J-M Manufacturing Co., Inc. — Internal Correspondence

To : E.E. Wang - Skn

Date: June 13, 1986

From : C.G. Stelchek

Copies : T. Lohman, B. Ciaccio, Safety file

Subject : Plant Hazard Communications Program
your letter of May 30, 1986

PLAINTIFF'S EXHIBIT
JMMC-115

As you requested in the subject letter we are mailing you Denison's program which consists of two binders, one an instructor's handbook and the other a participant's handbook. Please advise if you need additional information.

PLAINTIFF EXHIBIT
JMM 5154

JUN. 16 1988

HAZARDOUS MATERIALS COMMUNICATION PROGRAM

PARTICIPANT'S HANDBOOK

Denison Plant

May 7, 1986

D 001745

JUN. 16 1986

HAZARDOUS MATERIALS COMMUNICATION PROGRAM

COURSE OUTLINE:

A. Review COURSE OBJECTIVES (page 3 in participants guide book) — 2 min.

B. Discuss FLAMMABLE LIQUIDS AND CHEMICAL TOXICITY as presented in the guide books, including the notes on Hygiene, Safety and First-Aid (pages 4 - 7) — 10 min.

C. Review DEFINITIONS provided (pages 8 and 9) — 3 min.

D. Review READING AND UNDERSTANDING MATERIAL SAFETY DATA SHEETS (pages 10 and 11) — 5 min.

E. Review an actual M.S.D.S. pertinent to the department (e.g. PVC Resin for PVC operations, Asbestos for those involved with this material). A copy of this M.S.D.S. is to be included in participants guide book as pages 11 and 12. Emphasize hazards involved and understanding the M.S.D.S. format. — 5 min.

F. Present M.S.D.S. information on all other materials used in the shop: — 10 min.

1. Items which may present particular hazards, but which cannot be grouped with other materials (e.g. hot melt glue - can cause burns).

   a. Discuss safety procedures employees are to follow when handling these materials.

2. Liquids (e.g. denatured alcohol, methylene chloride, acetone, stabilizer), noting particular hazards of each, such as flammable, toxic, etc.

   a. Stress need for good ventilation when using these materials.

   b. Safety goggles (or face shield) and rubber gloves are to be used when handling these materials.

   c. Discuss methods for safe handling of these liquid materials and emergency procedures.

D 001746

(Hazardous mtrls, Course Outline - continued):

3. Discuss dust hazards (e.g. sodium stearate, silica, lime), noting special hazards (e.g. CPE 3615 Impact Modifier: 36% of weight is chlorine which will emit dangerous fumes if burned).

   a. In general, respiratory protection is <u>required</u> if exposed to excessive amounts of dust or exposure is 15 minutes or more (cumulative). Respiratory protection is recommended at all times when handling any dust producing materials.

   b. Safe handling and good housekeeping practices are required since high concentrations of dust can be explosive; dust covered floors and stairs are slippery.

G. Items such as XL-165 petroleum wax, lubricants and silicate of soda are relatively safe to handle but can be extremely slick on floors and stairs.

H. Hydraulic fluids, offset ink, ink thinner and heat transfer fluid can be irritants to shin and mucous membrane.

I. Remind participants that, while emphasis during this presentation has been on hazardous materials, they must stay aware of the total shop environment. 4 min

(Ask for comments on other hazards which could include:

1. Electricity
2. Natural gas
3. Propane
4. Hot equipment
5. Lift equipment, hoists, etc.
6. Moving machinery
7. Heavy equipment and materials
8. Truck traffic

etc.)

Encourage the participants to periodically review the M.S.D.S. file and to bring any safety hazards to your attention.

Thanks for your participation.

HAZARDOUS MATERIALS COMMUNICATION PROGRAM

COURSE OBJECTIVES:

The Occupational Safety and Health Administration's Hazard Communication Standard requires chemical manufacturers, distributors, and users to provide training for their employees

In compliance with this standard and with J-M's policy of maintaining a safe work place, this course has been prepared for presentation to all employees.

The training objectives are that each employee will know:

a. how to read and understand Material Safety Data Sheets (M.S.D.S.)

b. the chemical identity and the common name

c. where and how the material is used

d. how to identify the material by odor and appearance (not mixed with other substances)

e. what the hazards are:

- physical hazards
- acute health hazards, including symptoms of overexposure
- chronic health hazards

f. what protective equipment to use in minimizing exposure

g. the proper way to wear personal protective equipment

h. immediate first-aid procedures for a worker suffering from over-exposure

i. the location of the Departmental M.S.D.S. file

j. proper procedures for handling spills

k. plant evacuation procedures

FLAMMABLE LIQUIDS

Some of the flammable liquids used in our operations include acetone, gasoline, MEK (methyl ethyl ketone), ethyl acetate, and denatured alcohols.

Flammable chemicals must be handled with great respect. Read the label on the container carefully and completely. These chemicals catch fire easily at normal temperatures and the vapors can explode violently from a spark, flame or heat source. The vapors of nearly all flammable chemicals are heavier than air. This means that the vapors can "crawl" along the ground to distant flames and sparks, then flash back to the source. An example which you hear about occasionally, is the person using a flammable product in the home. The fumes travel to a pilot light, igniting, causing fire and/or explosion. Use flammable materials only in well ventilated areas, away from sources of ignition.

Ground and electrically interconnect, by bonding, all drums, containers and tanks anytime a flammable chemical is being transferred. This prevents the build-up of static electricity and the possibility of a spark starting a fire. Remember to hook up static lines when the job requires them. They could save a life.

Keep all containers of flammable liquids closed when not in use. Reclose containers tightly and completely after using.

"Empty" containers are dangerous! They may contain harmful chemical vapors or liquid residues which can also be explosive. Keep away from all ignition sources such as welding torches. The empty containers should be promptly disposed of in accordance with company policy.

If a fire starts, act quickly! Sound the alarm! Rescue injured persons. If the fire is small and contained, try to put it out if you can do so safely. Your quick action may save lives and prevent the fire from spreading. But remember, your personal safety is most important. Do not attempt to put out large fires without assistance. Always minimize your exposure to fumes and vapors from a fire. Many chemicals give off poisonous gases when they burn.

CAUTION: Using the wrong kind of fire extinguisher could be dangerous. For example, using water on some solvents can actually spread the fire. Carbon Dioxide extinguishers are suitable for most chemicals used in the plant and are available except in the fiber warehouse.

D 001749

CHEMICAL TOXICITY

If administered in a suitable manner and in sufficient dosage, practically any substance can be harmful to a person. It is recognized that there are degrees of harmfulness and degrees of safeness for all materials.

Although the toxic effects of many chemical agents used in industry are well known, there are many others commonly used which are not as well defined. The toxicity of a material is not a physical constant - such as boiling point, melting point, vapor pressure, or temperature - so only a general statement can be made concerning the harmful nature of a given chemical agent.

There are only three ways in which chemical agents can harm individuals:

1. By contact with or absorption through the respiratory tract.
2. By contact with or absorption through the skin.
3. By contact with or absorption through the digestive tract.

In general, poisonings usually result from:

1. Inhalation of toxic agents, which is dependent upon many factors, one of which is the volume of material inhaled.
2. Absorption through the skin can occur upon exposure to some toxic agents.
3. Ingestion of the toxic agent can occur to some extent, however in the industrial application, there would generally be considerable inhalation of the material in such a case.

An important difference between inhalation as a route of entry and ingestion or skin absorption is that through inhalation the material enters the arterial blood directly, but with ingestion or skin absorption the material enters the venous blood and is carried through the right portion of the heart where it is then diluted by the entire venous system and passed through the lungs and then pumped by the left portion of the heart to the brain and other organs.

What's the best way to know the dangers of materials being used? Read the label! Read the label! Read the label! Not only with materials used at work, but at home also. On each container you will find brief instructions on hazards involved in using the material. Most will be marked, in part, as:

D Danger - Serious, severe, hazardous
or W Warning - Moderate, intermediate, harmful
or C Caution - Minor, mild, irritating

The degree of severity can be expressed only in relative terms.

Danger is the strongest of the three words and is used for those products presenting the most serious hazards.

Caution is for those compounds presenting the least serious hazards.

Warning is intermediate.

Your supervisor has more detailed information available to him on safe handling of the specific materials used in your department.

One type of material used in most areas of the plant is solvents. The term "solvent" is meant to include all those organic liquids commonly used to dissolve other organic materials. It includes materials such as naptha, gasoline, turpentine, alcohol and trichlorethylene. They are used in the home as dry cleaning agents, paint thinners and spot removers; in the plant as cleaning agents, thinners, degreasers and chemical reagents.

Some solvents we use are called "safety" solvents. It is unfortunate that the term "safety" solvent has been applied to some cold cleaners, because the term is not precise. For example, a "safety" solvent may be considered by some users as nondamaging to the surfaces being cleaned. Other users may consider it to be free from fire or toxicity hazards. Depending on the conditions of use, neither of these assumptions may be correct. Some materials are very effective grease and oil solvents with no flash or fire point, but are relatively expensive and may be toxic under certain conditions. Other materials are effective solvents, low in toxicity, but have flash and fire points. To combine the best qualities of each solvent, manufacturers mix them in an attempt to produce a cold cleaner with a safer flash point and lesser toxicity than the individual solvents. Keep in mind that certain elements can evaporate from the solution, when left exposed to air, creating a solvent which becomes more flammable or more toxic.

There are some general, common sense, rules for working with any type of chemical we use here or that you are likely to encounter at home.

As a general practice, keep chemicals away from heat, sparks, open flame.

Avoid spilling. If spilled, clean up and dispose of the material at once.

Avoid contacting skin, eyes, clothing.

Use adequate ventilation.

Avoid breathing dust, fumes, mists, gases, vapors.

Use personal protective equipment, as required, such as gloves and eye protection.

Use barrier cream.

Never transfer material to an unmarked container. The next person to come along won't necessarily know what they are exposed to. An example of this in the home is the tragic poisoning of children who drink chemicals being stored in cold drink containers.

Do not mix chemicals unless you are sure they are compatible. Mixing liquid bleach and some cleansing powders will create chlorine gas - a poison. Mixing some drain cleaners can create an explosive force.

Don't use more than is absolutely necessary for the job. The more you use, the more exposure.

Be careful and don't create excess waste. Waste must be disposed of which creates environmental problems.

HYGIENE

Wash exposed skin thoroughly before eating, drinking, using tobacco, using the rest room. Use soap and lots of water to remove material from exposed skin, showering is recommended before leaving work. Work clothing should be washed separately from other laundry.

SAFETY D 001751

Personal protective equipment, as required. In nearly every instance it is best to wear eye protection when working with chemicals. Good work clothes are additional protection. Knowledge of location and operation of emergency eyewash and emergency showers are required. Eyes should be washed at least 15 minutes in the event you get chemicals into your eyes. Remove contaminated clothing and

(safety - cont'd)

use the emergency shower if chemicals are on the body. Do not wear contaminated clothing until laundered (separate from other laundry). Seek medical attention if any discomfort.

FIRST AID

Learn first aid procedures. You could save someone's life. Your fellow workers should learn them also - they may be able to save your life. The local Red Cross Chapter offers first-aid courses as well as courses in CPR at a nominal cost to cover books and equipment.
Minimize your contact with all chemicals. Some chemicals can cause rashes, others can actually burn your skin. Some can penetrate through your skin and make you feel sick, and even damage internal organs.
When you are handling chemicals and you experience:

(Chart or blackboard)

Eye discomfort
Breathing difficulty
Dizziness
Headache
Nausea
Vomiting, or
Skin irritation

STOP WHAT YOU ARE DOING!
You may be overexposed. Leave the area. Obtain first-aid if necessary and tell your supervisor what happened.

FIRST-AID PROCEDURES

BURNS - Keep the victim calm and cover him with a blanket to keep him warm but not hot. Then get medical attention as soon as possible.

EYE CONTACT - Immediately flush your eyes for 15 minutes with large amounts of water. Use the nearest eyewash (preferably), sink, water fountain or any source of clean water. Do this before seeking medical attention since the quicker this is done, the more effective it is. Make sure you spread the eyelids open to increase the flushing effect. Have someone help get medical attention as soon as possible.

SKIN CONTACT - Wash with soap and lots of water. Use waterless hand cleaner if needed. If the chemical is still on your skin after washing, use a small amount of solvent (acetone is the best), then thoroughly wash the solvent from your skin. Don't use solvents for usual clean-up. They remove the natural oil from your skin and can cause dryness and rashes. So, only use a solvent to clean your skin if soap and waterless hand cleaner don't do the job. After washing, if you feel sick or your skin is discolored or itches, get medical attention.

SWALLOWING - You must definitely know, either by first-aid training and/or chemical information, or specific medical advice, whether to induce vomiting or not. This could cause more damage than swallowing the chemical.
CAUTION: Never give anything by mouth to an unconscious person.

INHALATION - Remove the victim to fresh air and call for medical help. Remove any objects that are in his mouth and keep him warm. Most foremen have first-aid, and some CPR, training.

DEFINITIONS (Page 1)

Hazardous materials - those which can possibly cause injury or harm when a specific quantity is used under specific conditions.

Toxicity - the capacity of a material to produce injury or harm.

Organic - Term used to designate chemicals that contain carbon.

Reagent - a substance used in a chemical reaction to produce another substance or to detect its composition.

Dust - fine dry pulverized particles of matter with sizes varying from submicroscopic to visible.

Fumes - a solid condensation particle of extremely small size, such as smoke, vapor or gas (used especially when fumes are irritating or offensive).

Vapor - suspended matter (such as smoke or fog) floating in the air (in the gaseous state), not a liquid or solid.

Liquid - flowing freely like water, neither gaseous or solid.

Solid - does not flow (noticeably) under moderate stress, neither gaseous or liquid.

Oxidizing material - contact with other combustible material may cause fire.

Solvents - a (usually) liquid substance capable of dissolving or dispersing one or more other substances, most commonly water but often an organic chemical compound.

Flash point - the lowest temperature at which a liquid gives off a vapor which can be ignited when exposed to a source of ignition.

Flammable liquids (classified as Class I liquids) - any liquid having a flash point below 100 Degrees Fahrenheit. These are divided into three classes:

- Class IA - liquids having flashpoints below 73 Deg. F. and having a boiling point below 100 Deg. F.
- Class IB - liquids having flashpoints below 73 Deg. F. and having a boiling point above 100 Deg. F.
- Class IC - liquids having flashpoints above 73 Deg. F. and below 100 Deg. F.

Combustible liquids - liquids having flash points at or above 100 Deg. F., further divided into two classes:

- Class II - flash points between 100 and 140 Deg. F.
- Class III - flash points above 140 Deg. F.
  (Class IIIA 140 to 200 Deg., Class IIIB over 200 Deg. F.)

Safety can - portable container which has a tight closure with screwed or spring cover, and is fitted with a spout or so designed that the contents can be poured without spilling.

Grounding and Bonding: buildup of static electricity charges on containers and people is a dangerous source of sparks that can touch off flash fires wherever flammable liquids are being used or transferred.
Grounding - a readily-accessible connection to an earth ground which is conductive.
Bonding - a wire providing an electrical path from a grounded container to the container being filled.

Hygiene - conditions or practices (as of cleanliness) contributing to good health.

Barrier cream - a cream which aids in protecting the skin by helping to retain the natural protective oils in the skin.

Respirator - a device worn for protection of the respiratory tract.

Carcinogen - a substance or agent capable of producing or inciting cancer.

Pneumoconiosis - a disease of the lungs caused by the habitual inhalation of irritant particles.

Dermatitis - inflammation of the skin.
Primary irritation dermatitis caused by mechanical agents such as friction, by physical agents such as heat or cold, and from chemical agents such as acids, alkalis, irritant gases and vapors. Not related to allergy.
Sensitization dermatitis is the result of an allergic reaction to a given substance.

Micron (micrometer) - a unit of length equal to one-millionth of a meter (one meter = 39.37 inches).

O.S.H.A. - Occupational Safety and Health Administration. Responsible for creating and enforcing standards governing industry practices concerning safety and health.

E.P.A. - Environmental Protection Agency. A Federal Department responsible for creating and enforcing standards governing practices concerning the environment.

D.O.T. - Department of Transportation. Responsible for creating standards governing transportation practices. Part of this responsibility concerns transportation of hazardous and toxic materials.

T.A.C.B. - Texas Air Control Board, a state agency which governs controls on emissions and hazardous waste disposal.

T.W.R.B. - Texas Water Resources Board, a state agency which governs use of water resources.

READING AND UNDERSTANDING MATERIAL SAFETY DATA SHEETS

Section I

Trade Name & Synonyms
The name under which the product is marketed and the common commercial name of the product.

Product Identification
The chemical or generic name of single elements and compounds or for compounded products and mixtures, the general type of product, e.g., calcium complex grease, motor oil, polymer, sulfonate, surfactant, etc.

CAS Number
The Chemical Abstracts Registry number, if applicable.

EPA Number
The code number assigned by the Environmental Protection Agency, if applicable.

Formula
The chemical formula for single elements or compounds.

DOT Classification
The appropriate classification as determined by the regulations of the Office of Hazardous Materials, Department of Transportation.

Section II

Important Components
The major component as well as any minor one(s) having potential for harm which are considered when evaluating the product.

Permissible Exposure Concentration
Indicates Threshold Limit Value (TLV), any limit established by a governmental regulatory agency, or an estimate if none have been established.

Section III Health Effects of Exposure

Possible health hazards as derived from human observation, animal studies or from the results of studies with similar products.

Medial Lethal Dose or Concentration (LD50, LC50)
That dose or concentration of the material which will produce death in 50 per cent of test animals. For inhalation, the exposure time is indicated.

Irritation Index
An empirical score for eye and skin irritation when tested by the methods described in Section 1500.40 of the Federal Hazardous Substances Act.

Sensitizer
A substance which will cause on or in normal living tissue, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

Section IV Emergency and First Aid Procedures

Gives first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

Section V Personal Protection Information

Eye, Skin, Respiratory
The type of protective equipment that is necessary for the safe handling and use of the product.

Ventilation
Refers to the type recommended: i.e., local exhaust, mechanical, etc.

Section VI Fire Hazard Information

Flash Point (State Method Used)
The temperature in degrees F at which a liquid will give off enough flammable vapor to ignite in the presence of a source of ignition.

Autoignition Temperature
The minimum temperature required for a substance to initiate self combustion in the absence of a spark or flame.

Flammable Limits
The range of gas or vapor concentration (per cent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper the upper flammable limit given in per cent.

Extinguishing Media
Specifies the fire fighting agent(s) that should be used to extinguish fires.

Unusual Fire and Explosion Hazards
Refers to special procedures required if unusual fire hazards are involved.

Section VII Physical Properties and Reactivity Data

Vapor Pressure
The pressure of saturated vapor above the liquid expressed in mm Hg at 20°C.

Viscosity
A measure of the resistive flow of liquid due to gravity or for viscous liquids a measure of the resistance to turning or twisting. State method, units and temperature.

Vapor Density
The relative density or weight of a vapor or gas (with no air present) compared with an equal volume of air at ambient temperature.

D 001755

pH
The degree of acidity or basicity of the material in specific concentration

Specific Gravity
The ratio of the weight of a volume of the material to the weight of an equal volume of water .

Solubility in Water
The solubility of a material by weight in water at room temperature. The terms negligible, less than 0.1 per cent; slight, 0.1 to 1 per cent; moderate 1 to 10 per cent; appreciable, 10 per cent or greater.

Appearance and Odor
The general characterization of the material, i.e., powder, colorless liquid, aromatic odor, etc.

Hazardous Polymerization
Refers to that reaction which takes place at a rate which releases large amounts of energy. Indicates whether or not it may occur and under what storage conditions.

Materials to Avoid
Indicates those material or conditions causing the product to react violently, releasing large amounts of energy.

Section VIII Storage and Environmental Protection

Procedure in Case of Breakage or Leakage
Indicates precautions necessary in such events. Includes clean-up procedures and hazards that may be created, i.,e., fire, explosions, etc.

Biodegradeability/Bioaccumulation
Indicates whether or not the product will biodegrade or bioaccumulate.

The information contained herein is based on data available to us and is believed to be correct. Since this information may have been obtained in part from independent laboratories or other sources not under our direct supervision, no representation is made that the information is accurate, reliable, complete or representative and Buyer may rely thereon only at Buyer's risk. We have made no effort to censor nor to conceal deletorious aspects of this product. Further, since we cannot anticipate or control the many different conditions under which this information or our products may be used, we make no guarantee that the health and safety precautions we have suggested will be adequate for all individuals and/or situations involving its handling and use. Likewise we make no guarantee or warranty of any kind that the use or disposal of this product is in compliance with all federal, state or local laws. It is the obligation of each user of the product mentioned herein to determine and comply with the requirements of all applicable statutes.

D 001756