SAFETY DATA SHEET
THE DOW CHEMICAL COMPANY

Product name: DOWSIL™ PR-1204 RTV Prime Coat Clear

THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: DOWSIL™ PR-1204 RTV Prime Coat Clear

Recommended use of the chemical and restrictions on use
Identified uses: Adhesive, binding agents

COMPANY IDENTIFICATION
THE DOW CHEMICAL COMPANY
2030 DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: CHEMTREC +1 800-424-9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification
GHS classification in accordance with 29 CFR 1910.1200
Flammable liquids - Category 2
Skin irritation - Category 2
Serious eye damage - Category 1
Reproductive toxicity - Category 2
Specific target organ toxicity - single exposure - Category 3
Specific target organ toxicity - repeated exposure - Category 2 - Inhalation
Aspiration hazard - Category 1

Label elements
Hazard pictograms
Signal word: **DANGER!**

**Hazards**
Highly flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Causes serious eye damage.
May cause drowsiness or dizziness.
Suspected of damaging fertility or the unborn child.
May cause damage to organs (Nervous system) through prolonged or repeated exposure if inhaled.

**Precautionary statements**

**Prevention**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

**Response**
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
IF exposed or concerned: Get medical advice/attention.
Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage**
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Disposal
Dispose of contents/container to an approved waste disposal plant.

Other hazards
Static-accumulating flammable liquid.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Inorganic and organic compounds, Mixture
This product is a mixture.

<table>
<thead>
<tr>
<th>Component</th>
<th>CASRN</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha, light aliphatic</td>
<td>64742-89-8</td>
<td>&gt;= 55.0 - &lt;= 75.0 %</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>&gt;= 15.0 - &lt;= 23.0 %</td>
</tr>
<tr>
<td>Tetrakis(2-butoxyethyl) orthosilicate</td>
<td>18765-38-3</td>
<td>&gt;= 3.0 - &lt;= 4.0 %</td>
</tr>
<tr>
<td>Tetra n-Butyl titanate</td>
<td>5593-70-4</td>
<td>&gt;= 3.0 - &lt;= 4.0 %</td>
</tr>
<tr>
<td>Butanol</td>
<td>71-36-3</td>
<td>&gt;= 2.0 - &lt;= 2.8 %</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

General advice:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Most important symptoms and effects, both acute and delayed:
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed
Notes to physician: Maintain adequate ventilation and oxygenation of the patient. If burn is present, treat as any thermal burn, after decontamination. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Extinguishing media


Unsuitable extinguishing media: High volume water jet. Do not use direct water stream.

Special hazards arising from the substance or mixture


Unusual Fire and Explosion Hazards: Flash back possible over considerable distance. Exposure to combustion products may be a hazard to health. Vapours may form explosive mixtures with air.

Advice for firefighters

Fire Fighting Procedures: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use a solid water stream as it may scatter and spread fire. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition. Ventilate the area. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.
Environmental precautions: Do not release the product to the aquatic environment above defined regulatory levels. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. 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. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Clean up remaining materials from spill with suitable absorbant. 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. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. Keep container tightly closed. 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. Non-sparking tools should be used. Handle in accordance with good industrial hygiene and safety practice.

Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. Ensure all equipment is electrically grounded before beginning transfer operations. 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. Restrict flow velocity in order to reduce the accumulation of static electricity. Ground and bond container and receiving equipment.


8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

<table>
<thead>
<tr>
<th>Component</th>
<th>Regulation</th>
<th>Type of listing</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha, light aliphatic</td>
<td>Dow IHG</td>
<td>TWA</td>
<td>100 ppm</td>
</tr>
<tr>
<td></td>
<td>Dow IHG</td>
<td>STEL</td>
<td>125 ppm</td>
</tr>
<tr>
<td></td>
<td>OSHA Z-1</td>
<td>TWA</td>
<td>2,000 mg/m³ 500 ppm</td>
</tr>
<tr>
<td>Toluene</td>
<td>ACGIH</td>
<td>TWA</td>
<td>20 ppm</td>
</tr>
</tbody>
</table>

Further information: (b): The value in mg/m³ is approximate.
Further information: visual impair; Visual impairment; female repro: Female reproductive; pregnancy loss: Pregnancy loss; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section); A4: Not classifiable as a human carcinogen

<table>
<thead>
<tr>
<th></th>
<th>OSHA Z-1</th>
<th>See Further information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information: (2): See Table Z-2</td>
<td>OSHA Z-2</td>
<td>TWA</td>
</tr>
</tbody>
</table>

Further information: Z37.12-1967

<table>
<thead>
<tr>
<th></th>
<th>OSHA Z-2</th>
<th>CEIL</th>
<th>300 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information: Z37.12-1967</td>
<td>OSHA Z-2</td>
<td>Peak</td>
<td>500 ppm</td>
</tr>
</tbody>
</table>

Further information: Z37.12-1967

Butanol

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>TWA</th>
<th>20 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information: URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation</td>
<td>OSHA Z-1</td>
<td>TWA</td>
<td>300 mg/m3 100 ppm</td>
</tr>
</tbody>
</table>

Further information: (b): The value in mg/m3 is approximate.

<table>
<thead>
<tr>
<th></th>
<th>OSHA P0</th>
<th>C</th>
<th>150 mg/m3 50 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information: X: Skin notation</td>
<td>Propyl alcohol</td>
<td>ACGIH</td>
<td>TWA</td>
</tr>
</tbody>
</table>

Further information: URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation; A4: Not classifiable as a human carcinogen

<table>
<thead>
<tr>
<th></th>
<th>OSHA Z-1</th>
<th>TWA</th>
<th>500 mg/m3 200 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information: (b): The value in mg/m3 is approximate.</td>
<td>OSHA P0</td>
<td>STEL</td>
<td>625 mg/m3 250 ppm</td>
</tr>
<tr>
<td>Ethylene glycol monobutyl ether</td>
<td>ACGIH</td>
<td>TWA</td>
<td>20 ppm</td>
</tr>
</tbody>
</table>

Further information: URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation; BEI: Substances for which there is a Biological Exposure Index or Indices (see BEI® section); A3: Confirmed animal carcinogen with unknown relevance to humans

<table>
<thead>
<tr>
<th></th>
<th>OSHA Z-1</th>
<th>TWA</th>
<th>240 mg/m3 50 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further information: X: Skin designation; (b): The value in mg/m3 is approximate.</td>
<td>OSHA P0</td>
<td>TWA</td>
<td>120 mg/m3 25 ppm</td>
</tr>
</tbody>
</table>

Further information: X: Skin notation

The following substance(s), which have Occupational Exposure Limit(s) (OEL), may be formed during handling or processing:

- butanol
- Propyl alcohol
- Ethylene glycol monobutyl ether

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>Toluene</td>
<td>In blood</td>
<td>Prior to last shift of workweek</td>
<td>0.02 mg/l</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td></td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>0.03 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-Cresol</td>
<td></td>
<td>Urine End of shift (As soon as possible after exposure ceases) 0.3 mg/g Creatinine ACNIH BEI</td>
</tr>
<tr>
<td>Ethylene glycol monobutyl ether</td>
<td>111-76-2</td>
<td>Urine End of shift (As soon as possible after exposure ceases) 200 mg/g Creatinine ACNIH BEI</td>
</tr>
</tbody>
</table>

**Exposure controls**

**Engineering controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless to pale yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>solvent-like</td>
</tr>
</tbody>
</table>
### Odor Threshold
No data available

### pH
No data available

### Melting point/range
No data available

### Freezing point
No data available

### Boiling point (760 mmHg)
> 65 °C (> 149 °F)

### Flash point
Tag closed cup 6 °C (43 °F)

### Evaporation Rate (Butyl Acetate = 1)
No data available

### Flammability (solid, gas)
Not applicable

### Lower explosion limit
No data available

### Upper explosion limit
No data available

### Vapor Pressure
No data available

### Relative Vapor Density (air = 1)
No data available

### Relative Density (water = 1)
0.77

### Water solubility
No data available

### Partition coefficient: n-octanol/water
No data available

### Auto-ignition temperature
No data available

### Decomposition temperature
No data available

### Kinematic Viscosity
1 mm²/s at 25 °C (77 °F)

### Explosive properties
Not explosive

### Oxidizing properties
The substance or mixture is not classified as oxidizing.

### Molecular weight
No data available

### Particle size
Not applicable

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**NOTE:** The physical data presented above are typical values and should not be construed as a specification.

### 10. STABILITY AND REACTIVITY

**Reactivity:** Not classified as a reactivity hazard.

**Chemical stability:** Stable under normal conditions.

**Possibility of hazardous reactions:** Can react with strong oxidizing agents. Vapours may form explosive mixture with air. Highly flammable liquid and vapour.

**Conditions to avoid:** Heat, flames and sparks.

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products:**
Decomposition products can include and are not limited to: Formaldehyde. Propyl alcohol. Ethylene glycol monobutyl ether. Butanol.
11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, > 5,000 mg/kg Estimated.

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, > 5,000 mg/kg Estimated.

Acute inhalation toxicity
Vapor concentrations are attainable which could be hazardous on single exposure. May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

As product: The LC50 has not been determined.

Skin corrosion/irritation
Brief contact may cause moderate skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. May cause drying and flaking of the skin.

Serious eye damage/eye irritation
May cause eye irritation. May cause corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness. Vapor may cause lacrimation (tears).

Sensitization
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
Relevant data not available.

Specific Target Organ Systemic Toxicity (Single Exposure)
Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.
Specific Target Organ Systemic Toxicity (Repeated Exposure)
Contains component(s) which have been reported to cause effects on the following organs in animals:
Liver.
Kidney
Excessive exposure may cause neurologic signs and symptoms.
May cause central nervous system effects.
Toluene has caused hearing loss in laboratory animals upon exposure to high concentrations.
Butanol has been reported to cause eye effects (tearing, blurred vision, sensitivity to light, temporary corneal effects), hearing loss and vertigo.

Carcinogenicity
Contains component(s) which did not cause cancer in laboratory animals.

Teratogenicity
Contains component(s) which, in laboratory animals, have been toxic to the fetus only at doses toxic to
the mother. In laboratory animals, toluene has been toxic to the fetus at doses toxic to the mother; it
has caused birth defects in mice when administered orally, but not by inhalation. n-Butanol has
caused birth defects and has been toxic to the fetus in laboratory animals at doses nontoxic to the
mother. Dose levels producing these effects were many times higher than any dose levels expected
from exposure due to use.

Reproductive toxicity
Contains component(s) which did not interfere with reproduction in animal studies.

Mutagenicity
Genetic toxicity studies on tested components were predominantly negative. The majority and most
reliable of the many genetic toxicity studies on toluene, both in vitro and in animals, indicate that it is
not genetically toxic.

Aspiration Hazard
Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death
due to chemical pneumonia.

COMPONENTS INFLUENCING TOXICOLOGY:

Naphtha, light aliphatic
Acute inhalation toxicity
LC50, Rat, male and female, 4 Hour, vapour, > 5.61 mg/l No deaths occurred following
exposure to a saturated atmosphere.

Toluene
Acute inhalation toxicity
Symptoms may include headache, dizziness and drowsiness, progressing to incoordination
and unconsciousness. Alcohol consumption and exertion may increase the adverse effects of
toluene. LC50, Rat, male, 4 Hour, vapour, 25.7 mg/l

LC50, Rat, female, 4 Hour, vapour, 30 mg/l

Tetrakis(2-butoxyethyl) orthosilicate
Acute inhalation toxicity
Brief exposure (minutes) is not likely to cause adverse effects.

Tetra n-Butyl titanate
Acute inhalation toxicity
LC50, Rat, 4 Hour, dust/mist, 11 mg/l

**Butanol**

**Acute inhalation toxicity**

LC50, Rat, male and female, 4 Hour, vapour, > 17.76 mg/l  OECD Test Guideline 403 No deaths occurred at this concentration.

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### 12. ECOLOGICAL INFORMATION

*Ecotoxicological information appears in this section when such data is available.*

**Toxicity**

**Naphtha, light aliphatic**

**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Pimephales promelas (fathead minnow), semi-static test, 96 Hour, 8.2 mg/l

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna, static test, 48 Hour, 4.8 mg/l

**Acute toxicity to algae/aquatic plants**

ErC50, Selenastrum capricornutum (green algae), static test, 72 Hour, Growth rate, 3.1 mg/l, OECD Test Guideline 201

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), 21 d, 2.6 mg/l

**Toluene**

**Acute toxicity to fish**

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 5.8 mg/l

**Acute toxicity to aquatic invertebrates**

LC50, water flea Ceriodaphnia dubia, semi-static test, 48 Hour, 3.78 mg/l

**Acute toxicity to algae/aquatic plants**

EbC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 12.5 mg/l, OECD Test Guideline 201

**Toxicity to bacteria**

IC50, Bacteria, 16 Hour, 29 mg/l

**Chronic toxicity to fish**

NOEC, Fish, flow-through test, 40 d, growth, 1.4 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Ceriodaphnia dubia (water flea), 7 d, number of offspring, 0.74 mg/l

**Toxicity to soil-dwelling organisms**
LC50, Eisenia fetida (earthworms), 150 - 280 mg/kg

**Tetrakis(2-butoxyethyl) orthosilicate**

**Acute toxicity to fish**
Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).
LC50, Danio rerio (zebra fish), 96 Hour, > 201 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**
No toxicity at the limit of solubility
EC50, Daphnia sp. (water flea), 48 Hour, > 90 mg/l, EG 84/449

**Acute toxicity to algae/aquatic plants**
ErC50, Scenedesmus subspicatus, 72 Hour, > 161 mg/l, 88/302/EC

**Tetra n-Butyl titanate**

**Acute toxicity to fish**
No relevant data found.

**Butanol**

**Acute toxicity to fish**
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), flow-through test, 96 Hour, 1,376 mg/l, OECD Test Guideline 203 or Equivalent

**Acute toxicity to aquatic invertebrates**
EC50, Daphnia magna (Water flea), static test, 48 Hour, 1,328 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**
EC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, 225 mg/l, OECD Test Guideline 201 or Equivalent

**Toxicity to bacteria**
EC50, Pseudomonas putida, static test, 17 Hour, Growth inhibition, > 1,000 mg/l, DIN 38412

**Chronic toxicity to aquatic invertebrates**
NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 4.1 mg/l

**Toxicity to Above Ground Organisms**
Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

**Persistence and degradability**

**Naphtha, light aliphatic**

**Biodegradability:** No relevant data found.

**Toluene**

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
**Biodegradation:** 100 %
**Exposure time:** 14 d
**Method:** OECD Test Guideline 301C or Equivalent
Theoretical Oxygen Demand: 3.13 mg/mg Calculated.

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 2 d
Method: Estimated.

Tetrakis(2-butoxyethyl) orthosilicate
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 83 %
Method: OECD Test Guideline 301B

Tetra n-Butyl titanate
Biodegradability: No relevant data found.

Butanol
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 98 %
Exposure time: 19 d
Method: OECD Test Guideline 301E or Equivalent

Theoretical Oxygen Demand: 2.59 mg/mg Estimated.

Chemical Oxygen Demand: 2.45 mg/mg Estimated.

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 55.9 Hour
Method: Estimated.

Bioaccumulative potential

Naphtha, light aliphatic
Bioaccumulation: No relevant data found.

Toluene
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.73 Measured
Bioconcentration factor (BCF): 13.2 - 90 Fish Measured

Tetrakis(2-butoxyethyl) orthosilicate
Bioaccumulation: No relevant data found.

Tetra n-Butyl titanate
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.88 Estimated.
13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section10 Regulatory Information, MSDS Section 15

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

DOT

<table>
<thead>
<tr>
<th>Proper shipping name</th>
<th>Flammable liquids, n.o.s.(Solvent naphtha (petroleum),light aliphatic, Toluene)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN 1993</td>
</tr>
</tbody>
</table>
Class: 3
Packing group: II
Marine pollutant: Solvent naphtha (petroleum), light aliphatic
Reportable Quantity: Toluene

Classification for SEA transport (IMO-IMDG):
Proper shipping name: FLAMMABLE LIQUID, N.O.S. (Solvent naphtha (petroleum), light aliphatic, Toluene)
UN number: UN 1993
Class: 3
Packing group: II
Marine pollutant: Solvent naphtha (petroleum), light aliphatic
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code: Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):
Proper shipping name: Flammable liquid, n.o.s. (Solvent naphtha (petroleum), light aliphatic, Toluene)
UN number: UN 1993
Class: 3
Packing group: II

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Flammable (gases, aerosols, liquids, or solids)
Hazard not otherwise classified (physical hazards)
Skin corrosion or irritation
Serious eye damage or eye irritation
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Aspiration hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
The following components are subject to reporting levels established by SARA Title III, Section 313:
Components
Toluene 108-88-3
Butanol 71-36-3

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)

Section 103

<table>
<thead>
<tr>
<th>Components</th>
<th>CASRN</th>
<th>RQ (RCRA Code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>1000 lbs RQ</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>100 lbs RQ (F005)</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>1000 lbs RQ</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>100 lbs RQ (F005)</td>
</tr>
<tr>
<td>Butanol</td>
<td>71-36-3</td>
<td>5000 lbs RQ</td>
</tr>
<tr>
<td>Butanol</td>
<td>71-36-3</td>
<td>100 lbs RQ (F003)</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>100 lbs RQ</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>100 lbs RQ (F003)</td>
</tr>
</tbody>
</table>

Pennsylvania Right To Know

The following chemicals are listed because of the additional requirements of Pennsylvania law:

<table>
<thead>
<tr>
<th>Components</th>
<th>CASRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha, light aliphatic</td>
<td>64742-89-8</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
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<tr>
<td>Tetra n-Butyl titanate</td>
<td>5593-70-4</td>
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<tr>
<td>Tetrapropyl orthosilicate</td>
<td>682-01-9</td>
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<tr>
<td>Tetrakis(2-butoxyethyl) orthosilicate</td>
<td>18765-38-3</td>
</tr>
<tr>
<td>Butanol</td>
<td>71-36-3</td>
</tr>
</tbody>
</table>

California Prop. 65

WARNING: This product can expose you to chemicals including Ethylbenzene, which is/are known to the State of California to cause cancer, and Toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>0</td>
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</tbody>
</table>

HMIS

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>3*</td>
<td>3</td>
<td>0</td>
</tr>
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</table>

* = Chronic Effects (See Hazards Identification)

Revision

Identification Number: 6023775 / A001 / Issue Date: 08/12/2019 / Version: 7.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.
Legend

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Text</th>
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</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>ACGIH BEI</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
<tr>
<td>C</td>
<td>Ceiling limit</td>
</tr>
<tr>
<td>CEIL</td>
<td>Acceptable ceiling concentration</td>
</tr>
<tr>
<td>Dow IHG</td>
<td>Dow Industrial Hygiene Guideline</td>
</tr>
<tr>
<td>OSHA P0</td>
<td>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</td>
</tr>
<tr>
<td>OSHA Z-1</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>OSHA Z-2</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-2</td>
</tr>
<tr>
<td>Peak</td>
<td>Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift</td>
</tr>
<tr>
<td>STEL</td>
<td>Short term exposure limit</td>
</tr>
<tr>
<td>TWA</td>
<td>Time weighted average</td>
</tr>
</tbody>
</table>

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.
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US