SAFETY DATA SHEET



1. Identification

Product identifier Methyl isocyanate

Other means of identification

Item N-12440

Synonyms ISOCYANIC ACID, METHYL ESTER

Recommended use For Laboratory Use Only

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name Chem Service, Inc.
Address 660 Tower Lane

West Chester, PA 19380

United States

Telephone Toll Free 800-452-9994

Direct 610-692-3026

Website www.chemservice.com
E-mail info@chemservice.com

Emergency phone number Chemtrec US 800-424-9300

Chemtrec outside US +1 703-527-3887

2. Hazard(s) identification

Physical hazardsFlammable liquidsCategory 1Health hazardsAcute toxicity, oralCategory 3Acute toxicity, dermalCategory 2Acute toxicity, inhalationCategory 1Skin corrosion/irritationCategory 2Serious eye damage/eye irritationCategory 1

Sensitization, respiratory

Sensitization, skin

Category 1

Reproductive toxicity

Category 1

Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Extremely flammable liquid and vapor. Toxic if swallowed. Fatal in contact with skin. Causes skin

irritation. May cause an allergic skin reaction. Causes serious eye damage. Fatal if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory

irritation. May damage fertility or the unborn child.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read

and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe vapor. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

Response

If swallowed: Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Specific treatment is urgent (see this label). Rinse mouth. If skin irritation or rash occurs: Get medical advice/attention. Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use appropriate media to extinguish.

Storage

Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place.

Keep cool. Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.

Supplemental information Not applicable.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Methyl isocyanate	ISOCYANIC ACID, METHYL ESTER	624-83-9	100

4. First-aid measures

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact

Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Take off contaminated clothing and wash before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion

Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms/effects, acute and delayed

Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Skin irritation. May cause an allergic skin reaction. Dermatitis. Rash. May cause allergic respiratory reaction. May cause redness and pain.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

Take off immediately all contaminated clothing. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse. Discard any shoes or clothing items that cannot be decontaminated.

5. Fire-fighting measures

Suitable extinguishing media

Alcohol resistant foam. Water fog. Dry sand. Carbon dioxide (CO2). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.

Specific methods
General fire hazards

Use standard firefighting procedures and consider the hazards of other involved materials.

Extremely flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe vapor. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Transfer by mechanical means such as vacuum truck to a salvage tank or other suitable container for recovery or safe disposal. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Vapors may form explosive mixtures with air. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Handling operations that can promote accumulation of static charges include but are not limited to: mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Do not get this material on clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

For additional information on equipment bonding and grounding, refer to the Canadian Electrical Code in Canada, (CSA C22.1), or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity" or National Fire Protection Association (NFPA) 70, "National Electrical Code".

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Avoid spark promoters. Eliminate sources of ignition. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Refrigeration recommended. Store away from incompatible materials (see Section 10 of the SDS). Keep in an area equipped with sprinklers.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Conta	aminants (29 CFR 1910.1000)

Material	Type	Value	
Methyl isocyanate (CAS 624-83-9)	PEL	0.05 mg/m3	
,		0.02 ppm	
US. ACGIH Threshold Limit Valu	es		
Material	Туре	Value	
Methyl isocyanate (CAS 624-83-9)	STEL	0.06 ppm	
,	TWA	0.02 ppm	
US. NIOSH: Pocket Guide to Che	emical Hazards		
Material	Туре	Value	
Methyl isocyanate (CAS 624-83-9)	TWA	0.05 mg/m3	
,		0.02 ppm	

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

Methyl isocyanate (CAS 624-83-9)

Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Methyl isocyanate (CAS 624-83-9)

Skin designation applies.

US - Tennessee OELs: Skin designation

Methyl isocyanate (CAS 624-83-9)

Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Methyl isocyanate (CAS 624-83-9)

Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

Methyl isocyanate (CAS 624-83-9)

Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Methyl isocyanate (CAS 624-83-9)

Can be absorbed through the skin.

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles) and a face shield.

Wear a full-face respirator, if needed.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.Other Wear appropriate chemical resistant clothing.

Respiratory protection Wear positive pressure self-contained breathing apparatus (SCBA).

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. Do not get this material on clothing. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state
Form
Color
Colorless
Odor
Pungent, acrid
Odor threshold
Not available.
PH
Not available.
Melting point/freezing point
Liquid
Colorless
Pungent, acrid
Not available.

Initial boiling point and boiling

98.6 - 102.2 °F (37 - 39 °C)

range

Flash point 21.2 °F (-6.0 °C)
Evaporation rate Not available.
Flammability (solid, gas) Not available.
Upper/lower flammability or explosive limits

Explosive limit - lower (%) 5.3 Explosive limit - upper (%) 26

Vapor pressure 46.4 kPa at 20 °C

Vapor density 1.42

Relative density Not available.

Solubility(ies)

Solubility (water) 100 g/l at 59°F **Partition coefficient** Not available.

(n-octanol/water)

Auto-ignition temperature 993.2 °F (534 °C)

Decomposition temperature Not available.

Viscosity Not available.

Other information

Density 0.923 g/ml

Flammability class Flammable IA estimated

Molecular formulaC2-H3-N-OMolecular weight57.06 g/molSpecific gravity0.96 at 20 °C

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous Hazardous polymerization does not occur.

reactions

Conditions to avoid Avoid heat, sparks, open flames and other ignition sources. Contact with incompatible materials.

Incompatible materials Acids. Amines.

Hazardous decompositionNo hazardous decomposition products are known.

products

11. Toxicological information

Information on likely routes of exposure

Inhalation Fatal if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin contact Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction.

Eye contact Causes serious eye damage.

Ingestion Toxic if swallowed.

Material name: Methyl isocyanate

N-12440 Version #: 03 Revision date: 04-06-2016 Issue date: 01-30-2015

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause an allergic skin reaction. Skin irritation. May cause redness and pain. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity

Fatal if inhaled. Fatal in contact with skin. Toxic if swallowed. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Expected to be a low hazard for usual industrial or commercial handling by trained personnel.

Product	Species	Test Results
Methyl isocyanate (CAS 6	624-83-9)	
<u>Acute</u>		
Dermal		
LD50	Rabbit	213 mg/kg
		0.12 ml/kg
Inhalation		
LC50	Mouse	12.2 mg/l, 6 Hours
	Rat	6.1 mg/l, 6 Hours
		5 mg/l, 4 Hours
Oral		
LD50	Mouse	78 - 200 mg/kg

^{*} Estimates for product may be based on additional component data not shown.

Rat

Skin corrosion/irritation

Causes skin irritation.

Causes serious eye damage.

Serious eye damage/eye

irritation

Respiratory or skin sensitization

ACGIH Sensitization

Methyl isocyanate (CAS 624-83-9)

Dermal sensitization

Respiratory sensitization May cause allergy

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

55 - 340 mg/kg

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicityNo data available to indicate product or any components present at greater than 0.1% are

mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity May damage fertility or the unborn child.

Specific target organ toxicity -

single exposure

Respiratory tract irritation.

Specific target organ toxicity -

repeated exposure

Not classified.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material

and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international

regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste

disposal company.

US RCRA Hazardous Waste P List: Reference

Methyl isocyanate (CAS 624-83-9)

P064

Waste from residues / unused

products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see:

Disposal instructions).

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN2480

UN proper shipping name

Methyl isocyanate

Methyl isocyanate

Transport hazard class(es)

Class 6.1(PGI, II)

Subsidiary risk 3 6.1, 3 Label(s) Packing group

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

1. B9. B14. B30. T22. TP2. TP13. TP38. TP44 Special provisions

None Packaging exceptions 226 Packaging non bulk Packaging bulk 244

IATA

UN2480 **UN** number

UN proper shipping name

Transport hazard class(es)

Class 6.1(PGIII)

Subsidiary risk 3

Packing group Not applicable.

Environmental hazards No. **ERG Code**

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Other information

Passenger and cargo

aircraft

Forbidden

Cargo aircraft only

Forbidden

Not available.

IMDG

UN2480 **UN** number

UN proper shipping name METHYL ISOCYANATE

Transport hazard class(es)

Class 6.1(PGI, II)

Subsidiary risk 3 Packing group

Environmental hazards Marine pollutant No.

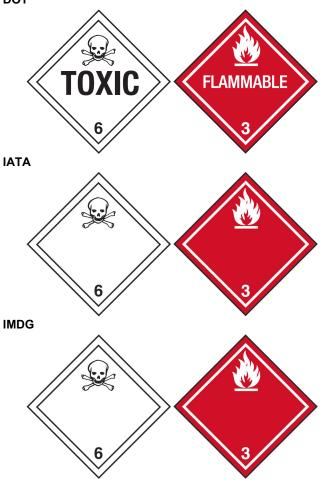
F-E. S-D **EmS**

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to

Annex II of MARPOL 73/78 and

the IBC Code



15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication

Standard, 29 CFR 1910.1200.

All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Methyl isocyanate (CAS 624-83-9) Listed.

SARA 304 Emergency release notification

Methyl isocyanate (CAS 624-83-9) **10 LBS** US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes

Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name CAS number Reportable **Threshold Threshold** Threshold quantity planning quantity planning quantity, planning quantity, lower value upper value

500 lbs Methyl isocyanate 624-83-9 10

SARA 311/312 Hazardous chemical

Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.	_
Methyl isocyanate	624-83-9	100	

Material name: Methyl isocyanate SDS US

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Methyl isocyanate (CAS 624-83-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Methyl isocyanate (CAS 624-83-9)

Safe Drinking Water Act Not regulated.

(SDWA)

US state regulations

US - New Jersey RTK - Substances: Listed substance

Methyl isocyanate (CAS 624-83-9)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd.

(a))

Methyl isocyanate (CAS 624-83-9)

US. Massachusetts RTK - Substance List

Methyl isocyanate (CAS 624-83-9)

US. New Jersey Worker and Community Right-to-Know Act

Methyl isocyanate (CAS 624-83-9)

US. Pennsylvania RTK - Hazardous Substances

Methyl isocyanate (CAS 624-83-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Methyl isocyanate (CAS 624-83-9)

US. Rhode Island RTK

Methyl isocyanate (CAS 624-83-9)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

Methyl isocyanate (CAS 624-83-9)

Listed: November 12, 2010

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

Methyl isocyanate (CAS 624-83-9)

Listed: November 12, 2010

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

^{*}A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

 Issue date
 01-30-2015

 Revision date
 04-06-2016

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Version # NFPA ratings 03 Health: 4

Flammability: 4 Instability: 0

Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

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Revision Information

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