SAFETY DATA SHEET
DOW CHEMICAL JAPAN LIMITED

Product name: DOWSIL™ SH 781 N Clear

Issue Date: 2020/03/16
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DOW CHEMICAL JAPAN LIMITED 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. PRODUCT AND COMPANY IDENTIFICATION

Product name: DOWSIL™ SH 781 N Clear

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

COMPANY IDENTIFICATION
DOW CHEMICAL JAPAN LIMITED
TENNOZ CENTRAL TOWER
2-24, HIGASHI SHINAGAWA 2-CHOME
SHINAGAWA TOKYO
140-8617 JAPAN

Customer Information Number: 03-5460-2100
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 0120-00-1017
Local Emergency Contact: 0120-00-1017

2. HAZARDS IDENTIFICATION

GHS Classification
This product is not hazardous per the Globally Harmonized System of Classification and Labelling (GHS).

GHS label elements

Precautionary statements

Prevention
Use only outdoors or in a well-ventilated area.

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	ENCS number	ISHL number	Concentration
Silicon dioxide	7631-86-9	1-548	(1)-548	>= 1.0 - < 10.0 %
Ethyltriacetoxysilane	17689-77-9	(9)-1939	(9)-1939	>= 1.0 - < 3.0 %
Methyltriacetoxysilane	4253-34-3	(9)-1939	(9)-1939	>= 1.0 - < 3.0 %
Octamethyl Cyclotetrasiloxane	556-67-2	(7)-475	(7)-475	>= 0.25 - < 1.0 %

4. FIRST AID MEASURES

Description of first aid measures
General advice:
If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing; consult a physician.

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: Rinse mouth with water. No emergency medical treatment necessary.

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: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Water spray. Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.

Unsuitable extinguishing media: None known..

Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides. Silicon oxides.

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health..

Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. 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..
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

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: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. 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: Wipe up or scrape up and contain for salvage or disposal. 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, store recovered material in appropriate container.
See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes. Do not swallow. Avoid prolonged or repeated contact with skin. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Storage: Keep in properly labelled containers. Store locked up. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** None known.

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.

Component	Regulation	Type of listing	Value
Silicon dioxide	Dow IHG	TWA Respirable dust	2 mg/m3
	Dow IHG	TWA Total dust	6 mg/m3
Octamethyl Cyclotetrasiloxane	US WEEL	TWA	10 ppm
Acetic acid	ACGIH	TWA	10 ppm
	Further information: pulm func: Pulmonary function; URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation		
	ACGIH	STEL	15 ppm
	Further information: pulm func: Pulmonary function; URT irr: Upper Respiratory Tract irritation; eye irr: Eye irritation		
	JP OEL JSOH	OEL-M	25 mg/m3 10 ppm

The following substance(s), which have Occupational Exposure Limit(s) (OEL), may be formed during handling or processing:
Acetic acid
Although some of the components of this product may have exposure guidelines, no exposure would be expected under normal handling conditions due to the physical state of the material.

Exposure controls
Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

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, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if handling at elevated temperatures without sufficient ventilation, use an approved air-purifying respirator.
The following should be effective types of air-purifying respirators: Organic vapor with acid gas filter.
Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Natural rubber ("latex"). 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.
Eye protection: Use chemical goggles.
Skin and body 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	paste
Color	colourless
Odor	acetic acid
Odor Threshold	No data available
pH	Not applicable
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	Not applicable
Flash point	**Seta closed cup** >100 °C
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	Not classified as a flammability hazard
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.04
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Molecular weight	No data available
Particle size	No data available

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.

Conditions to avoid: None known.

Incompatible materials: Oxidizing agents

Hazardous decomposition products:
Decomposition products can include and are not limited to: Formaldehyde. Acetic acid.

11. TOXICOLOGICAL INFORMATION

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

Information on likely routes of exposure
Eye contact, Skin contact, Ingestion.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

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, Rat, > 5,000 mg/kg Estimated.

Information for components:

Silicon dioxide
LD50, Rat, > 5,000 mg/kg

Ethyltriacetoxysilane
On basis of test data. LD50, Rat, 380 mg/kg

Methyltriacetoxysilane
LD50, Rat, male and female, 1,600 mg/kg OECD Test Guideline 401

Octamethyl Cyclotetrasiloxane
LD50, Rat, male, > 4,800 mg/kg No deaths occurred at this concentration.

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, Rabbit, > 2,000 mg/kg Estimated.

Information for components:

Silicon dioxide
LD50, Rabbit, > 5,000 mg/kg

Ethyltriacetoxysilane
The dermal LD50 has not been determined.

Methyltriacetoxysilane
The dermal LD50 has not been determined.

Octamethyl Cyclotetrasiloxane
LD50, Rat, male and female, > 2,400 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity
Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material may cause respiratory irritation.

As product: The LC50 has not been determined.

Information for components:

Silicon dioxide
Maximum attainable concentration. LC50, Rat, 4 Hour, dust/mist, > 2.08 mg/l No deaths occurred at this concentration.

Ethyltriacetoxysilane
The LC50 has not been determined.

Methyltriacetoxysilane
The LC50 has not been determined.

Octamethyl Cyclotetrasiloxane
LC50, Rat, male and female, 4 Hour, dust/mist, 36 mg/l OECD Test Guideline 403

Skin corrosion/irritation
Brief contact may cause slight skin irritation with local redness.

Information for components:

Silicon dioxide
Brief contact is essentially nonirritating to skin.
May cause skin irritation due to mechanical abrasion.
May cause drying and flaking of the skin.

Ethyltriacetoxysilane
Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.

Methyltriacetoxysilane

Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Octamethyl Cyclotetrasiloxane
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause moderate eye irritation.

Information for components:

Silicon dioxide
Solid or dust may cause irritation or corneal injury due to mechanical action.

Ethyltriacetoxysilane
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Methyltriacetoxysilane
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Octamethyl Cyclotetrasiloxane
Essentially nonirritating to eyes.

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

For respiratory sensitization:
No relevant information found.

Information for components:

Silicon dioxide
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Ethyltriacetoxysilane
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Methyltriacetoxysilane
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Octamethyl Cyclotetrasiloxane

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Information for components:

Silicon dioxide
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Ethyltriacetoxysilane
No data available

Methyltriacetoxysilane
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Octamethyl Cyclotetrasiloxane
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Information for components:

Silicon dioxide
Based on physical properties, not likely to be an aspiration hazard.

Methyltriacetoxysilane
Based on physical properties, not likely to be an aspiration hazard.

Octamethyl Cyclotetrasiloxane
May be harmful if swallowed and enters airways.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)
For the minor component(s):
Repeated oral doses to laboratory animals resulted in injury to the gastrointestinal tract with some mortality.

Information for components:

Silicon dioxide
No relevant data found.

Ethyltriacetoxysilane
No relevant data found.

Methyltriacetoxysilane

Repeated oral doses to laboratory animals resulted in injury to the gastrointestinal tract with some mortality.

Octamethyl Cyclotetrasiloxane
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Respiratory tract.
Female reproductive organs.

Carcinogenicity
Based on information for component(s): Did not cause cancer in long-term animal studies which used routes of exposure considered relevant to industrial handling. Positive results have been reported in other studies using routes of exposure not relevant to industrial handling.

Information for components:

Silicon dioxide
No relevant data found.

Ethyltriacetoxysilane
No relevant data found.

Methyltriacetoxysilane
No relevant data found.

Octamethyl Cyclotetrasiloxane
Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only. Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans. Repeated exposure in rats to D4 resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

Teratogenicity
Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

Information for components:

Silicon dioxide
No relevant data found.

Ethyltriacetoxysilane
No relevant data found.

Methyltriacetoxysilane
No relevant data found.

Octamethyl Cyclotetrasiloxane
Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity

Contains component(s) which have interfered with fertility in animal studies. Contains component(s) which have been shown to interfere with reproduction in animal studies.

Information for components:

Silicon dioxide
No relevant data found.

Ethyltriacetoxysilane
No relevant data found.

Methyltriacetoxysilane
No relevant data found.

Octamethyl Cyclotetrasiloxane
In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, has been shown to interfere with fertility.

Mutagenicity
Contains a component(s) which were negative in in vitro genetic toxicity studies. Contains component(s) which were negative in animal genetic toxicity studies.

Information for components:

Silicon dioxide
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Ethyltriacetoxysilane
No relevant data found.

Methyltriacetoxysilane
In vitro genetic toxicity studies were negative.

Octamethyl Cyclotetrasiloxane
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

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

Ecotoxicity

Silicon dioxide

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, Danio rerio (zebra fish), 96 Hour, 5,000 - 10,000 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 24 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 440 mg/l

Ethyltriacetoxysilane

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).
Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).
LC50, Danio rerio (zebra fish), 96 Hour, 251 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
EC50, Daphnia sp. (water flea), 48 Hour, 62 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
No relevant information found.

Toxicity to bacteria
Based on data from similar materials
EC50, 3 Hour, > 100 mg/l, OECD Test Guideline 209

Methyltriacetoxysilane

Acute toxicity to fish
For the hydrolysis product:
LC50, Danio rerio (zebra fish), semi-static test, 96 hrs, > 500 mg/l, Regulation (EC) No. 440/2008, Annex, C.1

Acute toxicity to aquatic invertebrates
For the hydrolysis product(s)
EC50, Daphnia magna (Water flea), static test, 48 hrs, > 500 mg/l

Acute toxicity to algae/aquatic plants
For the hydrolysis product(s)
ErC50, Pseudokirchneriella subcapitata (algae), static test, 72 hrs, Growth rate, > 500 mg/l
For the hydrolysis product(s)
NOEC, Pseudokirchneriella subcapitata (algae), static test, 72 hrs, Growth rate, >= 500 mg/l

Toxicity to bacteria
Based on data from similar materials
EC50, 3 Hour, > 100 mg/l, OECD Test Guideline 209

Octamethyl Cyclotetrasiloxane

Acute toxicity to fish
Not expected to be acutely toxic to aquatic organisms.
No toxicity at the limit of solubility
LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 0.022 mg/l
No toxicity at the limit of solubility
LC50, Cyprinodon variegatus (sheepshead minnow), flow-through, 14 d, > 0.0063 mg/l

Acute toxicity to aquatic invertebrates
No toxicity at the limit of solubility
EC50, Mysidopsis bahia (opossum shrimp), flow-through test, 96 Hour, > 0.0091 mg/l
No toxicity at the limit of solubility
EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.015 mg/l

Acute toxicity to algae/aquatic plants
No toxicity at the limit of solubility
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, > 0.022 mg/l

Chronic toxicity to fish
No toxicity at the limit of solubility
NOEC, Oncorhynchus mykiss (rainbow trout), 93 d, >= 0.0044 mg/l

Chronic toxicity to aquatic invertebrates
No toxicity at the limit of solubility
NOEC, Daphnia magna (Water flea), 21 d, >= 0.0079 mg/l

Persistence and degradability

Silicon dioxide
Biodegradability: Biodegradation is not applicable.

Ethyltriacetoxysilane
Biodegradability:
Biodegradation: 74 %
Exposure time: 21 d

Methyltriacetoxysilane
Biodegradability: For similar material(s): Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 74 %
Exposure time: 21 d
Method: OECD Test Guideline 301A

Octamethyl Cyclotetrasiloxane
Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 3.7 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Stability in Water (1/2-life)
Hydrolysis, DT50, 69.3 - 144 Hour, pH 7, Half-life Temperature 24.6 °C, OECD Test Guideline 111

Photodegradation
Atmospheric half-life: 16 d
Method: Estimated.

Bioaccumulative potential

Silicon dioxide
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.53
Bioconcentration factor (BCF): 3.16

Ethyltriacetoxysilane

Bioaccumulation: No relevant data found.

Methyltriacetoxysilane

Bioaccumulation: For the hydrolysis product(s) Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -2.4 at 20 °C estimated
Bioconcentration factor (BCF): 3 Fish Estimated.

Octamethyl Cyclotetrasiloxane

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
Partition coefficient: n-octanol/water(log Pow): 6.49 Measured
Bioconcentration factor (BCF): 12,400 Pimephales promelas (fathead minnow) Measured

Mobility in Soil

Silicon dioxide

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 21.73

Ethyltriacetoxysilane

No relevant data found.

Methyltriacetoxysilane

Potential for mobility in soil is very high (Koc between 0 and 50).
Estimated.

Octamethyl Cyclotetrasiloxane

Expected to be relatively immobile in soil (Koc > 5000).

Hazardous to the ozone layer

Silicon dioxide

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Ethyltriacetoxysilane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Methyltriacetoxysilane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Octamethyl Cyclotetrasiloxane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Other adverse effects

Silicon dioxide

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ethyltriacetoxysilane

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Methyltriacetoxysilane

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Octamethyl Cyclotetrasiloxane

Octamethylcyclotetrasiloxane (D4) meets the current REACh Annex XIII criteria for PBT and vPvB. In Canada, D4 has been assessed and deemed to meet the PiT criteria. However, D4 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D4 is not biomagnifying in aquatic and terrestrial food webs. D4 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D4 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms.

13. DISPOSAL CONSIDERATIONS

Disposal methods: Customers are advised to check their local legislation governing the disposal of waste materials.

Treatment and disposal methods of used packaging: For PLASTIC OR PAPER BAGS, DO NOT REUSE CONTAINER. Dispose of empty bag by incineration if allowed, or in an approved landfill or by other procedures approved by federal, state/provincial and local authorities. For CARTONS AND FIBER DRUMS, offer clean empty container for recycling. In such case, this label should be removed or defaced in its entirety. Dispose of empty liner (or non-recyclable container) by incineration if allowed, or in an approved landfill, or by other procedures approved by federal, state/provincial and local authorities.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

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):

Not regulated for transport

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

Chemical Substance Control Law
Not applicable for Specified Chemical Substance, Monitoring Chemical Substance and Priority Assessment Chemical Substance.

Japan. ENCS - Existing and New Chemical Substances Inventory (ENCS)
All intentional components are listed on the inventory, are exempt, or are supplier certified.

Industrial Safety and Health Law
Substances Subject to be Notified Names
Not applicable

Substances Subject to be Indicated Names
Not applicable

Ordinance on Prevention of Hazards Due to Specified Chemical Substances
Not applicable

Ordinance on Prevention of Organic Solvent Poisoning
Not applicable

Substances Prevented From Impairment of Health
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity
Not applicable

Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)
Not applicable

Fire Service Law
Designated Flammable Substances, Synthetic resins, others, (Designated Quantity 3000 kilogram), Keep away from fire

Poisonous and Deleterious Substances Control Law
Not applicable

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof
Not applicable

High Pressure Gas Safety Act
Not applicable

Waste Disposal and Public Cleansing Law
Industrial waste

16. OTHER INFORMATION

Revision
Identification Number: 4060015 / A151 / Issue Date: 2020/03/16 / Version: 3.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
JP OEL JSOH	Japan. The Japan Society for Occupational Health. Recommendation of Occupational Exposure Limits
OEL-M	Occupational Exposure Limit-Mean
STEL	Short-term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

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

UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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