



Hazard Communication
Course # 31.01
Revision 08041

HAZARD COMMUNICATION INITIAL TRAINING

Course Number: 31.01

Revision: 08041

Terminal Objective:

Identify the information contained on a Pantex Warning Label.

Enabling Objectives:

EO1: State the purpose of the Hazard Communication Program.

EO2: Identify the terms and definitions associated with an MSDS.

EO3: List the information contained in a Material Safety Data Sheet (MSDS).

EO4: Identify the information contained on the Pantex Warning Label.

EO5: Extract information from an MSDS in order to complete a Pantex Warning Label.

EO6: Identify the points of contact for the Pantex Hazard Communication Program.

INTRODUCTION

Hazard Communication Training is provided to all site employees to comply with the Hazard Communication Standard (29 CFR 1910.1200) which defines the right of employees to know about the hazards of the industrial chemicals they work with.

I. HAZARD COMMUNICATION STANDARD GOALS

- A. Reduce illness and injury caused by chemical hazards in the workplace.
- B. Ensure that chemical manufacturers and importers identify and evaluate the hazards of industrial chemicals they make or sell.
- C. Ensure that the hazardous chemical information is communicated to personnel who use hazardous chemicals.
- D. To create a single, uniform standard for Hazard Communication that replaces differing state laws.

III. SEVEN ACTIONS REQUIRED BY THE HAZARD COMMUNICATION STANDARD

- A. Chemical manufacturers and importers must identify and evaluate the hazards of industrial chemicals they make and sell.
- B. An MSDS must be provided by the chemical manufacturer or importer.
- C. Employers must make the MSDSs available to employees.
- D. Employers must ensure that hazardous chemical containers are labeled.
- E. Employers must list all hazardous chemicals used in the workplace.
- F. Employers must provide employees with training and information.
- G. Employers must write a Hazard Communication Program. (PD 02.01.01.08 “What is the Written Hazard Communication Program”)

III. MATERIAL SAFETY DATA SHEET (MSDS)

A MSDS is a technical bulletin provided by the chemical manufacturer on each hazardous chemical.

- A. A ***hazardous chemical*** is any chemical substance that can cause illness or an emergency situation such as a fire or explosion.
Corrosive - a chemical that causes visible destruction of, or irreversible damage to, living tissue by chemical action at the site of contact.
Flammable - a chemical that falls into one of the following categories: (a) aerosol, flammable; (b) gas, flammable; (c) liquid, flammable means any liquid having a flashpoint below 100F.
Toxicity - describes the effect that exposure to a hazardous chemical has on an individual.
Unstable (reactive) - a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure or temperature.
- B. **There are two categories of hazards that a chemical may pose: Physical and Health.** If a chemical poses a ***physical hazard*** that means that it can do damage to property by causing a fire, explosion, or violent chemical reaction. If a chemical poses a ***health hazard*** that means that it can cause illness or injury to personnel when inhaled, ingested or touched.

- C. The Hazard Communication Standard exempts some items from labeling because they are labeled under other standards or federal law.
Exemptions are:
1. Pesticides - Governed by the Environmental Protection Agency(EPA).
 2. Food, drugs, and cosmetics - Governed by the Food and Drug Administration(FDA).
 3. Alcoholic beverages and Tobacco - Governed by the Bureau of Alcohol, Tobacco, and Firearms(ATF).
 4. Consumer products - but, at Pantex we label certain consumer products because the manufacturer did not intend for these products to be used for an extended period of time. An example is WD-40.
- D. The same chemical purchased from different manufacturers may have different MSDSs. Generally, the following information can be found on an MSDS:
1. Identity of the chemical and whether it is a single substance or mixture of several substances.
 2. Hazardous ingredient(s).
 3. Physical/Chemical characteristics.
 4. Physical hazards.
 5. Health hazards.
 6. Primary routes of entry.
 7. Exposure limits.
 8. Carcinogen (cancer causing) information.
 9. Safe use and handling of the chemical.
 10. Control measures to be observed by users.
 11. First aid and emergency procedures.
 12. Preparation/revision Date.
 13. Chemical Manufacturer Information.

IV. WARNING LABELS

Warning labels are attached to the hazardous chemical containers to inform employees of potential hazards when working with the chemical. Pantex warning labels use a numerical rating system (0-4) to communicate the hazards of the chemical to the user. Zero “0” being the least hazardous and four “4” represents a very high hazard. If, at any time, you have a question concerning the warning label or if the label has been removed or defaced, contact Safety and Industrial Hygiene Department at phone extension - 7213.

A. The Pantex warning label has six sections: (Refer to label below)

1. **Chemical name** – Common name of the chemical.
2. **Health** rating is based on the exposure limit using the measurement of parts per million(ppm).
3. **Flammability** rating is based on the chemical’s flash point.
4. **Reactivity** rating is based on chemical’s stability. For example, does the chemical react with other chemicals or is it affected by shock?
5. Chemical **Form**: solid (S); liquid (L); gas (G) or gel (P).
6. **Special information** provides the user with important information concerning the type of harm or reaction the chemical may produce. It is entered in an abbreviated format using alpha characters and/or symbols. A legend at the bottom of each label defines this abbreviation.

Chemical Name	
Health	Flammability
Reactivity	Form
Special Information	

- B. By using the information contained in the Hazardous Chemical Warning Label System (on page 7) and the MSDS for Methyl Alcohol (on pages 9-16), you can see how B&W Pantex takes this information and completes the warning label. The *Pantex Chemical Storage Compatibility Chart* is used as a guideline for chemical storage. From the MSDS on pages 9-16:

Chemical Name: MSDS Section 1: *Common Name/Trade Name*

Health: MSDS Section 8: *Exposure Limits*

Flammability: MSDS Section 5: *Flash Points*

Reactivity: MSDS Section 10: *Conditions of Instability*

Form: MSDS Section 9: *Physical state and appearance*

Special Information: MSDS Section 3: *Potential Acute & Chronic Health Effects*

Illustrated Label:

CHEMICAL NAME: Methyl Alcohol		SPECIAL INFORMATION PER - May form explosive peroxide C-Carcino gen. SC - Suspect Carcino gen. S - Sensitizing Agent OX - Oxidizing Agent P - Contains under pressure WF - Reacts with water to evolve large amounts of heat R - Human Reproductive Toxic may cause fetal birth defects PLY - May dangerously polymerize AIR - Burns readily when exposed to air Aq - Reacts with acids to form a flammable or toxic gas COR - Corrosive EXP - Explosive or shock sensitive Wq - React with water to form a flammable or toxic gas SKIN - Causes irritation to the skin or is readily absorbed through the skin T-CRG - Target Organ Effect TIIH - Toxic Inhalation Hazard a ceiling limit will apply	
HEALTH	FLAMMABILITY		
2	4		
REACTIVITY	FORM		
1	L		
SPECIAL INFORMATION R, SKIN, T-ORG			
4 - Very High 1 - Low 3 - High 0 - None 2 - Moderate			
B&W		IN CASE OF EMERGENCY CONTACT: PANTEX PLANT (306) 477-5000	

- C. Additional information that may appear on the label:
1. **“X”** – An “X” located in any section of the Pantex label means that the information contained in the Manufacturer’s label is to be used in order to assess the hazards of that product.
 2. **Date** - Located on the upper right side of label, signifies date label was printed.
 3. **Barcode** – Located on the right side of label, provides inventory information to the Hazard Communication Group, and is to be reported on PX-1447 when disposing of the empty container. (Pg. 7 of *Hazardous Chemical Warning Label System*.)
 4. **Compatibility Code** – Located in the lower right hand corner, this alphabetic designator provides guidance for storage of hazardous chemicals. Compatibility storage information found on page 8 – *Pantex Chemical Storage Compatibility Chart*. (Store like with like. i.e. A with A, B with B, etc.)

HAZARDOUS CHEMICAL WARNING LABEL SYSTEM	
Hazard Communication	
<p>HEALTH HAZARD CRITERIA</p> <p>4 – Very High Hazard Exposure Limit: <10 ppm LD₅₀: <50 mg/Kg</p> <p>3 – High Hazard Exposure Limit: ≥ 10 & < 100 ppm LD₅₀: ≥50 mg/Kg & <500 mg/Kg</p> <p>2 – Moderate Hazard Exposure Limit: ≥100 & <500 ppm LD₅₀: ≥500 & < 5000 mg/Kg</p> <p>1 – Low Hazard Exposure Limit: ≥500 ppm LD₅₀: ≥5000 mg.Kg</p>	<p>FLAMMABILITY CRITERIA</p> <p>4 – Very High Hazard Flash Point: <73°F</p> <p>3 – High Hazard Flash Point: ≥73°F & <100°F</p> <p>2 – Moderate Hazard Flash Point: ≥100°F & < 140°F</p> <p>1 – Low Hazard Flash Point: ≥140°F & < 200°F</p> <p>0 – No Fire Hazard Flash Point: ≥200°F</p>
<p>REACTIVITY CRITERIA</p> <p>4 – Explosive under normal conditions Highly reactive and unstable.</p> <p>3 – Explosive with initiation by heat or shock.</p> <p>2 – Unstable and violently reactive, but will not detonate.</p> <p>1 – Unstable at high temperatures and pressures. Stable at normal conditions.</p> <p>0 – Stable</p>	<p>FORM CRITERIA (at room temperature)</p> <p>S – Solid</p> <p>L – Liquid</p> <p>G – Gas</p> <p>P – Gel</p>
<p>SPECIAL INFORMATION CRITERIA</p> <p>PER – May form explosive peroxide C – Carcinogen SC – Suspect Carcinogen S – Sensitizing Agent OX – Oxidizing Agent P – Contents under pressure W – Reacts with water to evolve large amount of heat R – Human Reproductive Toxicin May cause fetal birth defects PL Y – May hazardously polymerize</p> <p>AIR – Burns readily when exposed to air A† – Reacts with acids to form a flammable or toxic gas COR – Corrosive EXP – Explosive or shock sensitive W† – Reacts with water to form a flammable or toxic gas SKIN – Causes irritation to the skin or is readily absorbed through the skin T-ORG – Target Organ Effects TIH – Toxic Inhalation Hazard A Ceiling Limit will apply</p>	



BARCODE INFORMATION:

The barcode on the Pantex Hazard Warning Label is used for inventory control. It is a unique identifier of the container to which it is attached. When that container is empty the container is ready for disposal. The echo line (number under the barcode) must be reported back for deletion from the inventory. This can easily be accomplished by peeling off the lower half of the echo line (barcode) and attaching it to a PX-1447, or legibly writing the 12-digit barcode number on the form. All empty containers with a Pantex Hazard Warning Label must be logged and disposed of in an "Empty Container Drum." The original PX-1447 is then sent to the Hazard Communication Section in building 12-132, and a copy is attached to the drum. Further questions may be addressed to X-7213.

Waste Disposal: For disposal of empty containers, please reference Work Instruction 02.01.04.05.08 or call X-5449 for instructions.

COMPATIBILITY CODE:

The Compatibility Code appears in the bottom right-hand corner of the label. It will be an alpha-character of A, B, C, D, E, F, or X (explosive). The Plant Chemical Storage Compatibility Chart is posted in W.I. 02. 01. 01. 08. 02. The rule is, store only like-coded items together (i.e., A's with A's, B's with B's, etc.) All chemicals, regardless of group, with a flammability rating of '2', '3', or '4' must be stored in a flammables storage cabinet. Store chemicals in liquid form separate from chemicals in solid form. Segregate and store carcinogens away from other chemicals. Peroxidizable chemicals should be tested at least quarterly.

F

PANTEX CHEMICAL STORAGE COMPATIBILITY CHART

	A	B	C	D	E	F
A		X	X	X	X	X
B	X		X	X	X	X
C	X	X		X	X	X
D	X	X	X		X	X
E	X	X	X	X		X
F	X	X	X	X	X	

X - DENOTES CHEMICAL STORAGE INCOMPATIBILITY

GROUP A: LIQUID NON-OXIDIZING INORGANIC ACIDS

GROUP B: LIQUID ORGANIC ACIDS AND ANHYDRIDES

GROUP C: LIQUID OXIDIZING INORGANIC ACIDS

GROUP D: LIQUID ALKALI METAL HYDROXIDE BASES

GROUP E: OXIDIZERS

GROUP F: GENERAL CHEMICAL STORAGE

NOTES:

1. ONLY CHEMICALS WITHIN THE SAME GROUP MAY BE STORED TOGETHER.
2. ALL CHEMICALS, REGARDLESS OF GROUP, WITH A FLAMMABILITY OF "2" OR GREATER MUST BE STORED IN A FLAMMABLE CABINET.
3. SEPARATE CHEMICALS IN LIQUID FORM FROM CHEMICALS IN SOLID FORM.
4. SEGREGATE AND STORE CARCINOGENS AWAY FROM OTHER CHEMICALS.
5. CHECK SPECIFIC CHEMICAL MSDS FOR ADDITIONAL COMPATIBILITY INFORMATION.

! CAUTION !

THIS CHART IS INTENDED ONLY AS A GUIDELINE FOR CHEMICAL STORAGE. IT DOES NOT ACCOUNT FOR THE VARIOUS POSSIBLE CHEMICAL REACTIONS OBTAINED BY MIXING CHEMICALS TOGETHER. IF THERE ARE ANY QUESTIONS, PLEASE CONTACT THE HAZARD COMMUNICATION GROUP, EXT. 7213.

3 January 2000



3 4 4



Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment
		See Section 15.

Section 1. Chemical Product and Company Identification		Page Number: 1
Common Name/ Trade Name	Methyl alcohol	Catalog Number(s) ME151, SP161, M1239, US701, BS700, PT705, PS704, SP703, HS006, HP702, M1245, US004, US013
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# 67-56-1
Commercial Name(s)	Not available.	RTECS PC140000
Synonym	Wood alcohol, Methanol; Methylol; Wood Spirit; Carbinol	TSCA TSCA 8(b) inventory: Methyl alcohol
Chemical Name	Methanol	CI# Not applicable.
Chemical Family	Alcohol. (Solvent.)	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000
Chemical Formula	CH3OH	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
				<i>Exposure Limits</i>	
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Methyl alcohol	67-56-1	260	325		100
Toxicological Data on Ingredients	Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].				

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Methyl alcohol		Page Number: 2
Section 3. Hazards Identification		
Potential Acute Health Effects	Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.	
Potential Chronic Health Effects	Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to eyes. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.	
Section 4. First Aid Measures		
Eye Contact	Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.	
Skin	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.	
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.	
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.	
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.	
Ingestion	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.	
Serious Ingestion	Not available.	
Section 5. Fire and Explosion Data		
Flammability of the Product	Flammable.	
Auto-Ignition Temperature	464°C (867.2°F)	
Flash Points	CLOSED CUP: 12°C (53.6°F). OPEN CUP: 16°C (60.8°F).	
Flammable Limits	LOWER: 6% UPPER: 36.5%	
Products of Combustion	These products are carbon oxides (CO, CO2).	
Fire Hazards in Presence of Various Substances	Highly flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.	
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Explosive in presence of open flames and sparks, of heat.	
Fire Fighting Media and Instructions	Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.	
Special Remarks on Fire Hazards	Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME	
Continued on Next Page		

Methyl alcohol		Page Number: 3
Special Remarks on Explosion Hazards	Forms an explosive mixture with air due to its low flash point. Explosive when mixed with Chloroform + sodium methoxide and diethyl zinc. It boils violently and explodes.	
Section 6. Accidental Release Measures		
Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.	
Large Spill	Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.	
Section 7. Handling and Storage		
Precautions	Keep locked up. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids.	
Storage	Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).	
Section 8. Exposure Controls/Personal Protection		
Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.	
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.	
Personal Protection in Case of Large Spill	Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.	
Exposure Limits	TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.	
Section 9. Physical and Chemical Properties		
Physical state and appearance	Liquid.	Odor Alcohol like. Pungent when crude.
Molecular Weight	32.04 g/mole	Taste Not available.
pH (1% soln/water)	Not available.	Color Colorless.
Boiling Point	64.5°C (148.1°F)	
Melting Point	-97.8°C (-144°F)	
Critical Temperature	240°C (464°F)	
Specific Gravity	0.7915 (Water = 1)	
Vapor Pressure	12.3 kPa (@ 20°C)	
Vapor Density	1.11 (Air = 1)	
Volatility	Not available.	
Odor Threshold	100 ppm	
Continued on Next Page		

Methyl alcohol		Page Number: 4
Water/Oil Dist. Coeff.	The product is more soluble in water; log(oil/water) = -0.8	
Ionicity (in Water)	Non-ionic.	
Dispersion Properties	See solubility in water.	
Solubility	Easily soluble in cold water, hot water.	
Section 10. Stability and Reactivity Data		
Stability	The product is stable.	
Instability Temperature	Not available.	
Conditions of Instability	Heat, ignition sources, incompatible materials	
Incompatibility with various substances	Reactive with oxidizing agents, metals, acids.	
Corrosivity	Non-corrosive in presence of glass.	
Special Remarks on Reactivity	<p>Can react vigorously with oxidizers. Violent reaction with alkyl aluminum salts, acetyl bromide, chloroform + sodium methoxide, chromic anhydride, cyanuric chloride, lead perchlorate, phosphorous trioxide, nitric acid.</p> <p>Exothermic reaction with sodium hydroxide + chloroform.</p> <p>Incompatible with beryllium dihydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals, metals (aluminum, potassium magnesium, zinc), and dichloromethane.</p> <p>Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous.</p> <p>May attack some plastics, rubber, and coatings.</p>	
Special Remarks on Corrosivity	Not available.	
Polymerization	Will not occur.	
Section 11. Toxicological Information		
Routes of Entry	Absorbed through skin. Eye contact. Inhalation. Ingestion.	
Toxicity to Animals	<p>WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.</p> <p>Acute oral toxicity (LD50): 5628 mg/kg [Rat].</p> <p>Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit].</p> <p>Acute toxicity of the vapor (LC50): 64000 4 hours [Rat].</p>	
Chronic Effects on Humans	<p>MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.</p> <p>TERATOGENIC EFFECTS: Classified POSSIBLE for human.</p> <p>Causes damage to the following organs: eyes.</p> <p>May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve.</p>	
Other Toxic Effects on Humans	<p>Hazardous in case of skin contact (irritant), of ingestion, of inhalation.</p> <p>Slightly hazardous in case of skin contact (permeator).</p>	
Special Remarks on Toxicity to Animals	Not available.	
Special Remarks on Chronic Effects on Humans	<p>Passes through the placental barrier.</p> <p>May affect genetic material.</p> <p>May cause birth defects and adverse reproductive effects (paternal and maternal effects and fetotoxicity) based on animal studies.</p>	
Special Remarks on other Toxic Effects on Humans		
Continued on Next Page		

Methyl alcohol		Page Number: 5
<p>Acute Potential Health effects: May cause eye and skin irritation. Methanol can be absorbed through the skin, producing systemic effects that include visual disturbances. Inhalation: May cause respiratory tract irritation with coughing and wheezing. May affect behavior/central nervous system/peripheral nervous system, gastrointestinal tract, respiration, lungs, and blood, and heart /cardiovascular system (bradycardia, tachycardia). May also cause metabolic acidosis and severed visual effects which may include reduced reactivity/and or increased sensitivity to light, blurred, double/and or snowy vision, and blindness. Ingestion: May be harmful and affect eyes (cause significant visual disturbances including blindness) if swallowed. May cause gastrointestinal tract irritation with abdominal pain, fatigue, nausea, vomiting, and diarrhea or constipation. May affect behavior/central nervous system/peripheral nervous system (general anesthetic, dizziness, delirium, confusion, restlessness, giddiness, back pain, headache, muscle weakness, somnolence, spastic paralysis, muscle contraction, ataxia, seizures, unconsciousness, coma), brain, blood(leukocytosis), metabolism, respiration (dyspnea, apnea, hyperventilation, pulmonary edema, coughing, respiratory failure), liver, urinary system (kidneys - renal failure, hematuria), endocrine system (spleen, pancreas (pancreatitis, hyperglycemia)), cardiovascular system (tachycardia, bradycardia, cardiac failure, hypotension). May also cause metabolic acidosis. Narcotic. Chronic Potential Effects: Prolonged or repeated exposure by inhalation or ingestion will have effects similar to those of acute inhalation or ingestion. Methanol is very slowly eliminated from the body. Because of this slow elimination, methanol should be regarded as a cumulative poison. Though a single exposure may cause no effect, daily exposures may result in the accumulation of harmful amounts Prolonged or repeated skin contact may cause defating dermatitis with dryness and cracking.</p>		
Section 12. Ecological Information		
Ecotoxicity	Ecotoxicity in water (LC50): 29400 mg/l 96 hours [Fathead Minnow].	
BOD5 and COD	Not available.	
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.	
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.	
Special Remarks on the Products of Biodegradation	Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in polluted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air.	
Section 13. Disposal Considerations		
Waste Disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.	
Section 14. Transport Information		
DOT Classification	CLASS 3: Flammable liquid.	
Identification	: Methyl alcohol UNNA: 1230 PG: II	
Special Provisions for Transport	Not available.	
Continued on Next Page		

Methyl alcohol		Page Number: 6								
DOT (Pictograms)										
										
Section 15. Other Regulatory Information and Pictograms										
Federal and State Regulations	Connecticut hazardous material survey.: Methyl alcohol Illinois toxic substances disclosure to employee act: Methyl alcohol Illinois chemical safety act: Methyl alcohol New York release reporting list: Methyl alcohol Rhode Island RTK hazardous substances: Methyl alcohol Pennsylvania RTK: Methyl alcohol Minnesota: Methyl alcohol Massachusetts RTK: Methyl alcohol Massachusetts spill list: Methyl alcohol New Jersey: Methyl alcohol New Jersey spill list: Methyl alcohol Louisiana spill reporting: Methyl alcohol California Directors List of Hazardous Substances (BCCR 339): Methyl alcohol Tennessee Hazardous Right to Know : Methyl alcohol TSCA 8(b) inventory: Methyl alcohol SARA 313 toxic chemical notification and release reporting: Methyl alcohol CERCLA: Hazardous substances.: Methyl alcohol: 5000 lbs. (2268 kg)									
California Proposition 65 Warnings	California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found. California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.									
Other Regulations	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.									
Other Classifications	<table border="0"> <tr> <td>WHMIS (Canada)</td> <td> CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC). </td> <td></td> </tr> <tr> <td>DSCL (EEC)</td> <td> R11- Highly flammable. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R39- Danger of very serious irreversible effects. R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. </td> <td> S7- Keep container tightly closed. S16- Keep away from sources of ignition - No smoking. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). </td> </tr> </table>		WHMIS (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).		DSCL (EEC)	R11- Highly flammable. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R39- Danger of very serious irreversible effects. R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.	S7- Keep container tightly closed. S16- Keep away from sources of ignition - No smoking. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).		
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HMIS (U.S.A.)	<table border="1"> <tr> <td>Flammability</td> <td align="center">2</td> </tr> <tr> <td>Health</td> <td align="center">3</td> </tr> <tr> <td>Reactivity</td> <td align="center">0</td> </tr> <tr> <td>Personal Protection</td> <td align="center">h</td> </tr> </table>	Flammability	2	Health	3	Reactivity	0	Personal Protection	h	National Fire Protection Association (U.S.A.) 
Flammability	2									
Health	3									
Reactivity	0									
Personal Protection	h									
WHMIS (Canada) (Pictograms)	 									
DSCL (Europe) (Pictograms)	 									
Continued on Next Page										

Methyl alcohol		Page Number: 7
TDG (Canada) (Pictograms)	 	
ADR (Europe) (Pictograms)	 	
Protective Equipment	<p> Gloves.</p> <p> Lab coat.</p> <p> Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respi when ventilation is inadequate.</p> <p> Splash goggles.</p>	

Section 16. Other Information	
MSDS Code	M3780
References	-SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1967. LOL, HSDB, RTECS, HAZARDTEXT, REPROTOX databases
Other Special Considerations	Not available.
Validated by Sonia Owen on 6/2/2005.	Verified by Sonia Owen. Printed 7/15/2005.
CALL (310) 516-8000	
Notice to Reader <i>All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.</i>	

Revised Labeling Information

Catalog ID / Q Level
000032415 1

MSDS Control #.. Rev
00000344 001

Name: METHYL ALCOHOL

Part No: M1240

MSDS Date:
08/22/2007

Mfgr Code: SPECTRUM

Label Information

Health 2	Fire 4
Reactivity 1	Form L

Compatibility

F

Special Information

R: REPRODUCTIVE TOXIN
SKIN: IRRITATES / ABSORBS THROUGH THE SKIN
T-ORG: TARGETS ONE OR MORE ORGANS OF THE BODY

For HazCom Use Only

Reviewer

CCC

Hazard Ratings on this information sheet may be based on data contained in the manufacturer's MSDS, a third party MSDS, and/or other national consensus standards or references.

Please refer all questions to your supervisor or the Hazard Communication Group at 5933, 7213, 5229, or 6560.

V. **Additional Information**

Everyone at Pantex, including contractors, has access to MSDS's. A MSDS may not contain all of the information you need. If you have a question call Safety and Industrial Hygiene Department - Ext. 7213

Safety and Industrial Hygiene department, Ext. 7213, maintains all MSDS's.

To report a spill or leak, call the Pantex 24-hr. Operations Center Ext. 5000.

You have a right to know about any exposures you may have received from any hazardous chemical at Pantex. To receive your records you can contact Safety and Industrial Hygiene Department - Ext. 4410 and/or Occupational Medical Department - Ext. 3031.

Everyone is exposed to chemicals daily. This course is intended to make you more aware of chemicals and how to safely use them.

**TERMS AND DEFINITIONS
(WITH REGARD TO HAZARD COMMUNICATION STANDARD)**

1. 29CFR1910.1200 - Hazard Communication Standard, OSHA enacted.
2. ACGIH - American Conference Governmental Industrial Hygienists; recommends exposure limits.
3. Article - a manufactured item: (a) which is formed to a specific shape or design during manufacture; (b) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (c) which does not release, or otherwise result in exposure to, a hazardous chemical, under normal conditions of use.
4. Carcinogen - a chemical is considered to be a carcinogen if: (a) it has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen; (b) it has been defined by the National Toxicology Program (NTP) as a substance for which there is sufficient evidence of carcinogenicity from studies in humans to indicate a casual relationship between the agent and human cancer; (c) it is regulated by OSHA as a carcinogen.
5. Chemical - any element, chemical compound or mixture of elements and/or compounds.
6. Chemical Manufacturer - an employer with a workplace where chemical(s) are produced for use or distribution.
7. Chemical Name - The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature, or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.
8. Combustible Liquid - any liquid having a flashpoint at or above 100EF (37.8EC), but below 200EF (93.3E, except any mixture having components with flashpoints or 200EF 93.3EC), or higher, the total volume of which make up 99% or more of the total volume of the mixture.
9. Common Name - any designation of identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.
10. Compressed Gas - (a) a gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70EF (21.1EC); (b) exceeding 104 psi at 130EF; (c) a liquid having a vapor pressure exceeding 40psi at 100EF (37.8E C); (d) a solid, flammable.
11. Container - any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical.
12. Corrosive - a chemical that causes visible destruction of , or irreversible damage to, living tissue by chemical action at the site of contact.
13. Designated Representative - any individual or organization to whom an employee gives written authorization to exercise such employee's rights under the law. A recognized or certified

collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

14. Distributor - a business, other than a chemical manufacturer importer, which supplies hazardous chemicals to other distributors or to employers.
15. Decomposition - when a chemical breaks down into similar chemicals.
16. Dosage - a description of how much chemical actually contacts or enters your body.
17. Employee - a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered by the Hazard Communication Standard.
18. Employer - a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.
19. Explosive - a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.
20. Exposure - “exposed” means that an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact, or absorption, etc.), and includes potential (e.g. accidental or possible) exposure.
21. Flammable - a chemical that falls into one of the following categories: (a) aerosol, flammable; (b) gas, flammable; (c) liquid, flammable means any liquid having a flashpoint below 100EF.
22. Flashpoint - the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite.
23. Foreseeable Emergency - any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of a hazardous chemical into the workplace.
24. Hazard Warning - any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the hazard(s) of the chemical(s) in the container(s).
25. Identity - any chemical or common name which is indicated on the MSDS for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the MSDS.
26. Immediate Use - a 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.

27. Importer - the first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employers within the United States.
28. Label - any written, printed, or graphic material, displayed on or affixed to containers of hazardous chemicals.
29. LEL “Lower Explosive Limit” - the minimum percentage of a chemical in an air-chemical mixture that will make the mixture explosive.
30. mg/m³ - milligram per cubic meter; method of expressing exposure limits.
31. Mixture - any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.
32. Mutagens - reproductive hazards that permanently change the genes in the egg or sperm.
33. OEL - occupational exposure limits.
34. Organic Peroxide - an organic compound that contains the bivalent -O-O structure.
35. OSHA - Occupational Safety and Health Administration; sets legal exposure limits.
36. Oxidizer - a chemical other than a blasting agent or explosive as defined in 29 CFR 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.
37. PEL - permissible exposure limits.
38. PPE “Personal Protective Equipment” - method of protecting the individual who wears it by placing a barrier between the individual and the chemical hazard.
39. ppm “parts per million” - method of expressing exposure limits.
40. Polymerization - a reaction where molecules of some chemicals join to form long chains; polymerization can release a large quantity of heat, which can create fire or explosion hazards.
41. Produce - to manufacture, process, formulate, or repackage.
42. Pyrophoric - a chemical that will ignite spontaneously in air at a temperature of 130F (54.4C) or below.
43. Reproductive Hazard - chemicals that cause sterility, fatal death and/or birth defects.
44. Responsible Party - someone who can provide additional information on the hazardous chemical and appropriate emergency procedures, if necessary.

45. Sensitizer - a chemical that causes an allergic reaction in a substantial number of workers after repeated exposure.
46. Suspect Carcinogen - a chemical is considered to be a suspect carcinogen if: (a) it has been evaluated by IARC and found that there is limited evidence of carcinogenicity in humans and/or sufficient evidence of carcinogenicity in experimental animals, or that there is limited evidence in humans in the absence of sufficient evidence in experimental animals; (b) it has been evaluated by NTP and found that there is limited evidence of carcinogenicity in humans and/or sufficient evidence of carcinogenicity in experimental animals.
47. Target-Organ Chemicals - chemicals which damage specific organs or body systems.
48. Teratogen - reproductive hazards which damage the fetus during pregnancy, causing death or birth defects.
49. TLV - threshold limit value. The airborne concentrations of substances, representing conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, without adverse health effects.
50. Toxicity - describes the effect that exposure to a hazardous chemical has on an individual.
51. Trade Secret - any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.
52. Unstable (reactive) - a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure or temperature.
53. UEL "Upper Explosive Limit" - the maximum percentage of a chemical in an air-chemical mixture that will make the mixture explosive.
54. Use - to package, handle, react, or transfer.
55. Vapor - gaseous form taken by a liquid as it evaporates.
56. Vapor Density - a physical property that is measured to indicate whether the vapor form of a chemical rises or sinks in air.
57. Water-reactive - a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.
58. Work Area - a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.
59. Workplace - an establishment, job site, or project, at one geographical location containing one or more work areas.