SAFETY DATA SHEET

Creation Date Oct-2013 **Revision Date** Oct-2018 **Revision Number** 2

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification

Product Description:	**Acrylic acid, stabilized**
Product Grade:	SQ
Cat No.:	Q21145
Synonyms	Acrylic acid, inhibited; 2-Propenoic acid; Acroleic acid
CAS-No	79-10-7
EC-No.	201-177-9
Molecular Formula	C3 H4 O2
Reach Registration Number	Acrylic acid: 01-2119452449-31

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Laboratory chemicals.
Uses advised against	No Information available

1.3. Details of the supplier of the safety data sheet

Company	Thermo Fisher Scientific India Pvt. Ltd 403-404, B-wing, Delphi, Hiranandani Business Park, Powai, Mumbai 400076, INDIA.
E-mail address	laboratorysolutions@thermofisher.com

1.4. Emergency telephone number

India Toll Free: 18 00 22 22 30
Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Flammable liquids	Category 3

Health hazards

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/irritation	Category 1 A
Serious Eye Damage/Eye Irritation	Category 1
Specific target organ toxicity - (single exposure)	Category 3

Environmental hazards

Acute aquatic toxicity	Category 1

2.2. Label elements

Signal Word **Danger**

Hazard Statements

H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H332 - Harmful if inhaled
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life

Precautionary Statements

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P302 + P350 - IF ON SKIN: Gently wash with plenty of soap and water
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/ physician
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

2.3. Other hazards

Stench

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Acrylic acid	79-10-7	EEC No. 201-177-9	>95	Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Skin Corr. 1A (H314) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) Flam. Liq. 3 (H226) STOT SE 3 (H335)
4-Methoxyphenol	150-76-5	EEC No. 205-769-8	0.018-0.022	Acute Tox. 4 (H302) Eye Irrit. 2 (H319) Skin Sens. 1 (H317)

Reach Registration Number	Acrylic acid: 01-2119452449-31

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.
Ingestion	Do not induce vomiting. Call a physician or Poison Control Center immediately.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Protection of First-aiders	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

4.2. Most important symptoms and effects, both acute and delayed

Breathing difficulties. Causes burns by all exposure routes. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. Chemical foam. Cool closed containers exposed to fire with water spray.

Extinguishing media which must not be used for safety reasons
No information available.

5.2. Special hazards arising from the substance or mixture

Flammable. Corrosive Material. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air. Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO), Carbon dioxide (CO_2).

5.3. Advice for firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Remove all sources of ignition. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

6.3. Methods and material for containment and cleaning up

Wear self-contained breathing apparatus and protective suit. Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Do not ingest. Use spark-proof tools and explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only non-sparking tools.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. Keep at temperatures between 15 ° and 25 °C. Store indoors. May form explosive peroxides. Regularly check inhibitor levels to maintain peroxide levels below 1%. Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits
List source(s): **IRE -** 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Acrylic acid			TWA / VME: 2 ppm (8 heures). TWA / VME: 6 mg/m³ (8 heures). STEL / VLCT: 10 ppm. STEL / VLCT: 30 mg/m³.	TWA: 2 ppm 8 uren TWA: 6.0 mg/m³ 8 uren Huid	TWA / VLA-ED: 2 ppm (8 horas) TWA / VLA-ED: 6 mg/m³ (8 horas) Piel
4-Methoxyphenol			TWA / VME: 5 mg/m³ (8 heures).	TWA: 5 mg/m³ 8 uren	TWA / VLA-ED: 5 mg/m³ (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Acrylic acid		TWA: 10 ppm (8 Stunden). AGW - exposure factor 1 TWA: 30 mg/m³ (8 Stunden). AGW - exposure factor 1 TWA: 10 ppm (8 Stunden). MAK TWA: 30 mg/m³ (8 Stunden). MAK Höhepunkt: 10 ppm Höhepunkt: 30 mg/m³	TWA: 2 ppm 8 horas Pele		TWA: 2 ppm 8 tunteina TWA: 6 mg/m³ 8 tunteina STEL: 15 ppm 15 minuutteina STEL: 45 mg/m³ 15 minuutteina

4-Methoxyphenol			TWA: 5 mg/m³ 8 horas		

Component	Austria	Denmark	Switzerland	Poland	Norway
Acrylic acid		TWA: 2 ppm 8 timer TWA: 5.9 mg/m³ 8 timer Hud	STEL: 10 ppm 15 Minuten STEL: 30 mg/m³ 15 Minuten TWA: 10 ppm 8 Stunden TWA: 30 mg/m³ 8 Stunden	STEL: 29.5 mg/m³ 15 minutach TWA: 10 mg/m³ 8 godzinach	TWA: 10 ppm 8 timer TWA: 30 mg/m³ 8 timer STEL: 10 ppm 15 minutter. STEL: 30 mg/m³ 15 minutter.
4-Methoxyphenol	MAK-KZW: 10 mg/m³ 15 Minuten MAK-TMW: 5 mg/m³ 8 Stunden	TWA: 5 mg/m³ 8 timer		TWA: 5 mg/m³ 8 godzinach	TWA: 5 mg/m³ 8 timer STEL: 5 mg/m³ 15 minutter.

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Acrylic acid	TWA: 30.0 mg/m³	kože TWA-GVI: 2 ppm 8 satima. TWA-GVI: 4 mg/m³ 8 satima.	TWA: 2 ppm 8 hr. TWA: 6 mg/m³ 8 hr. STEL: 6 ppm 15 min STEL: 18 mg/m³ 15 min		
4-Methoxyphenol			TWA: 5 mg/m³ 8 hr. STEL: 15 mg/m³ 15 min		

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Acrylic acid	TWA: 10 ppm 8 tundides. TWA: 30 mg/m³ 8 tundides. STEL: 15 ppm 15 minutites. STEL: 45 mg/m³ 15 minutites.		skin - potential for cutaneous absorption STEL: 20 ppm STEL: 60 mg/m³ TWA: 10 ppm TWA: 30 mg/m³		TWA: 2 ppm 8 klukkustundum. TWA: 5.9 mg/m³ 8 klukkustundum. Skin notation Ceiling: 4 ppm Ceiling: 11.8 mg/m³
4-Methoxyphenol			TWA: 5 mg/m³		TWA: 5 mg/m³ 8 klukkustundum. Ceiling: 10 mg/m³

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Acrylic acid	TWA: 5 mg/m³	TWA: 10 ppm IPRD TWA: 30 mg/m³ IPRD STEL: 15 ppm STEL: 45 mg/m³			TWA: 1.7 ppm 8 ore TWA: 5 mg/m³ 8 ore STEL: 3.4 ppm 15 minute STEL: 10 mg/m³ 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Acrylic acid	TWA: 5 mg/m³ STEL: 15 mg/m³ vapor			STV: 15 ppm 15 minuter STV: 45 mg/m³ 15 minuter LLV: 10 ppm 8 timmar. LLV: 30 mg/m³ 8 timmar.	
4-Methoxyphenol	MAC: 0.5 mg/m³		TWA: 5 mg/m³ 8 urah		

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS70 General methods for sampling airborne gases and vapours

MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography
MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) Workers

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral				
Dermal	1 mg/cm2			
Inhalation	30 mg/m^3			

Predicted No Effect Concentration (PNEC) See values below.

Fresh water	0,003 mg/l
Fresh water sediment	0,0236 mg/kg dw
Marine water	0,0003 mg/l
Water Intermittent	0,0013 mg/l
Soil (Agriculture)	1 mg/kg dw

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Nitrile rubber Neoprene Natural rubber PVC	See manufacturers recommendations	-	EN 374	(minimum requirement)

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced **Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. **Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141 When RPE is used a face piece Fit Test should be conducted
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colorless	
Physical State	Liquid	
Odor	Stench	
Odor Threshold	No data available	
pH	1.0-2	
Melting Point/Range	13 °C / 55.4 °F	
Softening Point	No data available	
Boiling Point/Range	139 °C / 282.2 °F	@ 760 mmHg
Flash Point	48 °C / 118.4 °F	**Method -** No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	**Lower** 2 Vol% **Upper** 15.9 Vol%	
Vapor Pressure	@ 3.8 mbar °C 20	
Vapor Density	2.48 (Air = 1.0)	(Air = 1.0)
Specific Gravity / Density	1.050	
Bulk Density	Not applicable	Liquid
Water Solubility	Miscible	
Solubility in other solvents	No information available	

Partition Coefficient (n-octanol/water)

Component	**log Pow**
Acrylic acid	0.46
4-Methoxyphenol	1.34

Autoignition Temperature	374 °C / 705.2 °F	
Decomposition Temperature	No data available	
Viscosity	1.3 mPa s at 20 °C	
Explosive Properties	No information available	explosive air/vapour mixtures possible
Oxidizing Properties	No information available	

9.2. Other information

Molecular Formula	C3 H4 O2
Molecular Weight	72.06

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Yes

10.2. Chemical stability

Hazardous polymerization may occur. May form explosive peroxides on prolonged storage. Hygroscopic.

10.3. Possibility of hazardous reactions

Hazardous Polymerization	Hazardous polymerization may occur.
Hazardous Reactions	No information available.

10.4. Conditions to avoid

Excess heat. Exposure to light. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition. Exposure to moist air or water.

10.5. Incompatible materials

Strong oxidizing agents. Strong bases. oxygen. Peroxides. Halogens. Aldehydes. Amines. Acid anhydrides.

10.6. Hazardous decomposition products

Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information Harmful by inhalation, in contact with skin and if swallowed

(a) acute toxicity;

Oral Category 4
Dermal Category 3
Inhalation Category 3

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Acrylic acid	468-1500 mg/kg (Rat)	>2000 mg/kg (Rabbit)	>5.1 mg/L/4h (Rat)
4-Methoxyphenol	1600 mg/kg (Rat)		

(b) skin corrosion/irritation; Category 1 A

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory Based on available data, the classification criteria are not met
Skin Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Based on available data, the classification criteria are not met

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; Based on available data, the classification criteria are not met
Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

(h) STOT-single exposure; Category 3

(i) STOT-repeated exposure; Based on available data, the classification criteria are not met

Target Organs No information available.

(j) aspiration hazard; Based on available data, the classification criteria are not met

Other Adverse Effects See actual entry in RTECS for complete information

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Acrylic acid	LC50: = 222 mg/L, 96h semi-static (Brachydanio rerio)	LC50: = 270 mg/L, 24h Static (Daphnia magna) EC50: = 95 mg/L, 48h (Daphnia magna)	EC50: = 0.04 mg/L, 72h (Desmodesmus subspicatus) EC50: = 0.17 mg/L, 96h (Pseudokirchneriella subcapitata)	
4-Methoxyphenol	LC50: = 84.3 mg/L, 96h flow-through (Pimephales promelas) LC50: = 28.5 mg/L, 96h flow-through (Oncorhynchus mykiss)			EC50 = 3.66 mg/L 5 min EC50 = 4.30 mg/L 15 min EC50 = 4.61 mg/L 30 min

12.2. Persistence and degradability Readily biodegradable

Persistence Miscible with water, Persistence is unlikely, based on information available.

Degradation in sewage treatment plant Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Acrylic acid	0.46	No data available
4-Methoxyphenol	1.34	No data available

12.4. Mobility in soil The product is water soluble, and may spread in water systems . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment No data available for assessment.

12.6. Other adverse effects

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

Persistent Organic Pollutant This product does not contain any known or suspected substance

Ozone Depletion Potential This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC) According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.

Other Information Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Can be incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number UN2218

14.2. UN proper shipping name ACRYLIC ACID, STABILIZED

14.3. Transport hazard class(es) 8

Subsidiary Hazard Class 3

14.4. Packing group II

ADR

14.1. UN number UN2218
14.2. UN proper shipping name ACRYLIC ACID, STABILIZED
14.3. Transport hazard class(es) 8
Subsidiary Hazard Class 3
14.4. Packing group II

IATA

14.1. UN number UN2218
14.2. UN proper shipping name ACRYLIC ACID, STABILIZED
14.3. Transport hazard class(es) 8
Subsidiary Hazard Class 3
14.4. Packing group II

14.5. Environmental hazards Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Acrylic acid	201-177-9	-		X	X	-	X	X	X	X	X
4-Methoxyphenol	205-769-8	-		X	X	-	X	X	X	X	X

National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Acrylic acid	WGK 2	Class I : 20 mg/m³ (Massenkonzentration)
4-Methoxyphenol	WGK 1	

Component	France - INRS (Tables of occupational diseases)
4-Methoxyphenol	Tableaux des maladies professionnelles (TMP) - RG 65

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.
Take note of Dir 94/33/EC on the protection of young people at work
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full Text of H-/EUH-Statements Referred to Under Section 3
H226 - Flammable liquid and vapor
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage

H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - Volatile Organic Compounds

Key literature references and sources for data
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice
Chemical incident response training.

Creation Date	Oct-2013
Next Revision Date	Oct-2023
Revision Summary	SDS section 1 updated and update of Format

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

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 Safety Data Sheet