# 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:** | **o-Toluidine** |
| **Cat No. :** | Q36275 |
| **Synonyms** | 2-Aminotoluene; 2-Methylaniline |
| **CAS-No** | 95-53-4 |
| **EC-No.** | 202-429-0 |
| **Molecular Formula** | C7 H9 N |

### 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<br>403-404, B-wing, Delphi, Hiranandani Business Park,<br>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**

Based on available data, the classification criteria are not met

**Health hazards**

| | |
|---|---|
| Acute oral toxicity | Category 3 (H301) |
| Acute dermal toxicity | Category 4 (H312) |
| Acute Inhalation Toxicity - Vapors | Category 3 (H331) |
| Skin Corrosion/irritation | Category 2 (H315) |
| Serious Eye Damage/Eye Irritation | Category 1 (H318) |
| Germ Cell Mutagenicity | Category 2 (H341) |
| Carcinogenicity | Category 1B (H350) |

**Environmental hazards**

| | |
|---|---|
| Acute aquatic toxicity | Category 1 (H400) |

| | |
|---|---|
| Chronic aquatic toxicity | Category 2 (H411) |

## 2.2. Label elements

**Signal Word** **Danger**

**Hazard Statements**

H301 - Toxic if swallowed
H312 - Harmful in contact with skin
H331 - Toxic if inhaled
H315 - Causes skin irritation
H318 - Causes serious eye damage
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H400 - Very toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects
Combustible liquid

**Precautionary Statements**

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P332 + P313 - If skin irritation occurs: Get medical advice/ attention
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
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

**Additional EU labelling**

Restricted to professional users

## 2.3. Other hazards

No information available

# SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

## 3.1. Substances

| Component | CAS-No | EC-No. | Weight % | CLP Classification - Regulation (EC) No 1272/2008 |
|---|---|---|---|---|
| o-Toluidine | 95-53-4 | EEC No. 202-429-0 | > 95 | Acute Tox. 3 (H301)<br>Acute Tox. 4 (H312)<br>Skin Irrit. 2 (H315)<br>Eye Dam. 1 (H318)<br>Acute Tox. 3 (H331)<br>Muta. 2 (H341) |

| | | | | |
|---|---|---|---|---|
| | | | | Carc. 1B (H350) Aquatic Acute 1 (H400) Aquatic Chronic 2 (H411) |

*Full text of Hazard Statements: see section 16*

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

**General Advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact** In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Ingestion** Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Inhalation** Move to fresh air. If not breathing, give artificial respiration. 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.

**Self-Protection of the First Aider** 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

Causes severe eye damage. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

### 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**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. 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

Combustible material. Containers may explode when heated. Do not allow run-off from fire fighting to enter drains or water courses.

**Hazardous Combustion Products**
Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide ($CO_2$).

### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. 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.

### 6.3. Methods and material for containment and cleaning up

Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition.

### 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

Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe vapors or spray mist. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition.

**Hygiene Measures**
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep away from heat and sources of ignition. Keep away from direct sunlight. Keep locked-up. Keep under nitrogen. Keep containers tightly closed in a dry, cool 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): **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **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 |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| o-Toluidine | | STEL: 0.6 ppm 15 min<br>STEL: 2.67 mg/m³ 15 min<br>TWA: 0.2 ppm 8 hr<br>TWA: 0.89 mg/m³ 8 hr<br>Carc.<br>Skin | TWA / VME: 2 ppm (8 heures).<br>TWA / VME: 9 mg/m³ (8 heures). | TWA: 2 ppm 8 uren<br>TWA: 8.9 mg/m³ 8 uren<br>Huid | TWA / VLA-ED: 0.2 ppm (8 horas)<br>TWA / VLA-ED: 0.89 mg/m³ (8 horas) Piel |

| Component | Italy | Germany | Portugal | The Netherlands | Finland |
|---|---|---|---|---|---|
| o-Toluidine | | Haut | TWA: 2 ppm 8 horas<br>Pele | | TWA: 2 ppm 8 tunteina<br>STEL: 4 ppm 15 minuutteina<br>Iho |

| Component | Austria | Denmark | Switzerland | Poland | Norway |
|---|---|---|---|---|---|
| o-Toluidine | TRK-KZW: 0.4 ppm 15 Minuten<br>TRK-KZW: 2 mg/m³ 15 Minuten<br>Haut<br>TRK-TMW: 0.1 ppm<br>TRK-TMW: 0.5 mg/m³ | TWA: 2 ppm 8 timer<br>TWA: 9 mg/m³ 8 timer<br>Hud | Haut/Peau<br>TWA: 0.1 ppm 8 Stunden<br>TWA: 0.5 mg/m³ 8 Stunden | TWA: 3 mg/m³ 8 godzinach | TWA: 1 ppm 8 timer<br>TWA: 4.5 mg/m³ 8 timer<br>STEL: 2 ppm 15 minutter. value calculated<br>STEL: 9 mg/m³ 15 minutter. value calculated<br>Hud |

| Component | Bulgaria | Croatia | Ireland | Cyprus | Czech Republic |
|---|---|---|---|---|---|
| o-Toluidine | | kože<br>TWA-GVI: 0.2 ppm 8 satima.<br>TWA-GVI: 0.89 mg/m³ 8 satima. | TWA: 0.2 ppm 8 hr.<br>TWA: 0.9 mg/m³ 8 hr.<br>STEL: 0.6 ppm 15 min<br>STEL: 2.7 mg/m³ 15 min<br>Skin | | TWA: 5 mg/m³ 8 hodinách.<br>Potential for cutaneous absorption<br>Ceiling: 10 mg/m³ |

| Component | Estonia | Gibraltar | Greece | Hungary | Iceland |
|---|---|---|---|---|---|
| o-Toluidine | | | skin - potential for cutaneous absorption<br>TWA: 2 ppm<br>TWA: 9 mg/m³ | lehetséges borön keresztüli felszívódás<br>Ceiling: 0.5 mg/m³ MK | TWA: 2 ppm 8 klukkustundum.<br>TWA: 9 mg/m³ 8 klukkustundum.<br>Skin notation<br>Ceiling: 4 ppm<br>Ceiling: 18 mg/m³ |

| Component | Latvia | Lithuania | Luxembourg | Malta | Romania |
|---|---|---|---|---|---|
| o-Toluidine | STEL: 1 mg/m³<br>TWA: 0.5 mg/m³ | | | | Skin notation TWA: 3 mg/m³ 8 ore<br>STEL: 5 mg/m³ 15 minute |

| Component | Russia | Slovak Republic | Slovenia | Sweden | Turkey |
|---|---|---|---|---|---|
| o-Toluidine | TWA: 0.5 mg/m³ 0091<br>Skin notation<br>STEL: 1 mg/m³ 0091 | TWA: 0.5 mg/m³ 8 hodinách<br>Potential for cutaneous absorption STEL: 2.5 mg/m³ 15 minútach | TWA: 0.5 mg/m³ 8 urah<br>Koža<br>STEL: 2 mg/m³ 15 minutah | | |

**Biological limit values**
List source(s):

| Component | European Union | United Kingdom | France | Spain | Germany |
|---|---|---|---|---|---|
| o-Toluidine | | | Methemoglobin: 1.5 % of hemoglobin blood during or end of shift | : | |

**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

**Derived No Effect Level (DNEL)** No information available

| Route of exposure | Acute effects (local) | Acute effects (systemic) | Chronic effects (local) | Chronic effects (systemic) |
|---|---|---|---|---|
| **Oral** | | | | |
| **Dermal** | | | | |
| **Inhalation** | | | | |

**Predicted No Effect Concentration (PNEC)** No information available.

**8.2. Exposure controls**

**Engineering Measures**
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment**

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

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

**Skin and body protection** Long sleeved clothing

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:** Particulates filter conforming to EN 143 Ammonia and organic ammonia derivatives filter Type K Green 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

**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** | Dark yellow | |
| **Physical State** | Liquid | |
| **Odor** | amine-like | |
| **Odor Threshold** | No data available | |
| **pH** | 7.5 | 8 g/l aq. sol |
| **Melting Point/Range** | -23 °C / -9.4 °F | |
| **Softening Point** | No data available | |
| **Boiling Point/Range** | 199 - 200 °C / 390.2 - 392 °F | |
| **Flash Point** | 85 °C / 185 °F | **Method -** No information available |
| **Evaporation Rate** | No data available | |
| **Flammability (solid,gas)** | Not applicable | Liquid |
| **Explosion Limits** | **Lower** 1.5 | |
| | **Upper** 7.5 | |
| **Vapor Pressure** | 0.3 mbar @ 20 °C | |
| **Vapor Density** | No data available | (Air = 1.0) |
| **Specific Gravity / Density** | 1.000 | |
| **Bulk Density** | Not applicable | Liquid |
| **Water Solubility** | 1.5 g/100ml (25°C) | |
| **Solubility in other solvents** | No information available | |

**Partition Coefficient (n-octanol/water)**

| **Component** | **log Pow** |
|---|---|
| o-Toluidine | 1.4 |

| | | |
|---|---|---|
| **Autoignition Temperature** | 480 °C / 896 °F | |
| **Decomposition Temperature** | > 200°C | |
| **Viscosity** | No data available | |
| **Explosive Properties** | No information available | explosive air/vapour mixtures possible |
| **Oxidizing Properties** | No information available | |

### 9.2. Other information

| | |
|---|---|
| **Molecular Formula** | C7 H9 N |
| **Molecular Weight** | 107.15 |

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

None known, based on information available

### 10.2. Chemical stability

Light sensitive, Air sensitive.

### 10.3. Possibility of hazardous reactions

| | |
|---|---|
| **Hazardous Polymerization** | No information available. |
| **Hazardous Reactions** | No information available. |

### 10.4. Conditions to avoid

Exposure to air. Exposure to light. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

**10.5. Incompatible materials**

Strong acids. Oxidizing agents.

**10.6. Hazardous decomposition products**

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide ($CO_2$).

## SECTION 11: TOXICOLOGICAL INFORMATION

**11.1. Information on toxicological effects**

**Product Information**

**(a) acute toxicity;**

| | |
|---|---|
| **Oral** | Category 3 |
| **Dermal** | Category 4 |
| **Inhalation** | Category 3 |

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| o-Toluidine | | LD50 = 3235 mg/kg ( Rabbit )<br>LD50 = 3250 µL/kg ( Rabbit ) | LC50 = 862 ppm ( Rat ) 4 h |

**(b) skin corrosion/irritation;** Category 2

**(c) serious eye damage/irritation;** Category 1

**(d) respiratory or skin sensitization;**

| | |
|---|---|
| **Respiratory** | No data available |
| **Skin** | No data available |

No information available

**(e) germ cell mutagenicity;** Category 2

Mutagenic

**(f) carcinogenicity;** Category 1B

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | EU | UK | Germany | IARC |
|---|---|---|---|---|
| o-Toluidine | Carc Cat. 1B | | Cat. 1 | Group 1 |

**(g) reproductive toxicity;** No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** No data available

**Target Organs** None known.

**(j) aspiration hazard;** No data available

**Symptoms / effects,both acute and delayed** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

## 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 |
|---|---|---|---|---|
| o-Toluidine | LC50: 68 - 100 mg/L, 96h static (Leuciscus idus) | EC50: 9.0 - 50 mg/L, 24h (Daphnia magna) | EC50: = 3.7 mg/L, 96h static (Desmodesmus subspicatus)<br>EC50: = 3.9 mg/L, 72h (Desmodesmus subspicatus) | EC50 = 13.2 mg/L 30 min |

**12.2. Persistence and degradability**

**Persistence** Persistence is unlikely.

**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) |
|---|---|---|
| o-Toluidine | 1.4 | 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** Should not be released into the environment. 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.

**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. Do not empty into drains. Do not let this chemical enter the environment.

## SECTION 14: TRANSPORT INFORMATION

**IMDG/IMO**

**14.1. UN number** UN1708
**14.2. UN proper shipping name** TOLUIDINES, LIQUID
**14.3. Transport hazard class(es)** 6.1
**14.4. Packing group** II

**ADR**

**14.1. UN number** UN1708
**14.2. UN proper shipping name** TOLUIDINES, LIQUID
**14.3. Transport hazard class(es)** 6.1
**14.4. Packing group** II

**IATA**

**14.1. UN number** UN1708
**14.2. UN proper shipping name** TOLUIDINES, LIQUID
**14.3. Transport hazard class(es)** 6.1
**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| o-Toluidine | 202-429-0 | - | | X | X | - | X | X | X | X | X |

| Component | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|---|---|---|---|
| o-Toluidine | | Use restricted. See item 28. (see *http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT* for restriction details) Use restricted. See item 43. (see *http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT* for restriction details) | SVHC Candidate list - Carcinogenic (Article 57a) |

**National Regulations**

| Component | Germany - Water Classification (VwVwS) | Germany - TA-Luft Class |
|---|---|---|
| o-Toluidine | WGK 3 | Krebserzeugende Stoffe - Class III : 1.0 mg/m³ (Massenkonzentration) |

| Component | France - INRS (Tables of occupational diseases) |
|---|---|
| o-Toluidine | Tableaux des maladies professionnelles (TMP) - RG 15,RG 15bis,RG 15ter |

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment.
Take note of Dir 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations

### 15.2. Chemical safety assessment

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

## SECTION 16: OTHER INFORMATION

**Full text of H-Statements referred to under sections 2 and 3**
H301 - Toxic if swallowed
H312 - Harmful in contact with skin
H331 - Toxic if inhaled
H315 - Causes skin irritation
H318 - Causes serious eye damage
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H400 - Very toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

**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%
**TWA** - Time Weighted Average
**IARC** - International Agency for Research on Cancer
**PNEC** - Predicted No Effect Concentration
**LD50** - Lethal Dose 50%
**EC50** - Effective Concentration 50% **NOEC** - No Observed Effect Concentration
**POW** - Partition coefficient Octanol:Water **PBT** - Persistent, Bioaccumulative, Toxic
**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 datasheet 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