABLE LIQUID, N.O.S.

IATA US Class: 3

IATA Label: FLAMMABLE LIQUID

AFI PSN Code: MCA

AFI Prop. Shipping Name: FLAMMABLE LIQUID, N.O.S.

AFI Class: 3

AFI ID Number: UN1993

AFI Pack Group: III

AFI Label: FLAMMABLE LIQUID

AFI Basic Pac Red: 7-7

NATIONAL SOLVENT -- 020205, MINERAL SPIRITS

Disposal Data

Report for NIIN: 00N032085

Label Data

Label Required: YES
Technical Review Date: 29JUN92
Label Date: 26JUN92
Label Status: M
Common Name: 020205, MINERAL SPIRITS
Chronic Hazard: NO
Signal Word: WARNING!
Acute Health Hazard-Moderate: X
Contact Hazard-Moderate: X
Fire Hazard-Moderate: X
Reactivity Hazard-Slight: X
Special Hazard Precautions: COMBUSTIBLE. AVOID OXIDIZERS. ACUTE: CAN CAUSE IRRITATION, DIZZINESS, NAUSEA, HEADACHE. INGEST: GI IRRITATION, NAUSEA, VOMITING, DIARRHEA. CHRONIC: NONE SPECIFIED BY MANUFACTURER.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: NATIONAL SOLVENT CORP
Label Street: 955 WEST SMITH RD
Label City: MEDINA
Label State: OH
Label Zip Code: 44256
Label Country: US
Label Emergency Number: 800/424-9300 (CHEMTREC)
URL for this msdss <http://hazard.com>.

If you would like to provide any corrections, updates or additions please contact dan@hazard.com.

APPENDIX G

Michigan's Right to Know Law Posters

This Workplace Covered by the Michigan Right To Know Law

Employers must make available for employees in a readily accessible manner, Material Safety Data Sheets (MSDS)* for those hazardous chemicals in their workplace.

Employees cannot be discharged or discriminated against for exercising their rights including the request for information on hazardous chemicals.

Employees must be notified and given direction (by employer posting) for locating Material Safety Data Sheets and the receipt of new or revised MSDS(s).

* When the employer has not provided a MSDS, employees may request assistance in obtaining MSDS from the:

Michigan Department of Labor & Economic Growth
Michigan Occupational Safety & Health Administration
General Industry Safety & Health Division
517-322-1831
Construction Safety & Health Division
517-322-1856

MOSHACET #2106 (Rev. 3/04)

MI OSHA
Michigan Occupational Safety and Health Administration

**MSDS(s)
For This
Workplace
Are
Located At**

Location[s]

Location[s]

Person[s] responsible for MSDS(s)

Phone

Full size, fill -in-the-blank [MSDS Location Poster](#)

As Required by the Michigan Right to Know Law

THIS FORM IS TO BE USED BY THE WORKER TO RECORD THE LOCATION OF MSDS

**New or Revised
MSDS**

NEW OR REVISED TITLE	RECEIPT DATE	POSTING DATE	LOCATION OF NEW OR REVISED MSDS

Michigan Department of Labor & Economic Growth
Michigan Occupational Safety & Health Administration
Consultation Education & Training Division
7150 Harris Dr., P.O. Box 30643
Lansing, MI 48909-8143, (517) 322-1809

Paid in part with federal OSHA funds.
MOSHACET #2106 (Rev. 3/04)

For further information visit our website at
www.michigan.gov/miosha

Full size, fill-in-the-blank [New or Revised MSDS Poster](#)

[Reserved for Full size, fill -in-the-blank [MSDS Location Poster](#)]

[Reserved for Full size, fill-in-the-blank [New or Revised MSDS Poster](#)]

Appendix H

Right to Know Compliance Checklist

The Right to Know Amendments convey Rights and Responsibilities in six major areas.

- | | |
|------------------------------------|--------------------|
| 1) Hazard Determinations | 2) Labels |
| 3) Material Safety Data Sheets | 4) Written Program |
| 5) Employee Information & Training | 6) Trade Secrets |

The checklist below allows you to examine your policies, procedures and programs to ensure your compliance with the Michigan Right to Know Law.

KEY

- Written: Items required to be a part of your “on paper” Right to Know Program.
- Employee Information & Training: Items to be covered in employee training sessions.

Section I. Hazard Determination Procedures*	Written	Employee Information & Training
Person(s) responsible for evaluating chemical(s).	▪	
Sources of information to be consulted	▪	
Criteria used in evaluating sources of information.	▪	
Plan for reviewing and updating MSDSs.	▪	

* If you are using an MSDS from your supplier to determine hazards, you need not do a hazard determination. If you are a manufacturing employer mixing chemicals and produce a new hazardous chemical, you need to perform a hazard determination (or obtain an MSDS) on this new chemical.

Section II. Labels & Other Forms Of Warnings	Written	Employee Information & Training
Person(s) responsible for labels on containers..	▪	
Description of labeling system(s) and alternatives for portable containers.	▪	▪
Description of warning system for pipe and piping containing hazardous chemicals.	▪	▪

Section III. Material Safety Data Sheets	Written	Employee Information & Training
Person(s) responsible for obtaining/maintaining MSDSs.	▪	
How MSDSs are to be maintained.	▪	▪
How employees can obtain access to sheets. (Poster)	▪	▪
Procedures when MSDS not received at time of first shipment.	▪	
Procedures for posting notice of existence of updated MSDSs. (Poster)	▪	▪
Description of alternatives to actual MSDSs in workplace.	▪	▪

Section IV. Employee Information & Training	Written	Employee Information & Training
Person(s) responsible for conducting training.	▪	
Format of program	▪	
Elements of training program	▪	
Procedures for training new employees	▪	
Procedures for training about new hazards	▪	
Hazard Communication Standard Requirements		▪
Location and details of written RTK program (including chemical inventory and MSDSs).		▪
Operations in work area where hazardous chemicals are present.		▪
Physical and health hazards of chemicals in work area.		▪
Detection methods		▪
Protective measures		▪

Section V. Written Program	Written	Employee Information & Training
List of Hazardous Chemicals	▪	
Methods to inform employees about hazards of non-routine tasks.	▪	
Methods to inform contractors about hazards.	▪	

Section VI. Trade Secrets
An employer may invoke a trade secret to protect the identity of a chemical.
All other information regarding hazards, methods of protection, and other required MSDS data shall be available and trained upon.
For further information on trade secrets, contact the Michigan Department of Labor and Economic Growth, General Industry Safety and Health Division at (517) 322-1831 or the Construction Safety and Health Division at (517) 322-1856.

Section VII. Checklist for Right to Know Law (Paragraph 5, Page 22 of the Part 92. Hazard Communication Standard)	YES	NO
Obtained a copy of the rule.		
Read and understood the requirements.		
Assigned responsibility for tasks.		
Prepared an inventory of chemicals.		
Ensured containers are labeled.		
Obtained MSDSs for each chemical.		
Prepared written program.		
Made MSDSs available to workers.		
Conducted training of workers.		
Established procedures to maintain current program.		
Establish procedures to evaluate effectiveness.		

APPENDIX I

MSDS Quiz

- 1) What is an MSDS?
 - A. Material Safety Document Sheet
 - B. Material Sheet Documenting Safety
 - C. Material Safety Data Sheet

- 2) All MSDS forms contain the same information in the same order.

True False

- 3) Only supervisors must be trained to detect hazardous chemicals that are released in the workplace.

True False

- 4) Each MSDS contains information on emergency first aid treatment.

True False

- 5) You have the right to request a copy of a MSDS.

True False

- 6) Training is only required at the time of hire.

True False

- 7) MSDSs must be physically attached to a shipment.

True False

- 8) The MSDS tells you how to clean up spills and leaks.

True False

- 9) An MSDS will list various routes of entry for a chemical exposure. Give an example of a route of entry: _____

- 10) The purpose of MIOSHA's Right to Know Law is to make sure that needed information reaches all employees and workers who use hazardous materials.

True False

APPENDIX J

MSDS Quiz Key

MSDS Quiz Key

- 1) Material Safety Data Sheet
- 2) False - There is no specific format required for an MSDS.
- 3) False - All individuals working with hazardous chemicals must be trained to detect a hazardous chemical's presence in the event of a leak.
- 4) True - Emergency first aid information can be located under the section for Health Hazard Information.
- 5) True - Copies of MSDSs for hazardous chemicals or products must be readily accessible to employees at each work site and during each work shift.
- 6) False - Retraining may be required if an individual changes job duties, a new chemical/hazard is introduced into the work environment, or if it is determined that initial training was deficient.
- 7) False - An MSDS will accompany a shipment but is not required to be physically attached to the item.
- 8) True - The information on how to handle a spill or leak is located under the section for Safe Handling and Use.
- 9) Examples of routes of entry include inhalation, ingestion, skin absorption, splash to the eye, and a puncture injury.
- 10) True.

Free Onsite Consultation Service for Employers

To help employers better understand and voluntarily comply with the MIOSHA Act, free Onsite Consultation programs are available to help small employers Identify and correct potential safety and health hazards



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For further information or to request consultation, education and training services
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visit our website at www.michigan.gov/miosha



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This document is available upon request in alternative accessible formats to individuals with disabilities. For further information call:
Voice (517) 322-1809, TTY (517) 335-0191