# SAFETY DATA SHEET

# SYL-OFF™ SB 7460 Coating

| Version | Revision Date: | SDS Number: | Date of last issue: 2017/03/21 |
|---|---|---|---|
| 6.0 | 2018.03.02 | 1997425-00006 | Date of first issue: 2015/04/27 |

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : SYL-OFF™ SB 7460 Coating

Product code : 04046284

**Recommended use of the chemical and restrictions on use**

Recommended use : Coatings

Restrictions on use : We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

**Manufacturer or supplier's details**

Company : DOW CHEMICAL KOREA LIMITED

Address : 520, YEONGDONG-DAERO, GANGNAM-GU
11 06170

Telephone : 82-(0)2-3490-0700

Emergency telephone number : 080-369-2436

E-mail address : SDSQuestion@dow.com

## 2. HAZARDS IDENTIFICATION

**GHS Classification**

Flammable liquids : Category 2

Skin corrosion/irritation : Category 2

Reproductive toxicity : Category 2

Specific target organ toxicity - single exposure : Category 3

Specific target organ toxicity - repeated exposure : Category 2 (Central nervous system)

Chronic aquatic toxicity : Category 3

**GHS label elements**

Hazard pictograms :

| | | |
|---|---|---|
| Signal word | : | Danger |
| Hazard statements | : | H225 Highly flammable liquid and vapour.<br>H315 Causes skin irritation.<br>H336 May cause drowsiness or dizziness.<br>H361 Suspected of damaging fertility or the unborn child.<br>H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure.<br>H412 Harmful to aquatic life with long lasting effects. |
| Precautionary statements | : | **Prevention:**<br>P201 Obtain special instructions before use.<br>P202 Do not handle until all safety precautions have been read and understood.<br>P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.<br>P233 Keep container tightly closed.<br>P234 Keep only in original container.<br>P240 Ground/bond container and receiving equipment.<br>P241 Use explosion-proof electrical/ ventilating/ lighting equipment.<br>P242 Use only non-sparking tools.<br>P243 Take precautionary measures against static discharge.<br>P260 Do not breathe mist or vapours.<br>P264 Wash the contact area thoroughly after handling.<br>P271 Use only outdoors or in a well-ventilated area.<br>P273 Avoid release to the environment.<br>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.<br>**Response:**<br>P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.<br>P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.<br>P308 + P313 IF exposed or concerned: Get medical advice/ attention.<br>P321 Specific treatment (see supplemental first aid instructions on this label).<br>P332 + P313 If skin irritation occurs: Get medical advice/ attention.<br>P362 + P364 Take off contaminated clothing and wash it before reuse.<br>P370 + P378 In case of fire: Use alcohol-resistant foam, carbon dioxide or water mist to extinguish.<br>**Storage:**<br>P403 + P233 Store in a well-ventilated place. Keep container tightly closed.<br>P403 + P235 Store in a well-ventilated place. Keep cool.<br>P405 Store locked up.<br>**Disposal:**<br>P501 Dispose of contents and container according to wastes |

control act.

**Other hazards which do not result in classification**

May generate flammable hydrogen gas. Avoid contact with water, alcohols, acidic, basic, or oxidizing materials.
Vapours may form explosive mixture with air.
Static-accumulating flammable liquid.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Silicone in solvent

**Components**

| Chemical name | Common Name | CAS-No. | Concentration (% w/w) |
|---|---|---|---|
| Toluene | Benzene, methyl- | 108-88-3 | >= 70 - < 80 |
| Dimethyl, methylvinyl siloxane, dimethyl-vinyl-terminated | Siloxanes and Silicones, di-Me, Me vinyl, vinyl group-terminated | 68083-18-1 | >= 20 - < 30 |

## 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

If inhaled : If inhaled, remove to fresh air.
Get medical attention.

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed : Causes skin irritation.
May cause drowsiness or dizziness.
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated

exposure.

| | | |
|---|---|---|
| Protection of first-aiders | : | First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists. |
| Notes to physician | : | Treat symptomatically and supportively. |

## 5. FIREFIGHTING MEASURES

**Suitable and unsuitable extinguishing media**

| | | |
|---|---|---|
| Suitable extinguishing media | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO2) |
| Unsuitable extinguishing media | : | Dry chemical<br>High volume water jet |
| Specific hazards during fire-fighting | : | Do not use a solid water stream as it may scatter and spread fire.<br>Flash back possible over considerable distance.<br>Vapours may form explosive mixtures with air.<br>Exposure to combustion products may be a hazard to health.<br>Applying foam will release significant amounts of hydrogen gas that can be trapped under the foam blanket. |
| Hazardous combustion products | : | Carbon oxides<br>Silicon oxides<br>Formaldehyde |
| Specific extinguishing methods | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.<br>Use water spray to cool unopened containers.<br>Do not allow extinguishing medium to contact container contents. Most fire extinguishing media will cause hydrogen evolution, and once the fire is put out, may accumulate in poorly ventilated or confined areas and result in flash fire or explosion if ignited.<br>Collect contaminated fire extinguishing water separately. This must not be discharged into drains.<br>Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.<br>Remove undamaged containers from fire area if it is safe to do so.<br>Evacuate area. |
| Special protective equipment for firefighters | : | In the event of fire, wear self-contained breathing apparatus.<br>Use personal protective equipment. |

## 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| Personal precautions, protective equipment and emer- | : | Remove all sources of ignition.<br>Ventilate the area. |

| | | |
|---|---|---|
| gency procedures | | Use personal protective equipment.<br>Follow safe handling advice and personal protective equipment recommendations. |
| Environmental precautions | : | Discharge into the environment must be avoided.<br>Prevent further leakage or spillage if safe to do so.<br>Prevent spreading over a wide area (e.g. by containment or oil barriers).<br>Retain and dispose of contaminated wash water.<br>Local authorities should be advised if significant spillages cannot be contained. |
| Methods and materials for containment and cleaning up | : | Non-sparking tools should be used.<br>Soak up with inert absorbent material.<br>For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.<br>Clean up remaining materials from spill with suitable absorbent.<br>Materials in contact with water, moisture, acids or bases have the potential to generate hydrogen gas. Recovered material should be stored in a vented container.<br>Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.<br>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.<br>Recovered material should be stored in a vented container. The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to overpressurization of the container. |

## 7. HANDLING AND STORAGE

| | | |
|---|---|---|
| Technical measures | : | Ensure all equipment is electrically grounded before beginning transfer operations.<br>This material can accumulate static charge due to its inherent physical properties and can therefore cause an electrical ignition source to vapors. In order to prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it is necessary to provide an inert gas purge before beginning transfer operations.<br>Restrict flow velocity in order to reduce the accumulation of static electricity. |
| Local/Total ventilation | : | Use with local exhaust ventilation.<br>Use only in an area equipped with explosion-proof exhaust ventilation if advised by assessment of the local exposure potential |
| Advice on safe handling | : | Do not get on skin or clothing.<br>Do not breathe vapours or spray mist.<br>Do not swallow. |

Avoid contact with eyes.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Non-sparking tools should be used.
Keep container tightly closed.
Keep away from water.
Protect from moisture.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labelled containers.
Store in original container.
Store in a closed container.
Store locked up.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.
Keep away from heat and sources of ignition.
Product may evolve minute quantities of flammable hydrogen gas which can accumulate. Adequately ventilate to maintain vapors well below flammability limits and exposure guidelines.
Do not repackage. Clogged container vents may increase pressure build up.

Materials to avoid : Do not store with the following product types:
Oxidizing solids
Oxidizing liquids

Packaging material : Unsuitable material: Do not store in or use containers except the original product package.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace control parameters**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---|---|---|---|---|
| Toluene | 108-88-3 | TWA | 50 ppm | KR OEL |
| | Further information: Suspected human reproductive toxicant | | | |
| | | STEL | 150 ppm | KR OEL |
| | Further information: Suspected human reproductive toxicant | | | |
| | | TWA | 20 ppm | ACGIH |

Other ingredients, which are listed in section 3 but not listed in this section, do not have established occupational exposure limit values.

**Biological occupational exposure limits**

| Components | CAS-No. | Control parameters | Biological specimen | Sampling time | Permissible concentration | Basis |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| Toluene | 108-88-3 | Toluene | In blood | Prior to last shift of work-week | 0.02 mg/l | ACGIH BEI |
| | | Toluene | Urine | End of shift (As soon as possible after exposure ceases) | 0.03 mg/l | ACGIH BEI |
| | | o-Cresol | Urine | End of shift (As soon as possible after exposure ceases) | 0.3 mg/g Creatinine | ACGIH BEI |

**Engineering measures** : Processing may form hazardous compounds (see section 10).
Minimize workplace exposure concentrations.
Use only in an area equipped with explosion-proof exhaust ventilation if advised by assessment of the local exposure potential
Use with local exhaust ventilation.

**Personal protective equipment. Among the following personal protective equipment, the PPEs which require safety certification need to be certified by KOSHA.**

Respiratory protection : Use respiratory protection (gas mask) unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Organic vapour type

Eye protection : Wear the following personal protective equipment:
Safety glasses

Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Take note that the product is flammable, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.

Skin and body protection : Select appropriate protective clothing based on chemical

resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
Flame retardant antistatic protective clothing, unless assessment demonstrates that the risk of explosive atmospheres or flash fires is low
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.
These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.
For further information regarding the use of silicones / organic oils in consumer aerosol applications, please refer to the guidance document regarding the use of these type of materials in consumer aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact the Dow Chemical customer service group.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|---|---|---|
| Appearance | : | viscous liquid |
| Colour | : | Clear to slightly hazy, colourless |
| Odour | : | aromatic |
| Odour Threshold | : | No data available |
| pH | : | No data available |
| Melting point/freezing point | : | No data available |
| Initial boiling point and boiling range | : | > 35 °C |
| Flash point | : | 5 °C<br>Method: Tag closed cup |
| Evaporation rate | : | No data available |
| Flammability (solid, gas) | : | Not applicable |
| Self-ignition | : | The substance or mixture is not classified as pyrophoric. The substance or mixture is not classified as self heating. |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower | : | No data available |

| | | |
|---|---|---|
| flammability limit | | |
| Vapour pressure | : | No data available |
| Solubility(ies) | | |
| Water solubility | : | No data available |
| Relative vapour density | : | No data available |
| Relative density | : | 0.9 |
| Partition coefficient: n-octanol/water | : | No data available |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity | | |
| Viscosity, dynamic | : | 17,000 mPa.s |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |
| Molecular weight | : | No data available |
| Particle size | : | Not applicable |

## 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Chemical stability and possibility of hazardous reactions | : | Contact with water liberates highly flammable gases.<br>Stable under normal conditions.<br>Highly flammable liquid and vapour.<br>Vapours may form explosive mixture with air.<br>Can react with strong oxidizing agents.<br>When heated to temperatures above 150 °C (300 °F) in the presence of air, product can form formaldehyde vapours.<br>Safe handling conditions may be maintained by keeping vapour concentrations within the occupational exposure limit for formaldehyde.<br>Product may evolve flammable hydrogen gas on contact with water, alcohols, acidic or basic materials, many metals or metallic compounds and can form explosive mixtures in air.<br>Hazardous decomposition products will be formed at elevated temperatures. |
| Conditions to avoid | : | Exposure to moisture<br>Handling operations that can promote accumulation of static charges.<br>Heat, flames and sparks. |
| Incompatible materials | : | Oxidizing agents |

**Hazardous decomposition products**
Thermal decomposition : Formaldehyde

## 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

**Health hazard information**

**Acute toxicity**

**Components:**

**Toluene:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (Rat): > 5,000 mg/kg |
| Acute inhalation toxicity | : | LC50 (Rat): 28.1 mg/l<br>Exposure time: 4 h<br>Test atmosphere: vapour<br>Method: OECD Test Guideline 403 |
| Acute dermal toxicity | : | LD50 (Rabbit): > 5,000 mg/kg |

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (Rat): > 50 ml/kg<br>Assessment: The substance or mixture has no acute oral toxicity<br>Remarks: Based on data from similar materials |
| Acute dermal toxicity | : | LD50 (Rabbit): > 2,000 mg/kg<br>Assessment: The substance or mixture has no acute dermal toxicity<br>Remarks: Based on data from similar materials |

**Skin corrosion/irritation**

Causes skin irritation.

**Components:**

**Toluene:**

Species: Rabbit
Method: Directive 67/548/EEC, Annex V, B.4.
Result: Skin irritation

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

Species: Rabbit
Result: No skin irritation
Remarks: Based on data from similar materials

**Serious eye damage/eye irritation**

**Components:**

**Toluene:**

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

Species: Rabbit
Result: No eye irritation
Remarks: Based on data from similar materials

**Respiratory or skin sensitisation**

**Components:**

**Toluene:**

Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

Assessment: Does not cause skin sensitisation.

Test Type: Maximisation Test
Species: Guinea pig
Remarks: Based on data from similar materials

**Carcinogenicity**

**Components:**

**Toluene:**

Species: Rat
Application Route: inhalation (vapour)
Exposure time: 24 Months
Result: negative

**Germ cell mutagenicity**

**Components:**

**Toluene:**

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

| | | |
|---|---|---|
| Genotoxicity in vivo | : | Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)<br>Species: Mouse<br>Application Route: Ingestion<br>Result: negative |

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Test Type: Bacterial reverse mutation assay (AMES)<br>Result: negative<br>Remarks: Based on data from similar materials |

**Reproductive toxicity**

Suspected of damaging fertility or the unborn child.

**Components:**

**Toluene:**

According to Ministry of Employment and Labor Public Notice: Category 2

| | | |
|---|---|---|
| Effects on fertility | : | Test Type: One-generation reproduction toxicity study<br>Species: Rat<br>Application Route: inhalation (vapour)<br>Result: negative |
| Effects on foetal development | : | Test Type: Embryo-foetal development<br>Species: Rat<br>Application Route: inhalation (vapour)<br>Result: positive |
| Reproductive toxicity - Assessment | : | Some evidence of adverse effects on development, based on animal experiments. |

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

| | | |
|---|---|---|
| Effects on fertility | : | Species: Rat<br>Application Route: Ingestion<br>Symptoms: No effects on fertility<br>Remarks: Based on data from similar materials |
| Effects on foetal development | : | Species: Rat<br>Application Route: Ingestion<br>Symptoms: No effects on foetal development<br>Remarks: Based on data from similar materials |
| Reproductive toxicity - Assessment | : | No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments. |

**STOT - single exposure**

May cause drowsiness or dizziness.

**Components:**

**Toluene:**

Assessment: May cause drowsiness or dizziness.

**STOT - repeated exposure**

May cause damage to organs (Central nervous system) through prolonged or repeated exposure.

**Components:**

**Toluene:**

Target Organs: Central nervous system
Assessment: May cause damage to organs through prolonged or repeated exposure.

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

Exposure routes: Ingestion
Assessment: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

**Repeated dose toxicity**

**Components:**

**Toluene:**

Species: Rat
LOAEL: 1.875 mg/l
Application Route: inhalation (vapour)
Exposure time: 6 Months

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

Species: Rat
Application Route: Ingestion
Remarks: Based on data from similar materials

Species: Rat
Application Route: Skin contact
Remarks: Based on data from similar materials

**Aspiration toxicity**

**Product:**

No aspiration toxicity classification

**Components:**

**Toluene:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

**Experience with human exposure**

**Components:**

**Toluene:**

Inhalation : Target Organs: Central nervous system

Symptoms: Neurological disorders, Fatigue, Vertigo

**Toxicology, Metabolism, Distribution**

No data available

**Neurological effects**

No data available

**Further information**

No data available

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

**Toluene:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Oncorhynchus kisutch (coho salmon)): 5.5 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Ceriodaphnia dubia (water flea)): 3.78 mg/l<br>Exposure time: 48 h |
| Toxicity to algae | : | NOEC (Skeletonema costatum (marine diatom)): 10 mg/l<br>Exposure time: 72 h |
| Toxicity to fish (Chronic toxicity) | : | NOEC (Oncorhynchus kisutch (coho salmon)): 1.39 mg/l<br>Exposure time: 40 d |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Daphnia magna (Water flea)): 1 mg/l<br>Exposure time: 21 d |
| | | NOEC (Ceriodaphnia dubia (water flea)): 0.74 mg/l<br>Exposure time: 7 d |
| Toxicity to microorganisms | : | EC50 (Nitrosomonas sp.): 84 mg/l<br>Exposure time: 24 h |

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

| | | |
|---|---|---|
| Toxicity to fish (Chronic toxicity) | : | Remarks: No toxicity at the limit of solubility |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | Remarks: No toxicity at the limit of solubility |

**Persistence and degradability**

**Components:**

**Toluene:**

| | | |
|---|---|---|
| Biodegradability | : | Result: Readily biodegradable.<br>Biodegradation: 86 %<br>Exposure time: 20 d |

**Bioaccumulative potential**

**Components:**

**Toluene:**

| | | |
|---|---|---|
| Bioaccumulation | : | Species: Leuciscus idus (Golden orfe)<br>Bioconcentration factor (BCF): 90 |
| Partition coefficient: n-octanol/water | : | log Pow: 2.73 |

**Dimethyl, methylvinyl siloxane, dimethylvinyl-terminated:**

| | | |
|---|---|---|
| Partition coefficient: n-octanol/water | : | log Pow: >= 4<br>Remarks: Based on data from similar materials |

**Mobility in soil**

No data available

**Other adverse effects**

No data available

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

| | | |
|---|---|---|
| Waste from residues | : | Dispose of contents and container according to wastes control act. |
| Contaminated packaging | : | Empty containers should be taken to an approved waste handling site for recycling or disposal.<br>Empty containers retain residue and can be dangerous.<br>Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.<br>If not otherwise specified: Dispose of as unused product. |

**Disposal precautions**

Dispose of contents and container according to wastes control act.

## 14. TRANSPORT INFORMATION

**International Regulations**

**UNRTDG**

| | | |
|---|---|---|
| UN number | : | UN 1294 |
| Proper shipping name | : | TOLUENE SOLUTION |
| Class | : | 3 |
| Packing group | : | II |
| Labels | : | 3 |

**IATA-DGR**

| | | |
|---|---|---|
| UN/ID No. | : | UN 1294 |
| Proper shipping name | : | Toluene solution |
| Class | : | 3 |
| Packing group | : | II |
| Labels | : | Flammable Liquids |
| Packing instruction (cargo aircraft) | : | 364 |
| Packing instruction (passenger aircraft) | : | 353 |
| Remarks | : | VENTED PACKAGES ARE FORBIDDEN FOR AIR TRANSPORT. |

**IMDG-Code**

| | | |
|---|---|---|
| UN number | : | UN 1294 |
| Proper shipping name | : | TOLUENE SOLUTION |
| Class | : | 3 |
| Packing group | : | II |
| Labels | : | 3 |
| EmS Code | : | F-E, S-D |
| Marine pollutant | : | no |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**National Regulations**

Refer to section 15 for specific national regulation.

**Special precautions for user**

Not applicable

## 15. REGULATORY INFORMATION

**National regulatory information**

**Regulation under the Occupational Safety and Health Act**

**Harmful Substances Prohibited from Manufacturing**

Not applicable

**Harmful Substances Required Permission for Manufacture**

Not applicable

**Harmful Agents to be kept below Occupational Exposure Limits**

| Chemical name | CAS-No. |
|---|---|
| Toluene | 108-88-3 |

**Harmful Agents Required to be kept below Permission Levels**

Not applicable

**Hazardous substances requiring management**

| Chemical name | CAS-No. | Threshold limits (%) |
|---|---|---|
| Toluene | 108-88-3 | >= 1 Vol-% |

**Controlled Substances Subject to Environment Monitoring**

| Chemical name | CAS-No. | Threshold limits (%) |
|---|---|---|
| Toluene | 108-88-3 | >= 1 % |

**Controlled Substances Subject to Health Examination**

| Chemical name | CAS-No. | Threshold limits (%) |
|---|---|---|
| Toluene | 108-88-3 | >= 1 % |

**Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act**

**Priority Existing Chemicals**

| Chemical name | CAS-No. |
|---|---|
| Toluene | 108-88-3 |

**Toxic Chemicals**

Not applicable

**Restricted Chemicals**

Not applicable

**Prohibited Chemicals**

Not applicable

**Toxic Release Inventory**

| Chemical name | CAS-No. | Group | Threshold limits (%) |
|---|---|---|---|
| Toluene | 108-88-3 | Group II | >= 1 % |

**Accident Precaution Chemicals**

Not applicable

**Dangerous Substances Safety Management Act**

Classification : Group 4, Flammable liquids, Type 1 petroleums, Water insoluble liquid

Hazard rank : Hazardous rank II

Designated Quantity : 200 litre

Safety Warning : Keep away from fire

**Wastes Control Act**

Industrial waste
Follow article 13 of the act to dispose the product waste

**Other requirements in domestic and other countries**

**The components of this product are reported in the following inventories:**

KECI : All ingredients listed, exempt or notified.

| | | |
|---|---|---|
| IECSC | : | All ingredients listed or exempt. |

## 16. OTHER INFORMATION

| | | |
|---|---|---|
| Other information | : | none |

**Further information**

| | | |
|---|---|---|
| Sources of key data used to compile the Safety Data Sheet | : | Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/ |
| Issuing date | : | 2015/04/27 |

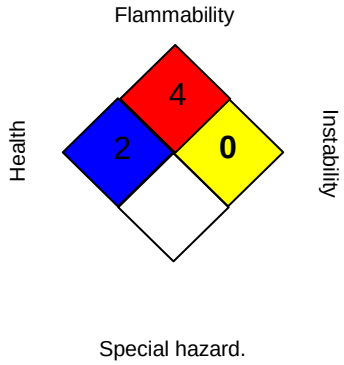
**Revision number and date**

| | | |
|---|---|---|
| Number of Revision | : | 5 |
| Revision Date | : | 2018.03.02 |

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

| | | |
|---|---|---|
| Date format | : | yyyy/mm/dd |

**NFPA:**




**Full text of other abbreviations**

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|---|---|---|
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| ACGIH BEI | : | ACGIH - Biological Exposure Indices (BEI) |
| KR OEL | : | Harmful Agents to be kept below Occupational Exposure Limits |
| ACGIH / TWA | : | 8-hour, time-weighted average |
| KR OEL / TWA | : | Time Weighted Average |
| KR OEL / STEL | : | Short Term Exposure Limit |

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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