



# SAFETY DATA SHEET

## 1. Identification

|                                                        |                                                                                 |                 |
|--------------------------------------------------------|---------------------------------------------------------------------------------|-----------------|
| Product identifier                                     | Carvedilol                                                                      |                 |
| Other means of identification                          |                                                                                 |                 |
| Catalog number                                         | 1096622                                                                         |                 |
| CAS number                                             | 72956-09-3                                                                      |                 |
| Chemical name                                          | 2-Propanol, 1-(9H-carbazol-4-yloxy)-3-((2-(2-methoxyphenoxy)ethyl)amino)-, (+)- |                 |
| Recommended use                                        | Specified quality tests and assay use only.                                     |                 |
| Recommended restrictions                               | Not for use as a drug. Not for administration to humans or animals.             |                 |
| Manufacturer/Importer/Supplier/Distributor information |                                                                                 |                 |
| Manufacturer                                           |                                                                                 |                 |
| Company name                                           | U. S. Pharmacopeia                                                              |                 |
| Address                                                | 12601 Twinbrook Parkway<br>Rockville<br>MD<br>20852-1790<br>United States       |                 |
| Telephone                                              | RS Technical Services                                                           | 301-816-8129    |
| Website                                                | www.usp.org                                                                     |                 |
| E-mail                                                 | RSTECH@usp.org                                                                  |                 |
| Emergency phone number                                 | CHEMTREC within US & Canada                                                     | 1-800-424-9300  |
|                                                        | CHEMTREC outside US & Canada                                                    | +1 703-527-3887 |

## 2. Hazard(s) identification

|                              |                                                 |                                    |
|------------------------------|-------------------------------------------------|------------------------------------|
| <b>Physical hazards</b>      | Not classified.                                 |                                    |
| <b>Health hazards</b>        | Sensitization, skin                             | Category 1                         |
|                              | Specific target organ toxicity, single exposure | Category 1 (cardiovascular system) |
| <b>Environmental hazards</b> | Not classified.                                 |                                    |
| <b>OSHA defined hazards</b>  | Not classified.                                 |                                    |
| <b>Label elements</b>        |                                                 |                                    |



|                                                  |                                                                                                                                                                                                                 |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Signal word</b>                               | Danger                                                                                                                                                                                                          |
| <b>Hazard statement</b>                          | May cause an allergic skin reaction. Causes damage to organs (cardiovascular system).                                                                                                                           |
| <b>Precautionary statement</b>                   |                                                                                                                                                                                                                 |
| <b>Prevention</b>                                | Do not breathe dust. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves.                                                               |
| <b>Response</b>                                  | If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. If exposed: Call a poison center/doctor.                       |
| <b>Storage</b>                                   | Store locked up.                                                                                                                                                                                                |
| <b>Disposal</b>                                  | Dispose of contents/container in accordance with local/regional/national/international regulations.                                                                                                             |
| <b>Hazard(s) not otherwise classified (HNOC)</b> | This product is supplied in a small quantity which does not constitute a combustible dust hazard. The physical properties of this material indicate that in large quantities accumulated dust may be hazardous. |
| <b>Supplemental information</b>                  | Potent pharmacologically active material.                                                                                                                                                                       |

### 3. Composition/information on ingredients

#### Substance

| Chemical name | Common name and synonyms | CAS number | %   |
|---------------|--------------------------|------------|-----|
| Carvedilol    |                          | 72956-09-3 | 100 |

### 4. First-aid measures

|                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inhalation                                                             | Move to fresh air. Call a physician if symptoms develop or persist.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Skin contact                                                           | Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Eye contact                                                            | Rinse with water. Get medical attention if irritation develops and persists.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Ingestion                                                              | Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Most important symptoms/effects, acute and delayed                     | Potent pharmacologically active material. Occupational exposure to small amounts may cause physiological effects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Indication of immediate medical attention and special treatment needed | Treat symptomatically. Treatment for carvedilol overdose may include the following: Administer activated charcoal as a slurry. Place patient in a supine position. Use gastric lavage shortly after ingestion unless contraindicated. Protect airway and control seizures before initiating. For bradycardia: Administer atropine intravenously. If resistant, administer pacemaker therapy. To support cardiovascular function: Administer glucagon intravenously or sympathomimetics (dobutamine, isoproterenol, epinephrine). For peripheral vasodilation: Administer epinephrine or norepinephrine and monitor circulatory conditions. For bronchospasm: Administer intravenous or inhaled beta-sympathomimetics or intravenous aminophylline. For seizures: Administer slow intravenous injection of diazepam or clonazepam. For hypoglycemia: Administer intravenous dextrose. For hypotension: Infuse isotonic fluid. If persistent, administer dopamine or norepinephrine. Carvedilol is not cleared significantly by hemodialysis. |
| General information                                                    | Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

### 5. Fire-fighting measures

|                                                               |                                                                                                                                                                                        |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suitable extinguishing media                                  | Water. Foam. Dry chemical or CO2. Use fire-extinguishing media appropriate for surrounding materials.                                                                                  |
| Unsuitable extinguishing media                                | None known.                                                                                                                                                                            |
| Specific hazards arising from the chemical                    | Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.       |
| Special protective equipment and precautions for firefighters | Wear suitable protective equipment.                                                                                                                                                    |
| Fire fighting equipment/instructions                          | Use water spray to cool unopened containers. As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing. |
| Specific methods                                              | Cool containers exposed to flames with water until well after the fire is out.                                                                                                         |
| General fire hazards                                          | No unusual fire or explosion hazards noted.                                                                                                                                            |

### 6. Accidental release measures

|                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Wear appropriate personal protective equipment. Avoid inhalation of dust from the spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. For personal protection, see section 8 of the SDS. |
| Methods and materials for containment and cleaning up               | Avoid the generation of dusts during clean-up. Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.                                                                                                                                                                                                                                                              |
| Environmental precautions                                           | Avoid discharge into drains, water courses or onto the ground.                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## 7. Handling and storage

### Precautions for safe handling

As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Combustible dust clouds may be created where operations produce fine material (dust). Select and use containment devices and personal protective equipment based on a risk assessment of material potency and exposure potential.

### Conditions for safe storage, including any incompatibilities

Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### Exposure limit values

| Industrial Use Material | Type | Value |
|-------------------------|------|-------|
|-------------------------|------|-------|

|                             |     |                  |
|-----------------------------|-----|------------------|
| Carvedilol (CAS 72956-09-3) | TWA | 30 micrograms/m3 |
|-----------------------------|-----|------------------|

#### Biological limit values

No biological exposure limits noted for the ingredient(s).

#### Appropriate engineering controls

No open handling. For laboratory operations, use approved ventilation or containment system (biological safety cabinet, ventilated balance enclosure, glovebox). Control exposures to below the occupational exposure level (if available). Select and use containment devices and personal protective equipment based on a risk assessment of exposure potential. Cover all containers for solutions and slurries while being transferred.

#### Individual protection measures, such as personal protective equipment

##### Eye/face protection

Wear safety glasses with side shields, chemical splash goggles, or full face shield, if necessary. Base the choice of protection on the job activity and potential for contact with eyes or face. An emergency eye wash station should be available.

##### Skin protection

##### Hand protection

Consider double gloves. Wear nitrile or other impervious gloves if skin contact is possible. When the material is dissolved or suspended in an organic solvent, wear gloves that provide protection against the solvent.

##### Other

Train employees in proper gowning and degowning practices. Wear disposable lab coat, disposable sleeve covers and two pair of gloves as appropriate for the task. Base the choice of skin protection on the job activity, potential for skin contact and solvents and reagents in use. Do not wear protective garments in common areas (e.g., cafeterias) or out-of-doors.

##### Respiratory protection

Use a powered air-purifying respirator (PAPR) with HEPA filters, disposable outerware and head cover for spill cleanup. Choose respiratory protection appropriate to the task and the level of existing engineering controls.

##### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

#### General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Pharmacological effects may be seen with occupational exposure. Handling practices in this SDS are recommendations for laboratory use of reference standards. Procedures for any other uses or quantities should be determined after an appropriate assessment.

## 9. Physical and chemical properties

### Appearance

Appearance descriptions are general information and not specific to any USP lot.

#### Physical state

Solid.

#### Form

Crystalline powder.

#### Color

White. Off-white.

### Odor

Odorless.

### Odor threshold

Not available.

### pH

Not available.

### Melting point/freezing point

237.2 - 248 °F (114 - 120 °C)

### Initial boiling point and boiling range

Not available.

### Flash point

Not available.

|                                                     |                                                                                                                                                                                                                                           |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Evaporation rate</b>                             | Not available.                                                                                                                                                                                                                            |
| <b>Flammability (solid, gas)</b>                    | Not available.                                                                                                                                                                                                                            |
| <b>Upper/lower flammability or explosive limits</b> |                                                                                                                                                                                                                                           |
| <b>Flammability limit - lower (%)</b>               | Not available.                                                                                                                                                                                                                            |
| <b>Flammability limit - upper (%)</b>               | Not available.                                                                                                                                                                                                                            |
| <b>Explosive limit - lower (%)</b>                  | Not available.                                                                                                                                                                                                                            |
| <b>Explosive limit - upper (%)</b>                  | Not available.                                                                                                                                                                                                                            |
| <b>Vapor pressure</b>                               | < 0.0000001 kPa at 25 °C                                                                                                                                                                                                                  |
| <b>Vapor density</b>                                | Not available.                                                                                                                                                                                                                            |
| <b>Relative density</b>                             | Not available.                                                                                                                                                                                                                            |
| <b>Solubility(ies)</b>                              |                                                                                                                                                                                                                                           |
| <b>Solubility (water)</b>                           | Practically insoluble.                                                                                                                                                                                                                    |
| <b>Solubility (other)</b>                           | Dimethylsulfoxide: Freely soluble.<br>Methylene chloride: Soluble.<br>Methanol: Soluble.<br>Ethanol: 95%: Sparingly soluble.<br>Isopropanol: Sparingly soluble.<br>Ethyl ether: Slightly soluble.<br>Dilute acids: Practically insoluble. |
| <b>Partition coefficient (n-octanol/water)</b>      | 4.19                                                                                                                                                                                                                                      |
| <b>Auto-ignition temperature</b>                    | Not available.                                                                                                                                                                                                                            |
| <b>Decomposition temperature</b>                    | Not available.                                                                                                                                                                                                                            |
| <b>Viscosity</b>                                    | Not available.                                                                                                                                                                                                                            |
| <b>Other information</b>                            |                                                                                                                                                                                                                                           |
| <b>Chemical family</b>                              | Carbazole.                                                                                                                                                                                                                                |
| <b>Dust explosion properties</b>                    |                                                                                                                                                                                                                                           |
| <b>Kst</b>                                          | 228 bar.m/s                                                                                                                                                                                                                               |
| <b>St class</b>                                     | 2 Strong explosion.                                                                                                                                                                                                                       |
| <b>Minimum ignition energy (MIE) - dust cloud</b>   | < 5 mJ                                                                                                                                                                                                                                    |
| <b>Molecular formula</b>                            | C <sub>24</sub> H <sub>26</sub> N <sub>2</sub> O <sub>4</sub>                                                                                                                                                                             |
| <b>Molecular weight</b>                             | 406.47                                                                                                                                                                                                                                    |
| <b>pH in aqueous solution</b>                       | 7.6 - 7.7 to 8.5 Suspension: 10%                                                                                                                                                                                                          |

## 10. Stability and reactivity

|                                           |                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.                                                   |
| <b>Possibility of hazardous reactions</b> | No dangerous reaction known under conditions of normal use.                                   |
| <b>Conditions to avoid</b>                | Contact with incompatible materials.                                                          |
| <b>Incompatible materials</b>             | None known.                                                                                   |
| <b>Hazardous decomposition products</b>   | NOx. Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions.         |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |                                                                                             |
|---------------------|---------------------------------------------------------------------------------------------|
| <b>Inhalation</b>   | Knowledge about health hazard is incomplete.                                                |
| <b>Skin contact</b> | May cause an allergic skin reaction.                                                        |
| <b>Eye contact</b>  | Knowledge about health hazard is incomplete.                                                |
| <b>Ingestion</b>    | Based on information from therapeutic use, this material may cause: Cardiovascular effects. |

**Symptoms related to the physical, chemical, and toxicological characteristics**

Beta-adrenergic blockers: Gastrointestinal disturbances. Headache. Mood or mental changes. Drowsiness. Weakness. Insomnia. Nervousness. Visual disturbances. Swelling of feet or legs. Muscle, joint, or chest pain. Seizures. Coma. Cardiovascular effects. Respiratory depression. Dizziness when standing. Fainting. Blue or pale lips, fingernails, and skin. Weight gain.

**Information on toxicological effects**

**Acute toxicity**

| Product                     | Species | Test Results |
|-----------------------------|---------|--------------|
| Carvedilol (CAS 72956-09-3) |         |              |
| <b>Acute</b>                |         |              |
| <b>Oral</b>                 |         |              |
| LD50                        | Rat     | > 8000 mg/kg |

**Skin corrosion/irritation**

Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation**

Based on available data, the classification criteria are not met.

**Local effects**

Eye irritation test  
Result: Negative.  
Recovery Period: 2 days  
Skin irritation test, intact and abraded skin  
Result: Negative.

**Respiratory or skin sensitization**

**Respiratory sensitization**

Knowledge about health hazard is incomplete.

**Skin sensitization**

May cause an allergic skin reaction.

Guinea pig maximization test  
Result: Positive.

**Germ cell mutagenicity**

Knowledge about mutagenicity is incomplete.

**Mutagenicity**

Ames assay  
Result: Negative.  
In vitro micronucleus assay: in cells  
Result: Negative.  
Species: Hamster  
Mutagenicity: HGPRT in ovary cells  
Result: Negative.  
Species: Hamster, Chinese  
Mutagenicity: In vivo human lymphocyte test  
Result: Negative.

**Carcinogenicity**

Based on available data, the classification criteria are not met.

200 mg/kg/day Two-year carcinogenicity study  
Result: No evidence of carcinogenicity.  
Species: Mouse  
75 mg/kg/day Two-year carcinogenicity study  
Result: No evidence of carcinogenicity.  
Species: Rat

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Not listed.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)**

Not regulated.

**US. National Toxicology Program (NTP) Report on Carcinogens**

Not listed.

**Reproductive toxicity**

Based on available data, the classification criteria are not met.

**Reproductivity**

15 - 75 mg/kg/day Reproductivity / Developmental  
Result: Increased post-implantation loss but no teratogenicity at high dose. NOEL = 15 mg/kg/day  
Species: Rabbit  
60 - 200 mg/kg/day Reproductive toxicity (fertility)  
Result: Fertility impaired at high dose. NOEL = 60 mg/kg/day  
Species: Rat

### Reproductivity

60 - 300 mg/kg/day Reproductivity / Developmental  
Result: Maternal toxicity and fetotoxicity at high dose. NOEL  
= 60 mg/kg/day  
Species: Rat

**Specific target organ toxicity - single exposure** Causes damage to organs (cardiovascular system).

**Specific target organ toxicity - repeated exposure** Knowledge about health hazard is incomplete.

**Aspiration hazard** Based on available data, the classification criteria are not met.

**Further information** Potent pharmacologically active material. Occupational exposure to small amounts may cause physiological effects.

## 12. Ecological information

### Ecotoxicity

| Product                     | Species | Test Results          |
|-----------------------------|---------|-----------------------|
| Carvedilol (CAS 72956-09-3) |         |                       |
| <b>Aquatic</b>              |         |                       |
| <i>Acute</i>                |         |                       |
| Algae                       | EC50    | < 0.17 mg/l, 72 hours |
| Crustacea                   | EC50    | 7.38 mg/l, 48 hours   |
| Fish                        | EC50    | 0.99 mg/l, 96 hours   |

**Persistence and degradability** Not readily biodegradable.

**Bioaccumulative potential**

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

**Disposal instructions** Dispose in accordance with all applicable regulations. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

|                            |                                                                 |
|----------------------------|-----------------------------------------------------------------|
| UN number                  | UN3077                                                          |
| UN proper shipping name    | Environmentally hazardous substance, solid, n.o.s. (Carvedilol) |
| Transport hazard class(es) |                                                                 |
| Class                      | 9                                                               |
| Subsidiary risk            | -                                                               |
| Packing group              | III                                                             |

### IATA

|                            |                                                                 |
|----------------------------|-----------------------------------------------------------------|
| UN number                  | UN3077                                                          |
| UN proper shipping name    | Environmentally hazardous substance, solid, n.o.s. (Carvedilol) |
| Transport hazard class(es) |                                                                 |
| Class                      | 9                                                               |
| Subsidiary risk            | -                                                               |
| Packing group              | III                                                             |

#### Other information

Passenger and cargo aircraft

Allowed with restrictions.

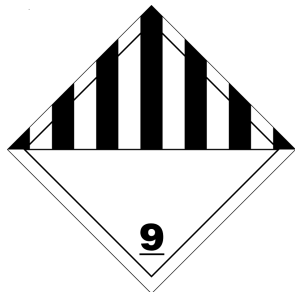
Cargo aircraft only

Allowed with restrictions.

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

Not applicable.

DOT; IATA



#### General information

It is the shipper's responsibility to determine the correct transport classification at the time of shipment.

### 15. Regulatory information

#### US federal regulations

CERCLA/SARA Hazardous Substances - Not applicable.

One or more components are not listed on TSCA.

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

#### CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

#### SARA 304 Emergency release notification

Not regulated.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

#### Superfund Amendments and Reauthorization Act of 1986 (SARA)

##### SARA 302 Extremely hazardous substance

Not listed.

##### SARA 311/312 Hazardous chemical

Yes

##### Classified hazard categories

Combustible dust  
Respiratory or skin sensitization  
Specific target organ toxicity (single or repeated exposure)

##### SARA 313 (TRI reporting)

Not regulated.

#### Other federal regulations

##### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

##### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

##### Safe Drinking Water Act (SDWA)

Not regulated.

#### US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

#### International Inventories

##### Country(s) or region

Australia

##### Inventory name

Australian Inventory of Chemical Substances (AICS)

##### On inventory (yes/no)\*

No

| Country(s) or region        | Inventory name                                                         | On inventory (yes/no)* |
|-----------------------------|------------------------------------------------------------------------|------------------------|
| Canada                      | Domestic Substances List (DSL)                                         | No                     |
| Canada                      | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)             | No                     |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | No                     |
| Europe                      | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)               | No                     |
| Korea                       | Existing Chemicals List (ECL)                                          | No                     |
| New Zealand                 | New Zealand Inventory                                                  | Yes                    |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | No                     |
| Taiwan                      | Taiwan Chemical Substance Inventory (TCSI)                             | Yes                    |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                          | No                     |

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Issue date</b>          | 04-17-2007                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Revision date</b>       | 03-27-2019                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Version #</b>           | 03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Further information</b> | Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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