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1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product code

ADE677

Product name

Catalyst

Product category

ADE Series Epoxy Screen Ink

Other means of identification

Synonyms

None

Recommended use of the chemical and restrictions on use

Recommended use

Printing operations

Details of the supplier of the safety data sheet

UNITED STATES
Nazdar Company
8501 Hedge Lane Terrace
Shawnee, KS 66227
Tel: 1-913-422-1888
Tel: 1-800-677-4657
Fax: 1-913-422-2294
www.nazdar.com

UNITED KINGDOM
Nazdar Limited
Barton Road
Heaton Mersey
Stockport, England SK4 3EG
Tel: +44 161 442 2111

Emergency telephone number

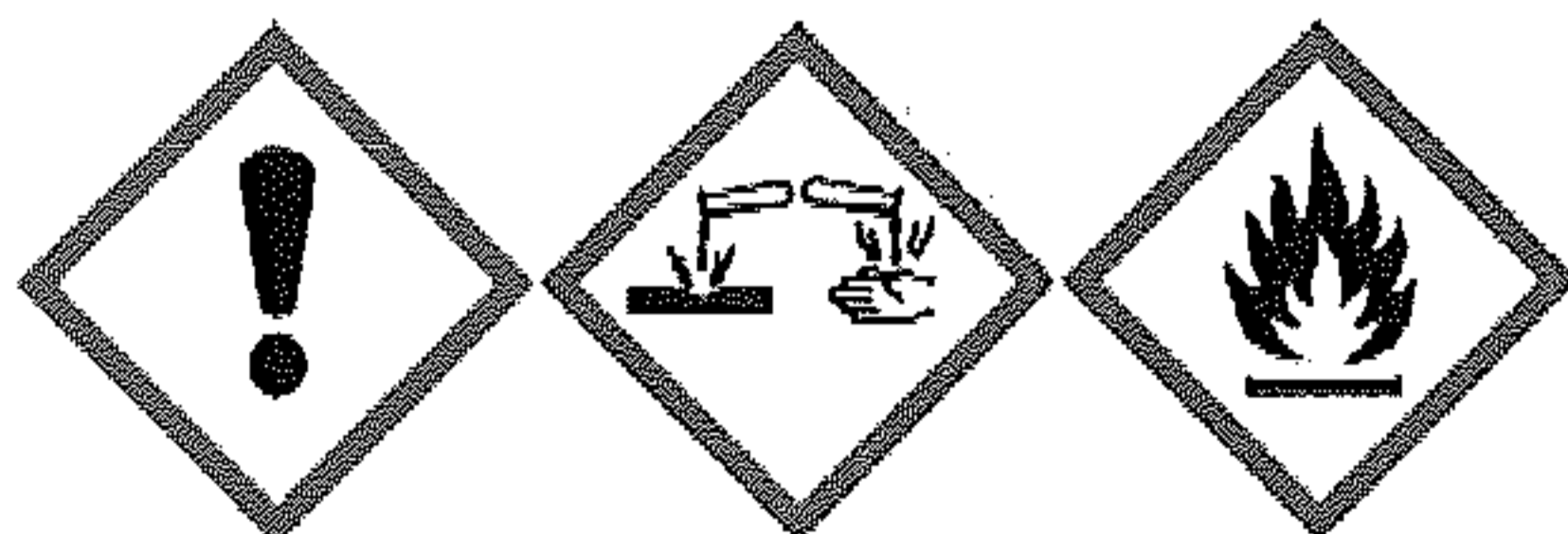
USA: Chemtrec: 1-800-424-9300
Outside USA: Chemtrec: 1-703-527-3887
24 Hour Emergency Phone Number

2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Skin Corrosion/Irritation	Category 1 Sub-category B - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)
Skin sensitization	Category 1 - (H317)
Flammable liquids	Category 3 - (H226)

Label elements



Signal Word
Danger

Hazard Statements

H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H332 - Harmful if inhaled

H226 - Flammable liquid and vapor

Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P280 - Wear eye protection/ face protection

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Hazards not otherwise classified (HNOC)

May be harmful if swallowed. May be harmful in contact with skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Component	CAS-No	Weight %	Trade Secret	Note
Propylene glycol monomethyl ether	107-98-2	10 - 30	*	
Methyl isobutyl ketone	108-10-1	10 - 30	*	
Xylenes (o-, m-, p- isomers)	1330-20-7	10 - 30	*	
Diethylene triamine	111-40-0	5 - 10	*	
Ethyl benzene (constituent)	100-41-4	1 - 5	*	1

*The exact percentage (concentration) of composition has been withheld as a trade secret.

Note 1. Type of chemical: Constituent

4. FIRST AID MEASURES

Description of first aid measures

General Advice

Show this safety data sheet to the doctor in attendance.

Eye Contact

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention if irritation develops and persists.

Skin Contact

Wash off immediately with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. If irritation (redness, rash, blistering) develops, get medical attention.

Inhalation

Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Get medical attention immediately.

Ingestion

DO NOT induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Most important symptoms and effects, both acute and delayed

None under normal use conditions.

Indication of any immediate medical attention and special treatment needed

Notes to Physician

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Foam. Carbon dioxide (CO2). Dry chemical. Water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

No information available.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. May emit toxic fumes under fire conditions.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Cool containers / tanks with water spray. Sealed containers may rupture when heated.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions

Remove all sources of ignition. Ventilate the area. Avoid contact with eyes, skin and clothing. Avoid breathing dust or vapor. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Keep out of drains, sewers, ditches and waterways. Local authorities should be advised if significant spillages cannot be contained.

Methods and material for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Use clean non-sparking tools to collect absorbed material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling

Use personal protective equipment as required. Do not eat, drink or smoke when using this product. Ensure adequate ventilation.

Conditions for safe storage, including any incompatibilities

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep container closed when not in use. Keep out of the reach of children.

Incompatible Products

Strong acids. Strong bases. Strong oxidizing agents. Reducing agent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits

Component	ACGIH TLV
Propylene glycol monomethyl ether 107-98-2	TWA: 100 ppm STEL: 150 ppm
Methyl isobutyl ketone 108-10-1	TWA: 20 ppm STEL: 75 ppm
Xylenes (o-, m-, p- isomers) 1330-20-7	TWA: 100 ppm STEL: 150 ppm
Diethylene triamine 111-40-0	TWA: 1 ppm Skin
Ethyl benzene (constituent) 100-41-4	TWA: 20 ppm

Component	OSHA PEL
Propylene glycol monomethyl ether 107-98-2	TWA: 100 ppm TWA: 360 mg/m ³ STEL: 150 ppm STEL: 540 mg/m ³
Methyl isobutyl ketone 108-10-1	TWA: 50 ppm TWA: 205 mg/m ³

	STEL: 75 ppm STEL: 300 mg/m ³ TWA: 100 ppm TWA: 410 mg/m ³
Xylenes (o-, m-, p- isomers) 1330-20-7	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 150 ppm STEL: 655 mg/m ³
Diethylene triamine 111-40-0	TWA: 1 ppm TWA: 4 mg/m ³
Ethyl benzene (constituent) 100-41-4	TWA: 100 ppm TWA: 435 mg/m ³ STEL: 125 ppm STEL: 545 mg/m ³

Component	Ontario TWAEV
Propylene glycol monomethyl ether 107-98-2	TWA: 100 ppm STEL: 150 ppm
Methyl isobutyl ketone 108-10-1	TWA: 50 ppm STEL: 75 ppm
Xylenes (o-, m-, p- isomers) 1330-20-7	TWA: 100 ppm STEL: 150 ppm
Diethylene triamine 111-40-0	TWA: 1 ppm Skin
Ethyl benzene (constituent) 100-41-4	TWA: 100 ppm STEL: 125 ppm

Component	Mexico OEL (TWA)
Methyl isobutyl ketone 108-10-1	TWA/LMPE-PPT: 50 ppm TWA/LMPE-PPT: 205 mg/m ³ STEL/LMPE-CT: 75 ppm STEL/LMPE-CT: 307 mg/m ³
Xylenes (o-, m-, p- isomers) 1330-20-7	TWA/LMPE-PPT: 100 ppm TWA/LMPE-PPT: 435 mg/m ³ STEL/LMPE-CT: 150 ppm STEL/LMPE-CT: 655 mg/m ³
Diethylene triamine 111-40-0	TWA/LMPE-PPT: 1 ppm TWA/LMPE-PPT: 4.2 mg/m ³
Ethyl benzene (constituent) 100-41-4	TWA/LMPE-PPT: 100 ppm TWA/LMPE-PPT: 435 mg/m ³ STEL/LMPE-CT: 125 ppm STEL/LMPE-CT: 545 mg/m ³

Appropriate engineering controls

Engineering Measures

Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. Users are advised to consider national Occupational Exposure Limits or other equivalent values. In case of insufficient ventilation, wear suitable respiratory equipment.

Individual protection measures, such as personal protective equipment

Eye/face Protection

Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear suitable face shield. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Wash hands before eating, drinking or smoking. Wash contaminated clothing before reuse. Avoid contact with

eyes, skin and clothing. Wear suitable gloves and eye/face protection. Regular cleaning of equipment, work area and clothing is recommended.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid	Appearance	Water-white
Odor	Characteristic	Odor Threshold	No information available

Property	Values	Remarks • Method
pH		No data available
Melting point/freezing point		No data available
Boiling point/Boiling Range	> 149 °C / 300 °F	
Flash Point	27 °C / 80 °F	Setaflash closed cup
Evaporation rate		No data available
Flammability Limit in Air		
Upper flammability limit		No data available
Lower flammability limit		1.0%
Vapor Pressure		No data available
Vapor Density		No data available
Specific Gravity	1.01	
Water Solubility		No data available
Solubility in other solvents		No data available
Partition coefficient: n-octanol/water		No data available
Autoignition Temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity		No data available

Explosive Properties	No data available
Oxidizing Properties	No data available

Other Information

Photochemically Reactive	Yes
Weight Per Gallon (lbs/gal)	8.4

VOC by weight % (less water)	VOC by volume % (less water)	VOC lbs/gal (less water)	VOC grams/liter (less water)
49.4	49.3	4.16	497.85

10. STABILITY AND REACTIVITY

Reactivity

No information available.

Chemical stability

Stable under normal conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition.

Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents. Reducing agent.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating gases and vapors. Carbon dioxide (CO₂). Carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	There is no data for this product.
Eye Contact	There is no data for this product.
Skin Contact	There is no data for this product.
Ingestion	There is no data for this product.

Component	Oral LD50
Propylene glycol monomethyl ether 107-98-2	5200 mg/kg (Rat)
Methyl isobutyl ketone 108-10-1	2080 mg/kg (Rat)
Xylenes (o-, m-, p- isomers) 1330-20-7	4300 mg/kg (Rat)
Diethylene triamine 111-40-0	819 mg/kg (Rat)
Ethyl benzene (constituent) 100-41-4	3500 mg/kg (Rat)

Component	LD50 Dermal
Propylene glycol monomethyl ether 107-98-2	13000 mg/kg (Rabbit)
Methyl isobutyl ketone 108-10-1	>16000 mg/kg (Rabbit)
Xylenes (o-, m-, p- isomers) 1330-20-7	>1700 mg/kg (Rabbit)
Diethylene triamine 111-40-0	672 mg/kg (Rabbit)
Ethyl benzene (constituent) 100-41-4	15354 mg/kg (Rabbit)

Component	Inhalation LC50
Propylene glycol monomethyl ether 107-98-2	54.6 mg/L (Rat) 4 h >24 mg/L (Rat) 1 h
Methyl isobutyl ketone 108-10-1	8.2 mg/L (Rat) 4 h
Xylenes (o-, m-, p- isomers) 1330-20-7	5000 ppm (Rat) 4 h 47635 mg/L (Rat) 4 h
Ethyl benzene (constituent) 100-41-4	17.2 mg/L (Rat) 4 h

Information on toxicological effects

Symptoms There is no data for this product.

Delayed and Immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	There is no data for this product.
Eye damage/irritation	There is no data for this product.
Irritation	There is no data for this product.
Corrosivity	There is no data for this product.
Sensitisation	May cause sensitization of susceptible persons.
Mutagenic Effects	There is no data for this product.
Reproductive Effects	There is no data for this product.
STOT - single exposure	There is no data for this product.
STOT - repeated exposure	There is no data for this product.
Chronic Toxicity	There is no data for this product.
Aspiration hazard	There is no data for this product.
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH
Methyl isobutyl ketone 108-10-1	A3
Ethyl benzene (constituent) 100-41-4	A3

Component	IARC
Methyl isobutyl ketone 108-10-1	Group 2B
Ethyl benzene (constituent) 100-41-4	Group 2B

Component	OSHA
Methyl isobutyl ketone 108-10-1	X
Ethyl benzene (constituent) 100-41-4	X

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	3,787.00 mg/kg
ATEmix (dermal)	4,876.00 mg/kg mg/l
ATEmix (inhalation-dust/mist)	4.50 mg/l
ATEmix (inhalation-vapor)	34.00 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

None known

0% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Component	Algae/aquatic plants
Methyl isobutyl ketone 108-10-1	96h EC50 Pseudokirchneriella subcapitata: 400 mg/L
Diethylene triamine 111-40-0	72h EC50 Pseudokirchneriella subcapitata: 1164 mg/L 96h EC50 Pseudokirchneriella subcapitata: 345.6 mg/L 96h EC50 Desmodesmus subspicatus: 592 mg/L
Ethyl benzene (constituent) 100-41-4	96h EC50 Pseudokirchneriella subcapitata: 1.7 - 7.6 mg/L [static] 72h EC50 Pseudokirchneriella subcapitata: 2.6 - 11.3 mg/L [static] 72h EC50 Pseudokirchneriella subcapitata: 4.6 mg/L 96h EC50 Pseudokirchneriella subcapitata: >438 mg/L

Component	Fish
Propylene glycol monomethyl ether 107-98-2	96h LC50 Leuciscus idus: 4600 - 10000 mg/L [static] 96h LC50 Pimephales promelas: 20.8 g/L [static]
Methyl isobutyl ketone 108-10-1	96h LC50 Pimephales promelas: 496 - 514 mg/L [flow-through]
Diethylene triamine 111-40-0	96h LC50 Poecilia reticulata: 1014 mg/L [semi-static] 96h LC50 Poecilia reticulata: 248 mg/L [static] 96h LC50 Leuciscus idus: 430 mg/L [semi-static]
Ethyl benzene (constituent) 100-41-4	96h LC50 Oncorhynchus mykiss: 11.0 - 18.0 mg/L [static] 96h LC50 Pimephales promelas: 7.55 - 11 mg/L [flow-through] 96h LC50 Pimephales promelas: 9.1 - 15.6 mg/L [static] 96h LC50 Lepomis macrochirus: 32 mg/L [static] 96h LC50 Oncorhynchus mykiss: 4.2 mg/L [semi-static] 96h LC50 Poecilia reticulata: 9.6 mg/L [static]

Component	Crustacea
Propylene glycol monomethyl ether 107-98-2	48h EC50 Daphnia magna: 23300 mg/L
Methyl isobutyl ketone 108-10-1	48h EC50 Daphnia magna: 170 mg/L
Diethylene triamine 111-40-0	48h EC50 Daphnia magna: 16 mg/L 24h EC50 Daphnia magna: 37 mg/L
Ethyl benzene (constituent)	48h EC50 Daphnia magna: 1.8 - 2.4 mg/L

100-41-4

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Component	Partition coefficient
Propylene glycol monomethyl ether 107-98-2	-0.437
Methyl isobutyl ketone 108-10-1	1.19
Xylenes (o-, m-, p- isomers) 1330-20-7	2.96
Diethylene triamine 111-40-0	-1.3
Ethyl benzene (constituent) 100-41-4	3.118

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods****Waste Disposal Methods**

Contain and dispose of waste according to local regulations.

Contaminated Packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION**DOT**

UN/ID no.	UN2734
Proper Shipping Name	Polyamines, Liquid, Corrosive, Flammable, NOS (Diethylenetriamine, Methyl Isobutyl Ketone)
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II

ICAO / IATA / IMDG / IMO

UN/ID no.	UN2734
Proper Shipping Name	Polyamines, Liquid, Corrosive, Flammable, NOS (Diethylenetriamine, Methyl Isobutyl Ketone)
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	II

15. REGULATORY INFORMATION**International Inventories**

All components are listed on the TSCA Inventory. For further information, please contact: Supplier (manufacturer/importer/downstream user/distributor).

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS-No	Weight %	SARA 313 - Threshold
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			Values
Methyl isobutyl ketone	108-10-1	10 - 30	1.0
Xylenes (o-, m-, p- isomers)	1330-20-7	10 - 30	1.0
Ethyl benzene (constituent)	100-41-4	1 - 5	0.1

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Component	CAS-No	Weight %
Methyl isobutyl ketone	108-10-1	10 - 30
Xylenes (o-, m-, p- isomers)	1330-20-7	10 - 30
Ethyl benzene (constituent)	100-41-4	1 - 5

U.S. State Regulations

Component	Massachusetts Right To Know
Propylene glycol monomethyl ether 107-98-2	X
Methyl isobutyl ketone 108-10-1	X
Xylenes (o-, m-, p- isomers) 1330-20-7	X
Diethylene triamine 111-40-0	X
Ethyl benzene (constituent) 100-41-4	X

Component	Minnesota Right To Know
Propylene glycol monomethyl ether 107-98-2	X
Methyl isobutyl ketone 108-10-1	X
Xylenes (o-, m-, p- isomers) 1330-20-7	X
Diethylene triamine 111-40-0	X
Ethyl benzene (constituent) 100-41-4	X

Component	New Jersey Right To Know
Propylene glycol monomethyl ether 107-98-2	X
Methyl isobutyl ketone 108-10-1	X
Xylenes (o-, m-, p- isomers) 1330-20-7	X
Diethylene triamine 111-40-0	X
Ethyl benzene (constituent) 100-41-4	X

Component	Pennsylvania Right To Know
Propylene glycol monomethyl ether 107-98-2	X
Methyl isobutyl ketone 108-10-1	X
Xylenes (o-, m-, p- isomers) 1330-20-7	X
Diethylene triamine 111-40-0	X
Ethyl benzene (constituent) 100-41-4	X

California Prop. 65

This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm

Component	California Prop. 65
Methyl isobutyl ketone	Carcinogen
Ethyl benzene (constituent)	Carcinogen

Canada

Component	NPRI - National Pollutant Release Inventory
Propylene glycol monomethyl ether 107-98-2	Part 4 Substance as set out in Section 65 of the List of Toxic Substances in Schedule 1 of the Canadian Environmental Protection Act, 1999
Methyl isobutyl ketone 108-10-1	Part 1, Group A Substance Part 5, Individual Substances Part 4 Substance as set out in Section 65 of the List of Toxic Substances in Schedule 1 of the Canadian Environmental Protection Act, 1999
Xylenes (o-, m-, p- isomers) 1330-20-7	Part 1, Group A Substance total of all isomers of Xylene, including m-Xylene, CAS No. 108-38-3, o-Xylene, CAS No. 95-47-6, and p-Xylene, CAS No. 106-42-3 Part 5, Isomer Groups total of all isomers of Xylene, including m-Xylene, CAS No. 108-38-3, o-Xylene, CAS No. 95-47-6, and p-Xylene, CAS No. 106-42-3 Part 4 Substance as set out in Section 65 of the List of Toxic Substances in Schedule 1 of the Canadian Environmental Protection Act, 1999
Ethyl benzene (constituent) 100-41-4	Part 1, Group A Substance Part 4 Substance as set out in Section 65 of the List of Toxic Substances in Schedule 1 of the Canadian Environmental Protection Act, 1999

16. OTHER INFORMATION

HMIS:	Health	Flammability	Reactivity	Personal Protection
	3 *	3	0	X

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)
STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value

ACGIH: (American Conference of Governmental Industrial Hygienists)

- A1 - Known Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Animal Carcinogen

IARC: (International Agency for Research on Cancer)

- Group 1 - Carcinogenic to Humans
- Group 2A - Probably Carcinogenic to Humans
- Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

- Known - Known Carcinogen
- Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

Revision Date Jun-18-2015

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of MSDS