Safety Data Sheet
ULTRABOND ECO 977
Safety Data Sheet dated: 12/04/2024 - version 6
Date of first edition: 11/14/2018

1. IDENTIFICATION

Product identifier

Mixture identification:

Trade name: ULTRABOND ECO 977

Trade code: 9019476

Recommended use of the chemical and restrictions on use

Recommended use: Polyurethane-based adhesive

Restrictions on use: Not available

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Company: MAPEI CORP. (USA and Puerto Rico)

1144 East Newport Center Drive - 33442 - Deerfield Beach - FL - USA

Phone: 954-246-8888

Responsible: RDProductSafety@mapei.com

Emergency 24 hour numbers:

Emergency Number (USA/Canada) CHEMTREC 1(800) 424-9300 / 1(703) 527-3887

Emergency Transport CANUTEC (Canada) 1-613-996-6666

2. HAZARD(S) IDENTIFICATION

Classification of the chemical

Eye irritation, Category 2A	Causes serious eye irritation.
Respiratory Sensitization, Category 1	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Sensitization, Category 1	May cause an allergic skin reaction.
Carcinogenicity, Category 2	Suspected of causing cancer if inhaled, in contact with skin and if swallowed.
Specific target organ toxicity following repeated exposure, Category 2	May cause damage to organs through prolonged or repeated exposure if inhaled, in contact with skin and if swallowed.

Label elements

Hazard pictograms and Signal Word

Danger

Hazard statements

H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H351	Suspected of causing cancer if inhaled, in contact with skin and if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled, in contact with skin and if swallowed.

Precautionary statements

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe mist/vapours/spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

P284	[In case of inadequate ventilation] wear respiratory protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P314	Get medical advice/attention if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a doctor.
P363	Wash contaminated clothing before reuse.
P501	Dispose of contents/container in accordance with applicable regulations.

Ingredient(s) with unknown acute toxicity:

None

Hazards not otherwise classified identified during the classification process:

None

This product contains crystalline silica (quartz sand). IARC has classified crystalline silica as a Group 1 carcinogen. Both IARC and NTP consider silica as a known human carcinogen. Evidence is based on the chronic and long-term exposure workers have had to respirable sized crystalline silica dust particles. Because this product is in liquid or paste form, it does not pose a dust hazard; therefore, this classification is not relevant. (Note: sanding of the hardened product may create a silica dust hazard)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Not Relevant

Mixtures

Hazardous components within the meaning of 29 CFR 1910.1200 and related classification:

List of components

Qty	Name	Ident. Numb.	Classification
2.5-5 %	calcium oxide; quicklime	CAS:1305-78-8 EC:215-138-9	STOT SE 3, H335; Skin Irrit. 2, H315; Eye Dam. 1, H318
1-2.5 %	silica sand; quartz	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372; Carc. 1A, H350
0.49-1 %	4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	CAS:101-68-8 EC:202-966-0 Index:615-005-00-9	Acute Tox. 4, H332; Eye Irrit. 2A, H319; STOT SE 3, H335; Skin Irrit. 2, H315; Resp. Sens. 1, H334; Skin Sens. 1, H317; STOT RE 2, H373; Carc. 2, H351
0.25-0.49 %	4-methylbenzenesulfonyl isocyanate; 4-isocyanatosulphonyltoluene	CAS:4083-64-1 EC:223-810-8 Index:615-012-00-7	Eye Irrit. 2A, H319; STOT SE 3, H335; Skin Irrit. 2, H315; Resp. Sens. 1, H334

4. FIRST AID MEASURES

Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.

OBTAIN IMMEDIATE MEDICAL ATTENTION.

Obtain medical attention if skin related symptoms persist.

Remove contaminated clothing immediately and dispose of safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an opthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and the hazard label.

In case of Inhalation:

If breathing is irregular or stopped, administer artificial respiration.

In case of inhalation, consult a doctor immediately and show him packing or label.

Most important symptoms/effects, acute and delayed

Eye irritation

Eye damages

Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment:

(see paragraph 4.1)

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO_2).

Unsuitable extinguishing media:

None in particular.

Specific hazards arising from the chemical

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

Hazardous combustion products: Not available

Explosive properties: Not available

Oxidizing properties: Not available

Special protective equipment and precautions for fire-fighters

Use suitable breathing apparatus.

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Wear personal protection equipment.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Provide adequate ventilation.

Use appropriate respiratory protection.

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Limit leakages with earth or sand.

Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Retain contaminated washing water and dispose it.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Exercise the greatest care when handling or opening the container.

Use localized ventilation system.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

Storage temperature: Not available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Community Occupational Exposure Limits (OEL)

	OEL Type	Country	Occupational Exposure Limit
calcium oxide; quicklime CAS: 1305-78-8	ACGIH		Long Term: 2 mg/m3 URT irr
	MAK	GERMANY	Long Term: 1 mg/m3
	OSHA		Long Term: 5 mg/m3
	ACGIH		Long Term: 2 mg/m3 upper respiratory tract irritation
	MAK	AUSTRIA	Long Term: 1 mg/m3; Short Term: 4 mg/m3
	MAK	SWITZERLAND	Long Term: 2 mg/m3
silica sand; quartz CAS: 14808-60-7	ACGIH		Long Term: 0.025 mg/m3 A2 - Suspected Human Carcinogen;lung cancer;pulmonary fibrosis
	MAK	AUSTRIA	Long Term: 0.15 mg/m3
	ACGIH		Long Term: 0.025 mg/m3 (R), A2 - Pulm fibrosis, lung cancer
	MAK	SWITZERLAND	Long Term: 0.15 mg/m3
	EU		Long Term: 0.1 mg/m3 Behaviour Binding
4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato- CAS: 101-68-8	ACGIH		Long Term: 0.005 ppm Resp sens
	MAK	GERMANY	Long Term: 0.05 mg/m3
	ACGIH		Long Term: 0.005 ppm respiratory sensitization (listed under Methylene bisphenyl isocyanate (MDI))
	OSHA		Short Term: Ceiling - 0.2 mg/m3 - 0.02 ppm
	MAK	AUSTRIA	Long Term: 0.05 mg/m3 - 0.005 ppm; Short Term: 0.1 mg/m3 - 0.01 ppm
	ACGIH		Long Term: 0.005 ppm respiratory sensitization (listed under Methylene bisphenyl isocyanate (MDI))
	OSHA		Short Term: Ceiling - 0.2 mg/m3 - 0.02 ppm

Predicted No Effect Concentration (PNEC) values

calcium oxide; quicklime CAS: 1305-78-8	Exposure Route: Fresh Water; PNEC Limit: 0.49 mg/l
	Exposure Route: Marine water; PNEC Limit: 0.32 mg/l
	Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 3 mg/l
	Exposure Route: Soil; PNEC Limit: 1080 mg/kg
	Exposure Route: Soil; PNEC Limit: 816 mg/l
4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato- CAS: 101-68-8	Exposure Route: Fresh Water; PNEC Limit: 1 mg/l
	Exposure Route: Marine water; PNEC Limit: 0.1 mg/l
	Exposure Route: Soil; PNEC Limit: 1 mg/kg
	Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 1 mg/l
	Exposure Route: Intermittent release; PNEC Limit: 10 mg/l

Derived No Effect Level (DNEL) values

calcium oxide; quicklime CAS: 1305-78-8	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Industry: 4 mg/m3; Consumer: 4 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Industry: 1 mg/m3; Consumer: 1 mg/m3

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato- CAS: 101-68-8	Exposure Route: Human Dermal; Exposure Frequency: Short Term, systemic effects Worker Industry: 50 mg/kg
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects Worker Industry: 0.1 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Industry: 0.1 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Industry: 0.05 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Industry: 0.05 mg/m3
	Exposure Route: Human Dermal; Exposure Frequency: Short Term, systemic effects Consumer: 25 mg/kg
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects Consumer: 0.05 mg/m3
	Exposure Route: Human Oral; Exposure Frequency: Short Term, systemic effects Consumer: 20 mg/kg
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Consumer: 0.05 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Consumer: 0.025 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Consumer: 0.025 mg/m3
	Exposure Route: Human Dermal; Exposure Frequency: Short Term, local effects Worker Industry: 28.7 mg/cm2; Consumer: 17.2 mg/cm2

Appropriate engineering controls: Not available

Individual protection measures

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Suitable materials for safety gloves; 29 CFR 1910.138 - ANSI/ISEA 105:

Polychloroprene - CR: thickness >=0,5mm; breakthrough time >=480min.

Nitrile rubber - NBR: thickness >=0,35mm; breakthrough time >=480min.

Butyl rubber - IIR: thickness >=0,5mm; breakthrough time >=480min.

Fluorinated rubber - FKM: thickness >=0,4mm; breakthrough time >=480min.

Use impervious gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Respiratory protection:

Respiratory protection must be used where exposure levels exceed workplace exposure limits. Refer to 29 CFR 1910.134 - CSA Z94.4 for information on selection and use of appropriate respiratory protection equipment.

Use adequate protective respiratory equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state: Liquid

Appearance and colour: paste beige

Odour: characteristic

Odour threshold: No data available

pH: No data available

Melting point / freezing point: No data available

Initial boiling point and boiling range: No data available

Flash point: 94 °C (201 °F)

Evaporation rate: No data available

Upper/lower flammability or explosive limits: No data available

Vapour density: No data available

Vapour pressure: No data available
Relative density: 1.10 g/cm3
Solubility in water: insoluble
Solubility in oil: insoluble
Partition coefficient (n-octanol/water): No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: 100.00 mPA-s
Explosive properties: No data available
Oxidizing properties: No data available
Solid/gas flammability: No data available

Other information

Substance Groups relevant properties No data available
Miscibility: No data available
Fat Solubility: No data available
Conductivity: No data available

10. STABILITY AND REACTIVITY

Reactivity

Stable under normal conditions

Chemical stability

Data not available.

Possibility of hazardous reactions

None.

Conditions to avoid

Stable under normal conditions.

Incompatible materials

None in particular.

Hazardous decomposition products

None.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Toxicological Information of the Preparation

a) acute toxicity	Not classified
	Based on available data, the classification criteria are not met
b) skin corrosion/irritation	Not classified
	Based on available data, the classification criteria are not met
c) serious eye damage/irritation	The product is classified: Eye irritation, Category 2A(H319)
d) respiratory or skin sensitisation	The product is classified: Respiratory Sensitization, Category 1(H334), Skin Sensitization, Category 1(H317)
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	The product is classified: Carcinogenicity, Category 2(H351)
g) reproductive toxicity	Not classified
	Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified
	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	The product is classified: Specific target organ toxicity following repeated exposure, Category 2(H373)
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

calcium oxide; quicklime	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg
		LD50 Skin Rat > 2500 mg/kg

silica sand; quartz	a) acute toxicity	LD50 Oral > 2000 mg/kg	
		LD50 Skin > 2000 mg/kg	
4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	a) acute toxicity	LD50 Oral Rat > 2000 mg/kg	
	f) carcinogenicity	Carcinogenicity Inhalation Rat = 6 mg/m3	2 y
	g) reproductive toxicity	NOAEL Inhalation Rat = 12 mg/m3	20 d
4-methylbenzenesulfonyl isocyanate; 4-isocyanatosulphonyltoluene	a) acute toxicity	LC50 Inhalation Rat > 640 ppm 1h	
		LD50 Oral Rat = 2234 mg/kg	

Substance(s) listed on the IARC Monographs:

silica sand; quartz	Group 1
4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	Group 3

Substance(s) listed as OSHA Carcinogen(s):

silica sand; quartz

Substance(s) listed as NIOSH Carcinogen(s):

silica sand; quartz

Substance(s) listed on the NTP report on Carcinogens:

silica sand; quartz

12. ECOLOGICAL INFORMATION

Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

List of Eco-Toxicological properties of the product

Not classified for environmental hazards.

Based on available data, the classification criteria are not met

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
calcium oxide; quicklime	CAS: 1305-78-8 - EINECS: 215-138-9	a) Aquatic acute toxicity : LC50 Fish = 457 mg/L 96
		a) Aquatic acute toxicity : EC50 Daphnia = 49.1 mg/L 48
		b) Aquatic chronic toxicity : NOEC Daphnia = 32 mg/L - 14 d
		a) Aquatic acute toxicity : LC50 Fish = 50.6 mg/L 96
		a) Aquatic acute toxicity : LC50 Daphnia = 158 mg/L 96
		a) Aquatic acute toxicity : EC50 Algae = 184.57 mg/L 72
		b) Aquatic chronic toxicity : NOEC Algae = 48 mg/L 72
		a) Aquatic acute toxicity : LC50 Fish Cyprinus carpio = 1070 mg/L 96h IUCLID
4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	CAS: 101-68-8 - EINECS: 202-966-0 - INDEX: 615-005-00-9	a) Aquatic acute toxicity : LC50 Fish > 1000 mg/L 96
		a) Aquatic acute toxicity : EC50 Daphnia > 1000 mg/L 24
		b) Aquatic chronic toxicity : NOEC Daphnia > 10 mg/L - 21 d
		a) Aquatic acute toxicity : EC50 Algae > 1640 mg/L 72
		c) Bacteria toxicity : EC50 > 100 mg/L 3

d) Terrestrial toxicity : NOEC > 1000 mg/kg - 14 d

e) Plant toxicity : NOEC > 1000 mg/kg - 14 d

Persistence and degradability

N.A.

Bioaccumulative potential

N.A.

Mobility in soil

N.A.

Other adverse effects

N.A.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Recover if possible.

Methods of disposal:

Disposal of this product, solutions, packaging and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor.

Do not dispose of waste into sewers.

Disposal considerations:

Do not allow to enter drains or watercourses.

Dispose of product according to all federal, state and local applicable regulations.

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned.

Dispose of containers contaminated by the product in accordance with local or national legal provisions. For further information, contact your local waste authority.

Special precautions:

This material and its container must be disposed of in a safe way. Care should be taken when handling untreated empty containers.

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty containers or liners may retain some product residues. Do not re-use empty containers.

14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

UN number

DOT-UN Number: Not Applicable

ADR-UN number: Not Applicable

IATA-Un number: Not Applicable

IMDG-Un number: Not Applicable

UN proper shipping name

DOT-Proper Shipping Name: Not Applicable

ADR-Shipping Name: Not Applicable

IATA-Technical name: Not Applicable

IMDG-Technical name: Not Applicable

Transport hazard class(es)

DOT-Hazard Class: Not Applicable

ADR-Class: Not Applicable

IATA-Class: Not Applicable

IMDG-Class: Not Applicable

Packing group

DOT Packing Group: Not Applicable

ADR-Packing Group: Not Applicable

IATA-Packing group: Not Applicable

IMDG-Packing group: Not Applicable

Environmental hazards

Marine pollutant: No

Environmental Pollutant: Not Applicable

DOT-RQ: Yes DOT-RQ - Quantity: 5,000 lbs

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not Applicable

Special precautions

Department of Transportation (DOT):

Not Applicable

Road and Rail (ADR-RID) :

Not Applicable

Air (IATA) :

Not Applicable

Sea (IMDG) :

Not Applicable

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15. REGULATORY INFORMATION

USA - Federal regulations

TSCA - Toxic Substances Control Act

All the components are listed on the TSCA inventory

TSCA listed substances:

calcium oxide; quicklime	is listed in TSCA	Section 8b
silica sand; quartz	is listed in TSCA	Section 8b
4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	is listed in TSCA	Section 8b Section 8a - PAIR Section 5
4-methylbenzenesulfonyl isocyanate; 4-isocyanatosulphonyltoluene	is listed in TSCA	Section 8b

SARA - Superfund Amendments and Reauthorization Act

Section 302 - Extremely Hazardous Substances:

No substances listed

Section 304 - Hazardous substances:

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-

Section 313 - Toxic chemical list:

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

Substance(s) listed under CERCLA:

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	Reportable quantity:	5000	pounds

CAA - Clean Air Act

CAA listed substances:

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-	is listed in CAA	Section 112(b) - HAP Section 112(b) - HON

CWA - Clean Water Act

CWA listed substances:

No substances listed

USA - State specific regulations

California Proposition 65

Substance(s) listed under California Proposition 65:

silica sand; quartz	Listed as carcinogen

Massachusetts Right to know

Substance(s) listed under Massachusetts Right to know:

calcium oxide; quicklime

silica sand; quartz

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-

Pennsylvania Right to know

Substance(s) listed under Pennsylvania Right to know:

calcium oxide; quicklime

silica sand; quartz

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-

New Jersey Right to know

Substance(s) listed under New Jersey Right to know:

calcium oxide; quicklime

silica sand; quartz

4,4'-methylenediphenyl diisocyanate; benzene, 1,1'-methylenebis[4-isocyanato-

Canada - Federal regulations

DSL - Domestic Substances List

All the substances are listed in the DSL.

NDSL - Non Domestic Substances List

This product complies with NDSL inventory

NPRI - National Pollutant Release Inventory

NPRI (National Pollutant Release Inventory) - List of substances listed.

No substances listed

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16. OTHER INFORMATION

Safety Data Sheet dated: 12/4/2024 - version 6

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. The information herein is presented in good faith and believed to be accurate as of the effective date given. It is the buyer's responsibility to ensure that its activities comply with Federal, State or provincial, and local laws.

This document was prepared by a competent person who has received appropriate training.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This SDS cancels and replaces any preceding release.

Code	Description
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.

Code	Hazard class and hazard category	Description
A.1/4/Inhal	Acute Tox. 4	Acute toxicity (inhalation), Category 4
A.2/2	Skin Irrit. 2	Skin irritation, Category 2
A.3/1	Eye Dam. 1	Serious eye damage, Category 1
A.3/2A	Eye Irrit. 2A	Eye irritation, Category 2A
A.4.1/1	Resp. Sens. 1	Respiratory Sensitization, Category 1
A.4.2/1	Skin Sens. 1	Skin Sensitization, Category 1
A.6/1A	Carc. 1A	Carcinogenicity, Category 1A
A.6/2	Carc. 2	Carcinogenicity, Category 2
A.8/3	STOT SE 3	Specific target organ toxicity following single exposure, Category 3
A.9/1	STOT RE 1	Specific target organ toxicity following repeated exposure, Category 1
A.9/2	STOT RE 2	Specific target organ toxicity following repeated exposure, Category 2

Legend to abbreviations and acronyms used in the safety data sheet:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.

IMDG: International Maritime Code for Dangerous Goods.

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
CLP: Classification, Labeling, Packaging.
EINECS: European Inventory of Existing Commercial Chemical Substances.
INCI: International Nomenclature of Cosmetic Ingredients.
CAS: Chemical Abstracts Service (division of the American Chemical Society).
GefStoffVO: Ordinance on Hazardous Substances, Germany.
LC50: Lethal concentration, for 50 percent of test population.
LD50: Lethal dose, for 50 percent of test population.
DNEL: Derived No Effect Level.
PNEC: Predicted No Effect Concentration.
TLV: Threshold Limiting Value.
TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
WGK: German Water Hazard Class.
KSt: Explosion coefficient.

Paragraphs modified from the previous revision:

- 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
- 2. HAZARDS IDENTIFICATION
- 3. COMPOSITION/INFORMATION ON INGREDIENTS
- 4. FIRST AID MEASURES
- 6. ACCIDENTAL RELEASE MEASURES
- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 11. TOXICOLOGICAL INFORMATION
- 12. ECOLOGICAL INFORMATION
- 15. REGULATORY INFORMATION
- 16. OTHER INFORMATION