

**Welcome to
Hastings Plastics
Material Safety Data Sheets for Polyester Products**

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HAPOL 1300-2 & 3

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURER'S NAME	- HASTINGS PLASTICS COMPANY
PRODUCT SALES AND INFORMATION	- (310) 829-3449
EMERGENCY PHONE NUMBER	- (800) 424-9300
PRODUCT NAME	- Hapol 1300-2 & 3
CHEMICAL FAMILY	- Unsaturated Polyester Resin in Styrene
CHEMICAL NAME	- Monomer
DOT SHIPPING NAME	- Resin Solution - UN 1866
DOT HAZARD CLASS	- Flammable Liquid
HMIS - Flammability - 3 Health - 2 Reactivity - 1	

SECTION II - HAZARDOUS INGREDIENTS

<u>COMPONENTS</u>	<u>CAS #</u>	<u>%</u>	<u>EXPOSURE LIMITS REFERENCE</u>
STYRENE MONOMER	100-42-5	20-35	100ppm PEL; 200ppm CL; 600ppm/5min./ 3 hour PEAK (OSHA 1978) 50ppm TLV; 100ppm STEL (ACGIH 1984-85)
UNSATURATED POLYESTER RESIN (PREPOLYMER)	Mixture	65-77	N/A
SILICON DIOXIDE (amorphous)	7631-86-9	0.0-1.5	10 mg/m ³ (total) TLV(ACGIH 1988-89) 6 mg/m ³ PEL (OSHA)

Health Hazards: Orally - slightly toxic. May cause gastrointestinal disturbances. Skin - slightly to moderately irritating. Eye - slightly to moderately irritating. Inhalation - may cause irritation. Repeated or prolonged breathing of particles of respirable size may cause inflammation of the lung, chest pain, difficult breathing and possible fibrotic change--pneumoconiosis.

DIALLYL PNTHALATE MONOMER 131-17-9 0.0-1.2 None established

Health Hazards: Vapors may be irritating to eyes and respiratory tract. Repeated or prolonged exposure at high concentrations may cause lung irritation and possible lung congestion and liver damage. Remaining components not determined hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens).

SECTION III - PHYSICAL DATA

APPEARANCE AND ODOR	- colorless-yellow, refractive oily liquid: sweet aromatic odor
BOILING POINT	- 293F
VAPOR PRESSURE	- 5.00 MM HG @ 20 °C (MAXIMUM)
VAPOR DENSITY (AIR =1)	- 3.6 (Styrene)
SPECIFIC GRAVITY	- 1.12
SOLUBILITY IN WATER %	- Slight
PERCENT VOLATILE By Volume	- 23 - 35
EVAPORATION RATE (H2O=1)	- <1
V.O.C. Content	- < 60 grams per liter

(over)

SECTION IV - FIRE AND HAZARD EXPLOSION DATA

FLASH POINT (method used) - 87 - 95 °F
 AUTOIGNITION TEMP. - Deg F 914 (°C 490)
 FLAMMABILITY LIMITS (in air % By Volume) - Lower 1.1 Upper 6.1
 FLAMMABILITY CLASS - 1C

FIRE-FIGHTING PROCEDURES - Use dry chemical, all purpose or polar type AFFF foam or water spray to extinguish fire. Water or foam may cause frothing, with further application leading to boil over. Foam may have limited effectiveness on three dimensional fires. Use water spray to cool fire-exposed containers, structures and to protect personnel. Use water to flush spills away from sources of ignition. Do not flush down public sewers.

UNUSUAL FIRE AND EXPLOSION HAZARDS - Fire may produce poisonous or irritating gas, fumes or vapor. Excessive heat may trigger polymerization of confined material. Containers may explode in heat or fire. Styrene vapors are uninhibited and may form polymers in vents or flame arresters of storage tanks, resulting in stoppage of vents. Exposed firefighters should wear MSHA/NIOSH approved self-contained breathing apparatus, with full face mask and full protective equipment.

PRODUCT HAZARD SUMMARY

HEALTH - CAUTION - May be harmful if swallowed or inhaled. May be irritating to the skin, eyes and respiratory tract. May cause allergic skin reaction. Heated material may cause thermal burns.

FIRE - Warning: Flammable Liquid and vapor

REACTIVITY - Caution: Unstable at high temperatures

SECTION V - HEALTH HAZARD DATA

INGESTION - Moderately toxic. May cause gastronomical disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea. Exposure may cause symptoms similar to those listed under "Inhalation".

EYE - Moderately irritating. Direct contact may cause corneal lesions. Contact with heated material may cause thermal burns.

SKIN - Moderately irritating. Repeated or prolonged skin contact may cause reddening, inflammation or blistering. May cause allergic reactions in some individuals. Contact with heated material may cause thermal burns. Exposure may cause symptoms similar to those listed under "Inhalation".

INHALATION - Slightly toxic. May cause respiratory tract irritation. May cause harmful central nervous system effects. Effects may include drowsiness, impaired balance, nausea vomiting, loss of appetite and general weakness "Styrene sickness". May also cause blood changes and liver damage. The disagreeable odor and irritation of this material makes inhalation of acutely toxic concentrations unlikely.

SPECIAL TOXIC EFFECTS - This product contains styrene. The International Agency for Research on Cancer (IARC), in its review of a large body of literature, has determined that "the data are inadequate to evaluate the carcinogenicity of styrene in humans" and that there is "limited evidence for the carcinogenicity of styrene in animals." May cause adverse reproductive effects, based on tests with animals. Mutagenic in bacterial and mammalian test systems. Styrene has been reported to cause hearing loss in laboratory animals at concentrations several times the occupational exposure limits. Pre-existing medical conditions which may be aggravated by exposure include, but are not limited to, chronic respiratory and skin disease and central nervous system disorders.

NOTE: This product has not been tested as a whole for all potential health effects. It may have other health hazards related to its components.

PERMISSIBLE EXPOSURE LEVEL - OSHA Exposure limits for styrene (29 CFR 1910.1000 Z-2) : 50 ppm 8-Hour Time Weighted Average (TWA). 100 ppm 15-Minute Short Term Exposure Level (STEL). Exposures may exceed STEL during the 15-minute period (no ceiling for brief exposures) - but overall STEL must not exceed 100ppm, nor can 8-hour TWA exceed 50 ppm. ACGIH Exposure limits for styrene: 50 ppm 8-hour TWA. 100 ppm STEL during a 15-minute period. There should be at least 60 minutes between successive exposures at the STEL. Pre-existing medical conditions which may be aggravated by exposure include, but are not limited to, chronic respiratory and skin disease and central nervous system disorders. (next page)

FIRST AID PROCEDURES:

INGESTION - DO NOT INDUCE VOMITING BECAUSE OF DANGER OF ASPIRATING LIQUID INTO LUNGS. If spontaneous vomiting occurs, monitor for breathing difficulty. Keep affected person warm and at rest. Get immediate medical attention.

SKIN CONTACT - Wash area of contact thoroughly with soap and water. Remove contaminated clothing immediately. Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Get medical attention if irritation persists.

EYE CONTACT - Flush immediately with large amounts of water for at least 15 minutes. Eye lids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

INHALATION - Remove affected person from source of exposure. If not breathing, institute cardiopulmonary resuscitation (CPR). If breathing is difficult, give oxygen. Keep affected person warm and at rest. Get immediate medical attention.

PRIMARY ROUTES OF ENTRY - Inhalation and Skin Absorption.

CARCINOGENICITY - The International Agency for Research on Cancer (IARC) has classified styrene as possibly carcinogenic to humans (class 2B).

The IRAC 2B classification is not based on significant new evidence that styrene might be a carcinogen, but revised IRAC classification scheme and new data on styrene oxide.

SECTION VI - REACTIVITY DATA

STABILITY - Stable under normal conditions of use. Avoid contact with strong oxidizers.

HAZARDOUS POLYMERIZATION - May occur

INCOMPATIBILITY - Strong acids and oxidizing agents.

HAZARDOUS REACTIONS/ DECOMPOSITION PRODUCTS - Thermal decomposition products may be hazardous. Reacts vigorously with oxidizing agents.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Remove all sources of ignition. Ventilate area. absorb spill with an absorbent material such as sawdust, vermiculite or sand and place in a closed container. If large spill, dike the area to prevent this material from entering water systems or sewers. If your facility or operation has an "Oil or Hazardous substance Contingency Plan", activate its procedures. Take immediate steps to stop and contain the spill. Caution should be exercised regarding personnel safety and exposure to the spilled material.

EMERGENCY ACTION - Keep unnecessary people away. Stay upwind, keep out of low areas. Isolate hazard area and deny entry. (Also see Personal Protection Information section). Isolate for ½ mile in all directions if tank or tank car is involved in fire. No flares, smoking or flames in hazard area. Stop leak if you can do it without risk. Use water spray to reduce vapors. Small spills take up with sand or other non combustible absorbent material or other sorbent known to be compatible, then flush area with water. Large spills dike far ahead of spill for later disposal.

NOTIFICATION - THE REPORTABLE QUANTITY FOR THIS MATERIAL IS 1,000 POUNDS, BASED ON 100% STYRENE MONOMER.

Any spill or other release, or substantial threat of release, of this material to the air, water, or land (unless entirely contained in the work place) equal to or in excess of the reportable quantity must be reported immediately to the National Response Center (800)-424-8802 as required by U.S Federal Law. Failure to report may result in substantial civil and criminal penalties.

(over)

WASTE DISPOSAL - Polyester resins, when discarded or disposed of, are not specifically listed as a hazardous waste in federal regulations. Polyester resin in the liquid state is a hazardous waste it exhibits the characteristics of ignitability (40CFR261). Completely polymerized, fully-cured polyester resin solids are non-hazardous solid wastes. Disposal of this material and its container, requires compliance with applicable labeling, packaging, and record keeping standards. Extreme care should be taken to ensure that it is disposed of only in a facility permitted for disposal of hazardous wastes. For further information, contact your state or local solid waste agency or the United States Environmental Protection Agency's RCRA hotline (1-800-424-9346 or 202-382-3000).

ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION - There may be specific regulations at the local, regional or state level that pertain to this material.

SPECIAL PRECAUTIONS/SUPPLEMENTAL INFORMATION HANDLING/STORING - Avoid storage above 100 Deg F. Avoid prolonged or repeated skin contact. Avoid inhalation of heated vapors or spray mists. Store in tightly closed containers in cool, dry, isolated, well ventilated area away from heat, sources of ignition and incompatibles. Empty containers may contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

OTHER PRECAUTIONS - Avoid improper addition of promoter and/or catalyst. A promoter and catalyst used with this product should always be mixed separately with the product and must never be mixed together.

SECTION IX - PERSONAL PROTECTION INFORMATION

EYE PROTECTION - Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye baths readily available where eye contact can occur.

SKIN PROTECTION - Wear impervious gloves and protective clothing to prevent skin contact. suggested protective materials are: Polyvinyl Alcohol, Polyethylene and Viton. Provide safety showers at any location where skin contact can occur.

RESPIRATORY PROTECTION - Use NIOSH or MSHA approved equipment when airborne exposure limits are exceeded. NIOSH/MSHA approved breathing equipment may be required for non-routine and emergency use. Ventilation may be used to control or reduce airborne concentrations.

SUPPLEMENTAL INFORMATION

Listed below are the hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

IMMEDIATE HAZARD:X **DELAYED HAZARD:**X **FIRE HAZARD:**X **PRESSURE HAZARD:**__ **REACTIVITY HAZARD:**X

The product contains the following toxic chemical(s) subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372):

<u>COMPONENT</u>	<u>CAS #</u>	<u>PERCENT</u>
Styrene Monomer	100-42-5	35

TRANSPORTATION REQUIREMENTS

D.O.T. HAZARD CLASS (49 CFR 172.101)	- Flammable Liquid
D.O.T. PROPER SHIPPING NAME (49 CFR 172.101)	- Resin Solution, Flammable Liquid
D.O.T. LABELS REQUIRED (49 CFR 172.101)	- Flammable Liquid
D.O.T. PLACARDS REQUIRED	- Flammable Liquid
UN/NA CODE - UN 1866	

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DISCLAIMER OF LIABILITY

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F#170-21A

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HAPOL 1300-4E

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURER'S NAME	-	HASTINGS PLASTICS COMPANY
PRODUCT INFO AND SALES	-	(310) 829-3449
EMERGENCY PHONE NO.	-	24 HOUR (800) 424-9300
PRODUCT NAME	-	Hapol 1300-4E
CHEMICAL FAMILY	-	Unsaturated Polyester Resin in Styrene
DOT SHIPPING NAME	-	Resin Solution - UN 1866
DOT HAZARD CLASS	-	Flammable Liquid

SECTION II - HAZARDOUS INGREDIENTS

<u>COMPONENTS</u>	<u>CAS #</u>	<u>%</u>	<u>ACGIH TLV</u>		<u>OSHA</u>
			<u>TWA</u>	<u>STEL</u>	<u>PEL</u>
STYRENE	100-42-5	32 - 36	20ppm	40ppm	100ppm
1,3-ISOBENZOFURANDIONE, POLYMER WITH 2,5-FURANDIONE AND 2,2'-OXYBIS [ETHANOL]	26123-45-5	64 - 68	NE	NE	NE

SECTION III - PHYSICAL DATA

APPEARANCE AND ODOR	-	Clear amber - Pungent Odor
ODOR THRESHOLD	-	0.2 ppm Styrene
PHYSICAL STATE	-	Liquid
BOILING POINT	-	295 °F (146 °C) Styrene
FREEZING POINT	-	-22.7 °F (-30.4 °C) Styrene
VAPOR PRESSURE	-	6.12(mm Hg) Styrene
VAPOR DENSITY (AIR =1)	-	3.6 (Air) Styrene
SPECIFIC GRAVITY	-	1.12 - 1.16 at 25°C (77°F) Water=1
SOLUBILITY IN WATER	-	Insoluble at 20°C (68°F)
PERCENT VOLATILE	-	32 - 36 % by weight
EVAPORATION RATE	-	<1 (BuAc=1) Styrene
V.O.C. Content	-	418 grams / liter (calculated product as supplied)
PH	-	Not applicable

SECTION IV - FIRE & EXPLOSION HAZARD DATA

FLASH POINT	-	89°F (32°C)
(Method Used)	-	SetaFlash Closed Cup
FLAMMABLE LIMITS IN AIR (Lower)	-	1.1% in air / Styrene
FLAMMABLE LIMITS IN AIR (Upper)	-	7 % in air / Styrene
AUTOIGNITION TEMP.	-	914°F (490°C) Styrene

GENERAL HAZARDS:

FLAMMABLE LIQUID: This material's flash point is less than 100°F(38° C). Use water in flooding quantities as a fog to extinguish the fire. DO NOT USE a solid stream of water as that may spread the fire. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished.

(Over)

FIRE FIGHTING EXTINGUISHING MEDIA:

Use carbon dioxide, foam, dry chemical or water fog to extinguish fire.

FIRE FIGHTING EQUIPMENT:

Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use.

FIRE FIGHTING INSTRUCTIONS:

Evacuate all persons from the fire area to an explosion-protected location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. Containers of this material may build up pressure if exposed to heat (fire). Use water spray to cool fire-exposed container. DO NOT extinguish a fire resulting from the flow of this flammable

liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. Use water spray to disperse vapors if a spill or leak has not ignited.

FIRE AND EXPLOSION HAZARDS:

Vapors can form an explosive mixture with air. Vapor can travel to a source of ignition (spark or flame) and flash back. This material may polymerize (react) when its container is exposed to heat (as during a fire). This polymerization increases pressure inside a closed container and may result in the violent rupture of the container.

HAZARDOUS COMBUSTION PRODUCTS:

Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases.

SECTION V - HEALTH HAZARD DATA**EFFECTS OF OVEREXPOSURE:**

ROUTE(S) OF ENTRY: Inhalation, ingestion, skin contact, skin absorption and eye contact.

INHALATION: Harmful if inhaled. Effects from exposure may include headaches, fatigue, nausea, sensation of drunkenness, central nervous system depression and pulmonary edema. Inhalation of vapor or aerosol may cause irritation to the respiratory tract (nose, throat, and lungs).

SKIN: Harmful if absorbed through skin. Contact causes skin irritation. Prolonged or repeated skin contact can result in defatting and drying of the skin.

EYES: Harmful to eyes. Direct contact with this material causes eye irritation. Symptoms may include stinging, tearing, redness and swelling.

INGESTION: Harmful if swallowed. Single dose oral toxicity is low. Swallowing small amounts during normal handling is not likely to cause harmful effects; swallowing large amounts may be harmful. Effects from exposure through ingestion may include gastrointestinal disturbances, pain and discomfort. Effects of exposure by ingestion may also include those indicated by the inhalation route. Styrene is harmful or fatal if liquid is aspirated into the lungs.

CHRONIC EXPOSURE: Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans and may aggravate pre-existing disorders of these organs; central nervous system effects, effects on hearing and respiratory tract damage.

CARCINOGENICITY: This material contains styrene which is listed by the International Agency for Research (IARC) on Cancer as a group 2B cancer causing agent (possibly Carcinogenic to humans).

ACUTE EYE TOXICITY: Studies indicate that exposures to concentrations of styrene above 200ppm cause irritation of the eyes. Styrene causes transient moderate eye irritation without corneal involvement.

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ACUTE SKIN TOXICITY:

Draize Skin Primary Irritation Score (range, 0-8) for a 4-hour exposure (rabbits) to styrene is 6.6. Styrene: dermal LD50 (rabbit), 5g/kg. Styrene causes severe irritation at 72 hours.

ACUTE INHALATION TOXICITY:

Styrene: inhalation LC50 (rat), 24g/m³ / 4 hours. Studies indicate that exposure to concentrations of styrene above 200ppm cause irritation of the upper respiratory tract. Acute exposure to high concentrations of styrene may produce irritation of the mucous membranes of the upper respiratory tract, nose, and mouth, followed by symptoms of narcosis, muscular contraction, and death due to respiratory center paralysis.

ACUTE ORAL TOXICITY:

Styrene: oral LD50 (rat), 5g / kg.

ACUTE INGESTION TOXICITY: Styrene: oral LD50 (rat), 5g/kg.

SUBCHRONIC:

Styrene: inhalation NOEL (rat) 200ppm 6 hour / day 13 weeks, target organ effects: auditory response; inhalation LOEL (rat) 800ppm 6 hour / day 3-13 weeks, target organ effects: auditory response. Styrene has been shown to cause probable hearing loss in rats exposed for at least six hours per day for three to thirteen weeks to 800 ppm of styrene in the air, as indicated by a rise in the auditory brainstem response threshold and loss of hair cells of the inner ear. No effects were observed in rats exposed to styrene at 200ppm for thirteen weeks. Based on animal studies and human experience, no significant risk of hearing loss is expected in occupationally exposed persons. Over exposure to styrene has been suggested as a cause of the following effects in laboratory animals an may aggravate pre-existing disorders of the following human organs; mild, reversible kidney effects, effects on hearing, respiratory tract damage, testis damage and liver damage.

CHRONIC/CARCINOGENICITY:

The International Agency for Research on Cancer (IARC) has classified styrene in group 2B, possibly carcinogenic to humans. IARC concluded that evidence of carcinogenicity from human health studies, was inadequate and based the classification on animal and other relevant data. The animal data included an increased incidence of cancer observed in a few studies in which rats and mice were given styrene by inhalation or by ingestion for their lifetimes. IARC considered the combined results of these cancer studies to provide "limited evidence" of carcinogenicity. Other scientists consider the results of these studies inadequate to assess human carcinogenicity because these studies had either negative or statistically inconclusive results or had serious problems such as poor study design or very high mortality. Other relevant data included results from in-vivo and in-vitro genotoxicity studies. IARC also relied on data on styrene oxide including the results of two studies demonstrating stomach tumors in rats that were fed styrene oxide for their life time. Several epidemiology studies involving workers in the styrene, polystyrene, or reinforced plastic industries have been conducted. Together, these studies show no increased cancer risk from occupational exposure to styrene. Preliminary results of a recent inhalation study indicated that mice exposed to styrene showed an increased incidence of lung tumors, however no dose response relationship was observed. The relevance of these findings is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic. The American Conference of Governmental Industrial Hygienist (ACGIH) has adopted the listing of Styrene as "A4-Not Classifiable as a Human Carcinogen". There is inadequate data on which to classify the agent in terms of its carcinogenicity in humans and / or animals.

TERATOLOGY:

Styrene did not cause birth defects in orally-dosed rats, mice, rabbits and hamsters exposed by inhalation. Styrene given by inhalation for six hours a day during organ development has been shown to be toxic to fetal mice at 250 ppm and to fetal hamsters at 1000 ppm. Information from human experience and the results of animal studies suggest no significant risk of birth defects or reproductive toxicity of styrene to humans.

MUTAGENICITY:

Styrene has given mixed positive and negative results in a number of mutagenicity tests. It was not mutagenic in the Ames test without metabolic activation but gave negative and positive mutagenic results with metabolic activation. It has also given negative mutagenic results in the Chinese Hamster Ovary Test, and the Forward Gene Mutation Test and positive results in the Sister Chromatid Exchange and the Chromosomal Aberration Assay.

SECTION VI - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT:

Immediately flush eyes with large quantities of clean water for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT:

Immediately wash skin with soap and water and remove contaminated clothing. Get medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

INGESTION:

DO NOT INDUCE VOMITING. ASPIRATION HAZARD: this material may enter the lungs during vomiting. Immediately give the victim one or two glasses of water or milk to drink. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

INHALATION:

Remove victim to fresh air. Keep warm and quiet. If not breathing, give artificial respiration. If breathing is difficult, give oxygen by trained personnel. GET IMMEDIATE MEDICAL ATTENTION.

SECTION VII - PERSONAL PROTECTION INFORMATION:

EXPOSURE GUIDELINES:

The Occupational Safety and Health Administration (OSHA), has established for styrene, a Permissible Exposure Limit (PEL) of 100ppm for an 8 hour Time Weighted Average (TWA); 200ppm for an acceptable ceiling concentration; and a 600ppm concentration within a duration of 5 minutes in any 3 hours as an acceptable maximum peak above the acceptable ceiling concentration for an 8 hour shift. While the federal workplace exposure limit for styrene is 100ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50ppm on an 8 hour TWA and a Short Term Exposure Limit (STEL) of 100ppm, 15 min exposure. The

American Conference of Governmental Industrial Hygienists (ACGIH) have established, for styrene, Threshold Limit Values (TLV) of 20ppm or 85mg/m³ TWA and 40ppm or 170mg/m³ Short Term Exposure Limit (STEL), 15min exposure, with a skin notation which indicates absorption through the skin which could add to the employees exposure.

ENGINEERING CONTROLS:

The use of general or local exhaust ventilation may be required to maintain exposure below the regulatory or recommended occupational exposure limits. Use explosion-proof ventilation equipment.

EYE PROTECTION:

Wear safety glasses with side shields and a face shield or goggles and a face shield. Facilities storing or utilizing this material should be equipped with an eyewash station and safety shower.

SKIN PROTECTION:

Wear chemical resistant gloves such as polyvinyl alcohol or Viton®. If splashing is likely, wear impervious clothing and boots to prevent repeated or prolonged skin contact. Contact your supplier of personal protective equipment for additional instruction on proper usage.

RESPIRATORY PROTECTION:

A NIOSH / MSHA approved air purifying respirator with organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. Protection provided by air purifying respirators is limited. Use a positive pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or during other circumstances where air purifying respirators may not provide adequate protection.

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SECTION VIII - ACCIDENTAL RELEASE MEASURES

SMALL SPILLS:

Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Use non-sparking (non-metallic) tools to clean up spill. Remove all sources of ignition. **NO SMOKING!!!**

LARGE SPILLS:

Eliminate all ignition sources (flares, flames including pilot lights, and electrical sparks). **NO SMOKING!!!** Persons not wearing protective equipment should be excluded from the area of the spill until clean-up has been completed. Stop spill at source. Prevent spilled material from contaminating soil or entering drains, sewers, streams or other bodies of water. Prevent spilled material from spreading. Immediately notify authorities of any reportable spill as may be required pursuant to regulations. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other waste materials to waste containers for proper disposal.

SECTION IX - HANDLING AND STORAGE

HANDLING:

Avoid inhalation and contact with eyes, skin, and clothing. Wash hands thoroughly after handling and before eating or drinking. Remove and wash contaminated clothing before reuse. Use with adequate ventilation. Ground and bond containers when transferring the material to prevent static electricity sparks which could ignite the vapor. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalyst for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and / or vapor). Do not pressurize, cut, weld, braze, solder, drill, grind or expose these containers to heat, flame, sparks, static electricity, or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed.

STORAGE INFORMATION:

Keep away from ignition sources (flames, pilot lights, electrical sparks, and sparking tools). **NO SMOKING!!!** Do not store in direct sunlight. Store separate from oxidizing materials, peroxides, and metal salts. Keep container closed when not in use. To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 75°F (25°C). Copper or alloys containing copper should be avoided as containers.

SECTION X - STABILITY AND REACTIVITY:

STABILITY:

Stable at normal temperatures and storage conditions.

INCOMPATIBILITY:

Avoid contact with strong acids, oxidizing agents (peroxides), metal salts and polymerization catalysts.

HAZARDOUS DECOMPOSITION PRODUCTS:

Thermal decomposition may produce various hydrocarbons and irritating, acrid vapors.

HAZARDOUS POLYMERIZATION:

Product will undergo hazardous polymerization at temperatures above 150°F (60°C). Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts.

SECTION XI - ECOLOGICAL INFORMATION:

ECOTOXICITY:

Styrene is toxic to aquatic organisms and should not be released to sewage, drainage systems and all bodies of water at concentrations exceeding approved limits under applicable regulations and permits. Styrene: LC50 (Sheepshead minnow), 9.1 mg / 1/96 hr.

(Over)

ENVIRONMENTAL FATE:

Styrene released to soil is subject to biodegradation. The results of one extensive biological screening study suggested that styrene will be rapidly destroyed by biodegradation in most aerobic environments, but the rate may be slow at low concentrations in aquifers and lake waters and in environments at low ph (6).

SECTION XII - DISPOSAL CONSIDERATIONS:

WASTE DISPOSAL METHOD:

RCRA HAZERDOUS WASTE: This material and containers that are not empty, if discarded, would be regulated as a hazardous waste under RCRA. Treatment and/or disposal must be completed at a RCRA-permitted Treatment, Storage and Disposal Facility (TSD). The storage and transportation of RCRA hazardous wastes are also regulated by the USEPA.

EMPTY DRUMS: "Empty Containers", as defined under 40 CFR 261.7 or other applicable state or provincial regulations or transportation regulations, are not classified as hazardous wastes.

RCRA HAZARD CLASS:

D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristics of ignitability.

SECTION XIII - TRANSPORTATION INFORMATION:

DOT:

	DOT: Non Bulk	DOT: Bulk	IATA: Non Bulk
Proper Shipping Name	RESIN SOLUTION	RESIN SOLUTION	RESIN SOLUTION
Hazard class	3	3	3
ID Number	UN1866	UN1866	UN1866
Packing Group	III	III	III
Label	Flammable Liquid		Flammable Liquid
Placard	Flammable Liquid	Flammable Liquid	Flammable Liquid
Marine Pollutant		STYRENE	
ERG Number	127	127	127

	IMDG: Bulk/Non Bulk	TDG: Non Bulk	TDG: Bulk
Proper shipping name	RESIN SOLUTION	RESIN SOLUTION	RESIN SOLUTION
Technical Shipping Name (If N.O.S.)			STYRENE
Hazard Class	CLASS 3.3	CLASS 3	CLASS 3 (9.2)
ID Number	UN1866	UN1866	UN1866
Packing Group	PG III	PG III	PG III
Label	Flammable Liquid	Flammable Liquid	
Placard	Flammable Liquid	Flammable Liquid	Flammable Liquid
Marine Pollutant	STYRENE		
ERG Number	127	127	127

ADDITIONAL INFORMATION:

This product, if released in quantities greater than 2941 lbs. In the U.S., would trigger reporting requirements under the applicable transportation regulations.

HMIS (USA)

Health	2
Fire Hazard	3
Reactivity	1
Personal Protection	X

(Next Page)

Health	2
Fire Hazard	3
Reactivity	1
Personal Protection	X

SECTION XIV - REGULATORY INFORMATION**CLEAN AIR ACT - HAZARDOUS AIR POLLUTANTS (HAP):**

Styrene (100-42-5) is listed as a Hazardous Air Pollutant (HAP) under Section 112 of the Clean Air Act.

CLEAN WATER ACT - PRIORITY POLLUTANTS (PP):

Styrene (100-42-5) is listed under section 311 as a Hazardous Substance.

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA):

This material is classified as a hazardous chemical under the criteria of the US Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200.

SARA TITLE III: SECTION 304 - CERCLA:

Styrene (CAS# 100-42-5): Reportable Quantity = 1,000 lbs

SARA TITLE III: SECTION 311/312 - HAZARD COMMUNICATION STANDARD (HCS):

This material is classified as an IMMEDIATE HEALTH HAZARD, DELAYED HEALTH HAZARD, FLAMMABILITY HAZARD, and REACTIVITY HAZARD under the U.S. Superfund Amendment and Re-authorization Act (Section 311/312).

SARA TITLE III: SECTION 313 - TOXIC CHEMICAL LIST (TCL):

Styrene (100-42-5)

TSCA SECTION 8(b) - INVENTORY STATUS:

All components of this material are listed on the U.S. Toxic Substances Control Act (TSCA) inventory.

TSCA SECTION 12(b) - EXPORT NOTIFICATION:

This material does not contain any components that are subject to the U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification Requirements.

CANADIAN INVENTORY STATUS:

All components of this material are listed on the Canadian Domestic Substances List (DSL).

CANADIAN WHMIS:

This material is classified by the Canadian Workplace Hazardous Material Information System as:
 B2 (flammable liquid)
 D2A (materials causing other toxic effects, very toxic material)
 D2B (materials causing other toxic effects, toxic materials)
 F (dangerously reactive materials)

CALIFORNIA PROPOSITION 65:

WARNING: This product contains a chemical(s) known to the State of California to cause cancer:
 Styrene Oxide, Aniline (CAS# 62-53-3).

NEW JERSEY RIGHT- TO- KNOW:

Styrene (CAS# 100-42-5) is listed on the New Jersey Right-to-Know List as a Special Hazardous Substance and an Environmentally Hazardous Substance and an Environmentally Hazardous Substance.

PENNSYLVANIA RIGHT-TO-KNOW:

Styrene (CAS# 100-42-5) is listed on the Pennsylvania Right-to-Know List as an Environmental Hazard.

ADDITIONAL CANADIAN REGULATORY INFORMATION:

Under the Transportation of Dangerous Goods Regulations, the following chemicals have been assigned Regulated Limits (RL): Styrene Monomer (CAS# 100-42-5) / RL=50 KG.

The following chemicals are listed on the WHMIS Ingredients Disclosure List: Styrene Monomer (CAS# 100-42-5)

The following chemical(s) are listed on the Canadian National Pollutant Release Inventory (NPRI): Styrene Monomer (CAS# 100-42-5)

DISCLAIMER OF LIABILITY

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim liability for any use of this material. Information contained herein is believed to be true and accurate but all statements are made without warranty, express or implied, regarding the accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. It is the user's obligation to determine the conditions of safe use and the suitability of the material for the user's purpose.

Prepared By: Joe Morales
Revised: 03/27/02 By: E.R.
F#170-21A

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HAPOL 1300-5

SECTION I - PRODUCT IDENTIFICATION

MANUFACTURER'S NAME	- HASTINGS PLASTICS COMPANY
PRODUCT INFORMATION & SALES	- (310)829-3449
EMERGENCY PHONE NUMBER	- (800) 424-9300
PRODUCT NAME	- Hapol 1300-5
CHEMICAL FAMILY AND	- Unsaturated Polyester Resin in Styrene
CHEMICAL NAME	- Monomer
DOT SHIPPING NAME	- Resin Solution - UN 1866
DOT HAZARD CLASS	- Flammable Liquid

SECTION II - HAZARDOUS INGREDIENTS

<u>COMPONENTS</u>	<u>CAS #</u>	<u>%</u>	<u>ACGIH</u>		<u>OSHA</u>
			<u>TWA</u>	<u>STEL</u>	<u>PEL</u>
STYRENE MONOMER	100-42-5	36 - 42	20 PPM	40 PPM	100 PPM
2,5-FURANDIONE,POLYMER WITH 1,3-ISOBENZOFURANDIONE AND 1,2 PROPANEDIOL	25037-66-5	58 - 64	NONE	NONE	NONE

SECTION III - PHYSICAL DATA

APPEARANCE AND ODOR	- Purple Clear Liquid - Pungent Odor
BOILING POINT	- 295 °F (146 DEGREES C) STYRENE
VAPOR PRESSURE	- 6.12 (mm Hg) Styrene
VAPOR DENSITY (AIR =1)	- 3.6 (Air=1) Styrene
SPECIFIC GRAVITY	- 1.11 - 1.13 g / cc @ 77 °F
SOLUBILITY IN WATER %	- Insoluble @ 68 °F
PERCENT VOLATILE By Weight	- 36 - 42 %
EVAPORATION RATE	- < 1 (BuAc=1) Styrene
V.O.C. Content	- 437 grams / liter (calculated) product as supplied
pH	- not applicable

SECTION IV - FIRE AND HAZARD EXPLOSION DATA

FLASH POINT	- 89 °F
FLASH POINT METHOD USED	- SetaFlash Closed Cup
AUTOIGNITION TEMP.	- 914 °F
FLAMMABILITY LIMITS (in air % By Volume)	- Lower 1.1 Upper 6.1
FIRE-FIGHTING PROCEDURES	- Use carbon dioxide, foam, dry chemical or water fog to extinguish fire.
FIRE-FIGHTING EQUIPMENT	- Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all equipment after use.
NFPA HAZARD CLASSIFICATION	
HEALTH HAZARD	- 2
FIRE HAZARD	- 3
REACTIVITY	- 1

(OVER)

GENERAL HAZARDS - This material's flash point is less than 100°F. Use water in flooding quantities as a fog to extinguish the fire. DO NOT use a solid stream of water as that may spread the fire. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished.

FIRE-FIGHTING INSTRUCTION - Evacuate all persons from the fire area to an explosion-protected location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. Containers of this material may build up pressure if exposed to the heat (fire). Use water spray to cool fire exposed containers. DO NOT extinguish a fire resulting from the flow of this flammable liquid until the flow of liquid is effectively shut off. This precaution will help prevent the accumulation of an explosive vapor-air mixture after the initial fire is extinguished. Use water spray to disperse vapors if a spill or leak has not ignited.

FIRE AND EXPLOSION HAZARDS - Fire may produce poisonous or irritating gas, fumes or vapor. Excessive heat may trigger polymerization of confined material. Containers may explode in heat or fire. Styrene vapors are uninhibited and may form polymers in vents or flame arresters of storage tanks, resulting in stoppage of vents. Exposed firefighters should wear MSHA/NIOSH approved self-contained breathing apparatus, with full face mask and full protective equipment.

HAZARDOUS COMBUSTION PRODUCTS - Combustion may produce carbon monoxide, carbon dioxide and irritating or toxic vapors and gases.

SECTION V - HEALTH HAZARD DATA

INHALATION - Harmful if inhaled. Effects from exposure may include headaches, fatigue, nausea, sensation of drunkenness, central nervous system depression and pulmonary edema. Inhalation of vapor or aerosol may cause irritation to the respiratory tract (nose, throat and lungs).

SKIN - Harmful if absorbed through skin. Contact causes skin irritation. Prolonged or repeated skin contact can result in defatting and drying of the skin.

EYES - Harmful to eyes. Direct contact with this material causes eye irritation. Symptoms may include, stinging, tearing, redness and swelling.

INGESTION - Harmful if swallowed. Single dose oral toxicity is low. Swallowing small amounts during normal handling is not likely to cause harmful effects; swallowing large amounts may be harmful. Effects from exposure though ingestion may include gastrointestinal disturbances, pain and discomfort. Effects of exposure by ingestion may also include those indicated by the inhalation route. Styrene is harmful or fatal if liquid is aspirated into the lungs.

CHRONIC EXPOSURE - Overexposure to this material (or its components) has been suggested as a cause for the following effects in humans and may aggravate pre-existing disorders of these organs; central nervous system effects, effects on hearing and respiratory tract damage.

CARCINOGENICITY - This material contains styrene which is listed by the International Agency for Research (IRAC) on Cancer as a group 2B cancer causing agent (possibly carcinogenic to humans).

FIRST AID PROCEDURES:

EYE CONTACT - Immediately flush eyes with large quantities of clean water for at least 15 min. Get immediate medical attention.

SKIN CONTACT - Wash skin with soap and water. Remove contaminated clothing. Get medical attention if

irritation develops or persists. Wash contaminated cloths before re-using.

INGESTION - DO NOT INDUCE VOMITING. ASPIRATION HAZARD. This material may enter the lungs during vomiting. Immediately give the victim one or two glasses of water or milk to drink. Never give anything by mouth to an unconscious person. Get immediate medical attention.

INHALATION - Relocate victim to fresh air. Keep warm and quiet. If not breathing, give artificial respirations. If breathing is difficult, give oxygen by trained personnel. Get immediate medical attention.

SECTION VI - REACTIVITY DATA

STABILITY - Stable at normal temperature and storage conditions.

INCOMPATIBILITY - Avoid contact with strong acids, oxidizing agents (peroxides), metal salts and polymerization catalysts.

HAZARDOUS DECOMPOSITION PRODUCTS - Thermal decomposition may produce various hydrocarbons and irritating, acid vapors.

HAZARDOUS POLYMERIZATION - Product will undergo hazardous polymerization at temperatures above 150°F. Hazardous polymerization will occur if contaminated with peroxides, metal salts and polymerization catalysts.

SECTION VII - ACCIDENTAL RELEASE MEASURES

FOR SMALL SPILLS - Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Use non-sparking (non metallic) tools to clean up spill. Remove all sources of ignition.

NO SMOKING

FOR LARGE SPILLS - Eliminate all ignition source (flares, flames including pilot lights, electrical sparks). **NO SMOKING.** Person not wearing protective equipment should be excluded from the area of the spill until clean-up has been completed. Stop spill at source. Prevent spilled material from contaminating soil or entering drains, sewers, streams or bodies of water. Prevent spilled material from spreading. Immediately notify authorities of any reportable spill as may be required pursuant regulations. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other waste materials to waste containers for disposal.

SECTION VIII - HANDLING AND STORAGE

HANDLING INFORMATION - Avoid Inhalation and contact with eyes, skin and clothing. Wash hands thoroughly after handling and before eating or drinking. Remove and wash contaminated garments before reuse. Use with adequate ventilation. Ground and bond containers when transferring the material to prevent static electricity sparks which could ignite the vapors. Use spark-proof tools and explosion-proof equipment. Consult your supplier of promoters and catalysts for additional instructions on proper mixing and usage. Empty containers may retain product residue (liquid and/or vapor). Do not pressurize, cut, weld, braze, solder, drill grind or expose these containers to heat, flame, sparks, static electricity or other sources of ignition as the container may explode and may cause injury or death. Empty drums should be completely drained and properly bunged. Empty drums should be promptly returned to a drum reconditioner or properly disposed. (OVER)

STORAGE INFORMATION

Keep away from ignition source: flames, pilot lights, electrical sparks, and sparking tools. NO SMOKING. Do not store in direct sunlight. Store separate from oxidizing materials, peroxides and metal salts. Keep container closed when not in use. To ensure maximum stability and maintain optimum resin properties, resin should be stored in closed containers at temperatures below 75°F (25°C). Copper or copper containing alloys should be avoided as containers.

SECTION IX - EXPOSURE CONTROLS & PERSONAL PROTECTION

EXPOSURE GUIDELINES - The Occupational Safety and Health Administration (OSHA), has established for styrene, a Permissible Exposure Limit (PEL) of 100 ppm for an 8 hour Time Weighted Average (TWA); 200 ppm for an acceptable ceiling concentration; and a 600 ppm concentration within a duration of 5 minutes in any 3 hour as an acceptable maximum peak above the acceptable ceiling concentration for an 8 hour shift. While the federal workplace exposure limit for styrene is 100 ppm, 15 minute exposure.

The American Conference of Governmental Industrial Hygienist (ACGIH) have established, for styrene, Threshold Limit Values (TLV) of 20 ppm or 85 mg/m³ TWA and 40 ppm or 170 mg/m³ Short Term Exposure Limit (STEL), 15 minute exposure, with a skin notation which indicates absorption through the skin which could add to the employees exposure.

ENGINEERING CONTROLS - The use of general or local exhaust ventilation may be required to maintain exposures below the regulatory or recommended occupational exposure limits.

EYE PROTECTION - Wear 1) safety glasses with side shields and face shield or 2) goggles and a face shield. Facilities storing or utilizing this material should be equipped with an eyewash station and safety shower.

SKIN PROTECTION - Wear chemical resistant gloves such as polyvinyl alcohol or Viton (R). If splashing is likely, wear impervious clothing and boots to prevent repeated or prolonged skin contact. Consult your supplier of personal protective equipment for additional instruction on proper usage.

RESPIRATORY PROTECTION - A NIOSH/MSHA approved air purifying respirator with organic vapor cartridge or canister may be necessary under certain circumstances where airborne concentrations are expected to exceed exposure limits. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. Protection provided by air purifying respirators is limited. Use a positive pressure air-supplied respirator if 1) there is any potential for an uncontrolled release, 2) exposure levels are not known, or 3) during other circumstances where air purifying respirators may not provide adequate protection.

SECTION X - TOXICOLOGICAL INFORMATION

ACUTE EYE TOXICITY - Studies indicate that exposures to concentrations of styrene above 200 ppm causes irritation of the eyes. Styrene causes transient moderate eye irritation without corneal involvement.

ACUTE SKIN TOXICITY - Draize skin primary irritation score (range, 0-8) for a 4-hour exposure (rabbits) to styrene is 6.6. styrene: dermal LD50 (rabbit), 5g/kg. Styrene causes severe irritation at 72 hours.

ACUTE INHALATION TOXICITY - Styrene: inhalation LC50 (rat), 24 g/m³ / 4hrs. Studies indicate that exposures to concentrations of styrene above 200 ppm causes irritation of the upper respiratory tract. Acute exposure to high concentrations of styrene may produce irritation of the mucous membranes of the upper respiratory tract, nose and mouth, followed by symptoms of narcosis, muscular contraction and death due to respiratory center paralysis.

ACUTE ORAL TOXICITY - Styrene: oral LD50 (rat), 5g/kg

SUBSCRONIC - Styrene: inhalation NOEL(rat) 200ppm 6 hrs/day 13 weeks, target organ effects: auditory response; inhalation LOEL(rat) 800ppm 6 hrs/day 3- 13 weeks, target organ effects: auditory response.

Styrene has been shown to cause probable hearing loss in rats exposed for at least six hours per day for three to thirteen weeks to 800ppm of styrene in air, as indicated by a rise in the auditory brainstem response threshold and loss of hair cells of the inner ear. No effects were observed in rats exposed to styrene at 200ppm for 13 weeks. Based on animal studies and human experience, no significant risk of hearing loss is expected in occupationally exposed persons.

Overexposure to styrene has been suggested as a cause of the following effects in laboratory animals and may aggravate pre-existing disorders of the following organs in humans; mild, reversible kidney effects, effects on hearing, respiratory tract damage, testis damage and liver damage.

CHRONIC/CARCINOGENICITY - The International Agency for Research on Cancer (IARC) has classified styrene in Group 2B, possibly carcinogenic to humans. IARC concluded that evidence of carcinogenicity from human health studies, was inadequate and data included an increased incidence of cancer observed or by studies in which rats and mice were given styrene by inhalation or by ingestion for their lifetimes. IARC considered the combined results of these cancer studies to provide "limited evidence" of carcinogenicity. Other scientists consider the results of these studies inadequate to assess human carcinogenicity because these studies had either negative or statistically inconclusive results or had serious problems such as poor study design or very high mortality. Other relevant data included results from in-vivo and in-vitro genotoxicity studies. IARC also relied on data on styrene oxide including the results of two studies demonstrating stomach tumors in rats that were fed styrene oxide for their lifetime. Several epidemiology studies involving workers in the styrene, polystyrene or reinforced plastics industries have been conducted. Together, these studies show no increased cancer risk from occupational exposure to styrene.

Preliminary results of a recent inhalation study indicated that mice exposed to styrene showed an increased incidence of lung tumors, however no dose response relationship was observed. The relevance of these findings is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic.

The American Conference of Governmental Industrial Hygienist (ACGIH) has adopted the listings of styrene as "A4-Not Classifiable as a human Carcinogenic." There is inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

TERATOLOGY - Styrene did not cause birth defects in orally-dosed rats, mice, rabbits and hamsters exposed by inhalation. Styrene given by inhalation for six hours a day during organ development has been shown to be toxic to fatal mice at 250ppm and to fatal hamsters at 1000ppm. Information from human experiences and the results of animal studies suggest no significant risk of birth defects or reproductive toxicity of styrene to humans.

MUTAGENICITY - Styrene has given mixed positive and negative results in a number of mutagenicity tests. It was not mutagenic in the Ames test without metabolic activation but gave negative and positive mutagenic results with metabolic activation. It has also given a negative mutagenic results in the Chinese Hamster Ovary Test, and the Forward Gene Mutation Test and positive results in the Sister Chromatid Exchange and the Chromosomal Aberration assay.

(OVER)

SECTION XI - ECOLOGICAL INFORMATION

ECOTOXICITY - Styrene is toxic to aquatic organisms and should not be released to sewage, drainage systems and all bodies of water at concentrations exceeding approved limits under applicable regulations and permits. Styrene: LC50 (sheephead minnow), 9.1 mg/ l / 96 hrs.

ENVIRONMENTAL - Styrene released to soil is subject to biodegradation. The results of one extensive biological screening study suggest that styrene will be rapidly destroyed by biological in most aerobic environment, but the rate may be slow at low concentrations in aquifers and lake waters and in environment at low ph(6).

SECTION XII - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:

RCRA HAZARDOUS WASTE - This material and containers that are not empty, if discarded, would be regulated as a hazardous waste under RCRA. Treatment and or disposal must be completed at a RCRA-permitted Treatment, Storage and Disposal Facility (TSD). The storage and transportation of RCRA hazardous wastes are also regulated by the USEPA.

EMPTY DRUMS - Empty containers, as defined under 40CFR 261.7 or other applicable state or provincial regulations or transportation regulations, are not classified as hazardous wastes.

RCRA HAZARD CLASS - D001 (IGNITABLE): When discarded in its purchased form, this material would be regulated under 40 CFR 261.21 as EPA Hazardous Waste Number D001 based on the characteristic of ignitability.

SECTION XIII - TRANSPORTATION INFORMATION

DOT: NON BULK
PROPER SHIPPING NAME: Resin Solution
HAZARD CLASS: 3
ID: UN 1866
PG: III
LABEL: Flammable
PLACARD: Flammable
MARINE POLLUTANT:
EM GUIDEBOOK: 127

DOT: BULK
PROPER SHIPPING NAME: Resin Solution
HAZARD CLASS: 3
ID: Un1866
PG: III
LABEL: Flammable
PLACARD: Flammable
MARINE POLLUTANT: Styrene
EM GUIDEBOOK: 127

IATA: NON BULK
PROPER SHIPPING NAME: Resin Solution

HAZARD CLASS: 3
ID: Un1866
PG: III
LABEL: Flammable
PLACARD: Flammable
MARINE POLLUTANT:
EM GUIDEBOOK: 127

IMDG: BULK AND NON BULK
PROPER SHIPPING NAME: Resin Solution
TECHNICAL NAME (IF N.O.S.):
HAZARD CLASS: 3.3
ID: Un1866
PG: III
LABEL: Flammable
PLACARD: Flammable
MARINE POLLUTANT: Styrene
EM GUIDEBOOK: 127

TDG: NON BULK
PROPER SHIPPING NAME: Resin Solution
TECHNICAL NAME (IF N.O.S.):
HAZARD CLASS: 3
ID: Un1866
PG: III
LABEL: Flammable
PLACARD: Flammable
MARINE POLLUTANT: Styrene
EM GUIDEBOOK: 127

TDG: BULK
PROPER SHIPPING NAME: Resin Solution
TECHNICAL NAME (IF N.O.S.): Styrene
HAZARD CLASS: 3 (9.2)
ID: Un1866
PG: III
LABEL: Flammable
PLACARD: Flammable
MARINE POLLUTANT: Styrene
EM GUIDEBOOK: 127

ADDITIONAL INFORMATION - This product, if released in quantities greater than 2564 pounds in the U.S., would trigger reporting requirements under the applicable transportation regulations. (OVER)

SECTION XIV - REGULATORY INFORMATION

STATE RIGHT-TO-KNOW / SARA SECTION 313 INFORMATION:

CAS NO.	COMMON NAME / CHEMICAL NAME	STATE RTK	SARA 313
100-42-5	Styrene Monomer / Ethenyl Benzene	PA. NJ. MA.	Yes
25037-66-5	Polyester Resin/2,5-Furandione, polymer with 1,3-isobenzofurandione and 1,2-propanediol	Not Listed	NO

SARA 311/312

Immediate / Delay / Flammable / Reactive

TSCA INVENTORY STATUS - All components of this material are listed on the US Toxic substances Control Act (TSCA) inventory.

TSCA EXPORT NOTIFICATION - This material does not contain any components that are subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification Requirements.

OSHA STATUS - This material is classified as a hazardous chemical under the criteria of the US Occupational Safety and Health Administration (OSHA) Hazard Communication Standard, 29 CFR 1910.1200.

CAA - Styrene (100-42-5) is listed as a Hazardous Air Pollutant (hap) under Section 112 of the Clean Air Act.

CWA - Styrene (100-42-5) is listed under Section 311 as a Hazardous Substance.

CERCLA - Styrene (100-42-5) Reportable Quantity = 1,000 lbs.

CALIFORNIA PROPOSITION 65 - Warning, this material contains a chemical(s) known to the State of California to cause cancer. Styrene Oxide.

CANADA CEPA - All components of this material are listed on the Canadian Domestic Substance List (DSL).

CANADA WHMIS - This material is classified by the Canadian Workplace Hazardous Material Information System as: B2 (flammable Liquid) D2A (materials causing other toxic effects, very toxic material) D2B (materials causing other toxic effects, toxic material) f (dangerously reactive material).

ADDITIONAL CANADIAN REGULATORY INFORMATION - Under the Transportation of Dangerous Goods Regulations, the following chemicals have been assigned Regulated Limits (RL): Styrene Monomer (Cas# 100-42-5): RL=50 KG.

The following chemicals are listed on the WHMIS Ingredient Disclosure List: Styrene Monomer (Cas# 100-42-5).

The following chemical(s) are listed on the Canadian National Pollutant Release Inventory (NPRI): Styrene Monomer (Cas# 100-42-5).

DISCLAIMER OF LIABILITY

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim liability for any use of this material. Information contained herein is believed to be true and accurate but all statements are made without warranty, express or implied, regarding the accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. It is the user's obligation

Prepared
By: Joe Morales

F#170-21A