SAFETY DATA SHEET

3500N MICROMAX™ DIELECTRIC PASTE

Version	Revision Date:	SDS Number:	Date of last issue: 04-12-2024
8.1	08-11-2025	300000000149	Date of first issue: 01-29-2024

SECTION 1. IDENTIFICATION

Product name : 3500N MICROMAX™ DIELECTRIC PASTE

Product code : 000000000027046119

Manufacturer or supplier's details

Company name of supplier : Celanese Ltd. Irving Texas
Address : 222 West Las Colinas Boulevard Suite 900N
Irving TX 75039
Telephone : '+1 972-443-4000
Emergency telephone number : DOMESTIC NORTH AMERICA: 800-424-9300
INTERNATIONAL, CALL +1 703-527-3887 (collect calls accepted)

Recommended use of the chemical and restrictions on use

Recommended use : For industrial use only.
Paste for electronic industry

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity (Oral) : Category 4

Carcinogenicity : Category 1A

Specific target organ toxicity - repeated exposure : Category 1 (Lungs)

Other hazards

None known.

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H302 Harmful if swallowed.
H350 May cause cancer.
H372 Causes damage to organs (Lungs) through prolonged or repeated exposure.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/

face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Quartz	14808-60-7	>= 10 - < 20
Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol	25265-77-4	>= 1 - < 10
1-Phenoxypropan-2-ol	770-35-4	>= 1 - < 10
Amines, N-tallow alkyltrimethylenedi-, oleates	61791-53-5	>= 0.1 - < 1

Glass or Ceramic ingredient(s) Barium		60 - 70%

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

If inhaled : If inhaled, remove to fresh air.
If breathing is difficult, give oxygen.
If not breathing, give artificial respiration.
Get medical attention.

In case of skin contact : Wash off with soap and water.
Get medical attention if irritation develops and persists.
Wash contaminated clothing before re-use.

In case of eye contact : Immediately flush eyes for at least 15 minutes. Get medical attention.

If swallowed : If swallowed
Rinse mouth with water.
Call a physician or poison control centre immediately.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.

Most important symptoms and effects, both acute and : None known.

delayed

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Dry sand Dry chemical Alcohol-resistant foam
Specific hazards during firefighting	:	Hazardous decomposition products formed under fire conditions. (see also section 10) Avoid breathing decomposition products.
Further information	:	Evacuate personnel to safe areas. Stop spill/release if it can be done with minimal risk. Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for firefighters	:	Exposure to decomposition products may be a hazard to health. Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Wear suitable protective equipment. Dispose of in accordance with local regulations.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Clean contaminated floors and objects thoroughly while observing environmental regulations.
Methods and materials for containment and cleaning up	:	Contain spill. Soak up with inert absorbent material. Collect and contain contaminated absorbent and dike material for disposal. Keep in suitable, closed containers for disposal. Ventilate the area. Clean contaminated surface thoroughly.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Avoid formation of dust and aerosols. Keep away from heat and sources of ignition.
Advice on safe handling	:	Avoid inhalation, ingestion and contact with skin and eyes. Use only with adequate ventilation/personal protection. Keep container closed when not in use.

		Take care to avoid waste and spillage when weighing, loading and mixing the product.
Conditions for safe storage	:	Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from sources of ignition - No smoking. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material. Keep container closed when not in use. Do not reuse empty container.
Further information on storage stability	:	Stable under normal conditions.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Quartz	14808-60-7	TWA (Respirable dust)	0.05 mg/m3	OSHA Z-1
		TWA (respirable)	10 mg/m3 / %SiO2+2	OSHA Z-3
		TWA (respirable)	250 mppcf / %SiO2+5	OSHA Z-3
		TWA (respirable dust fraction)	0.1 mg/m3	OSHA P0
		TWA (Respirable particulate matter)	0.025 mg/m3 (Silica)	ACGIH
		TWA (Respirable dust)	0.05 mg/m3 (Silica)	NIOSH REL
		PEL (respirable)	0.05 mg/m3	OSHA CARC
Silicon	7440-21-3	TWA (Respirable)	5 mg/m3	NIOSH REL
		TWA (total)	10 mg/m3	NIOSH REL
		TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3	OSHA Z-1
		TWA (Total dust)	10 mg/m3	OSHA P0
		TWA (respirable dust fraction)	5 mg/m3	OSHA P0
Dimethyl phthalate	131-11-3	TWA	5 mg/m3	ACGIH
		TWA	5 mg/m3	NIOSH REL
		TWA	5 mg/m3	OSHA Z-1
		TWA	5 mg/m3	OSHA P0
Aluminum	7429-90-5	TWA (Respirable)	5 mg/m3	NIOSH REL

		TWA (total)	10 mg/m3	NIOSH REL
		TWA (total dust)	15 mg/m3 (Aluminium)	OSHA Z-1
		TWA (respirable fraction)	5 mg/m3 (Aluminium)	OSHA Z-1
		TWA (Total dust)	15 mg/m3 (Aluminium)	OSHA P0
		TWA (respirable dust fraction)	5 mg/m3 (Aluminium)	OSHA P0
Zirconium	7440-67-7	TWA	5 mg/m3 (Zirconium)	OSHA Z-1
		TWA	5 mg/m3 (Zirconium)	ACGIH
		STEL	10 mg/m3 (Zirconium)	ACGIH
		TWA	5 mg/m3 (Zirconium)	OSHA P0
		STEL	10 mg/m3 (Zirconium)	OSHA P0
		TWA	5 mg/m3 (Zirconium)	NIOSH REL
		ST	10 mg/m3 (Zirconium)	NIOSH REL

Engineering measures : Local exhaust or a laboratory hood should be used when handling the materials.
Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Respiratory protection : Provide adequate ventilation.
No personal respiratory protective equipment normally required.
Where there is potential for airborne exposures in excess of applicable limits, wear approved respiratory protection with dust/mist cartridge.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer.
Persons performing maintenance or repairs on exhaust system equipment (e.g. ducts) may need to use respirators and protective clothing to prevent exposure to any accumulated residues.

Hand protection

Material : Impervious gloves

Remarks : Gloves must be inspected prior to use. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. The exact break through time can be obtained from the protective glove producer and this has to be observed.

		Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.
Eye protection	:	Wear safety glasses with side shields.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Lightweight protective clothing Safety shoes
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Contaminated work clothing should not be allowed out of the workplace. Remove contaminated clothing and protective equipment before entering eating areas. Remove and wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	viscous liquid
Colour	:	blue
Odour	:	solvent-like
pH	:	Substance/mixture is non-polar/aprotic.
Flash point	:	230 °F / 110 °C Method: closed cup
Density	:	2.2 g/cm³ (68 °F / 20 °C)
Solubility(ies)		
Water solubility	:	slightly soluble (68 °F / 20 °C)
Viscosity		
Viscosity, dynamic	:	> 100 mPa.s (68 °F / 20 °C)
Viscosity, kinematic	:	> 20.5 mm2/s (104 °F / 40 °C) estimated

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	:	Polymerization will not occur. Stable at normal temperatures and storage conditions.
Conditions to avoid	:	None reasonably foreseeable.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity : Acute toxicity estimate: 931.41 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Components:

Quartz:

Acute oral toxicity : LD50 (Rat): > 11,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Acute oral toxicity : LD50 (Rat): 6,500 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 15,200 mg/kg

1-Phenoxypropan-2-ol:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.4 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Amines, N-tallow alkyltrimethylenedi-, oleates:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Barium:

Acute oral toxicity : LD50 (Rat): 132 mg/kg
Target Organs: Cardio-vascular system
Symptoms: Cardiovascular system effects

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Barium:

Acute oral toxicity : LD50 (Rat): 132 mg/kg
Target Organs: Cardio-vascular system
Symptoms: Cardiovascular system effects

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Quartz:

Acute oral toxicity : LD50 (Rat): > 11,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Silicon:

Acute oral toxicity : LD50 (Rat): 3,160 mg/kg

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Dimethyl phthalate:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rabbit): > 12,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Acute oral toxicity : LD50 (Rat): 6,500 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 15,200 mg/kg

1-Phenoxypropan-2-ol:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.4 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Aluminum:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: Effects of breathing high concentration of respirable particles may include:
Respiratory tract damage
Lung damage

Acute dermal toxicity : Remarks: No data available

Zirconium:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

Skin corrosion/irritation

Not classified due to lack of data.

Components:

Quartz:

Species : Rabbit
Assessment : No skin irritation
Result : No skin irritation

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Species : Rabbit
Assessment : Irritating to skin.
Result : Mild skin irritation

1-Phenoxypropan-2-ol:

Species : Rabbit
Assessment : Not classified as irritant
Method : OECD Test Guideline 404
Result : No skin irritation

Amines, N-tallow alkyltrimethylenedi-, oleates:

Species : Not tested on animals
Assessment : Corrosive
Result : Causes burns.

Barium:

Species : animals (unspecified species)
Result : Mild skin irritation
Remarks : Irritant

Barium:

Species	:	animals (unspecified species)
Result	:	Mild skin irritation
Remarks	:	Irritant

Quartz:

Species	:	Rabbit
Assessment	:	No skin irritation
Result	:	No skin irritation

Silicon:

Remarks	:	No data available

Dimethyl phthalate:

Species	:	Rabbit
Assessment	:	No skin irritation
Result	:	Slight or no skin irritation
Remarks	:	Minimal effects that do not meet the threshold for classification.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Species	:	Rabbit
Assessment	:	Irritating to skin.
Result	:	Mild skin irritation

1-Phenoxypropan-2-ol:

Species	:	Rabbit
Assessment	:	Not classified as irritant
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Aluminum:

Remarks	:	No data available

Zirconium:

Remarks	:	No data available

Serious eye damage/eye irritation

Not classified due to lack of data.

Components:

Quartz:

Species	:	Rabbit
Result	:	Slight or no eye irritation
Assessment	:	No eye irritation
Remarks	:	Minimal effects that do not meet the threshold for classification.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Species	:	Rabbit
Result	:	Mild eye irritation
Assessment	:	Irritating to eyes.
Method	:	OECD Test Guideline 405

1-Phenoxypropan-2-ol:

Species	:	Rabbit
Result	:	Severe eye irritation
Assessment	:	Irritating to eyes.
Method	:	Directive 67/548/EEC, Annex V, B.5.

Amines, N-tallow alkyltrimethylenedi-, oleates:

Species	:	Not tested on animals
Result	:	Corrosive
Assessment	:	Corrosive

Barium:

Species	:	Rabbit
Result	:	Severe eye irritation
Remarks	:	Irritant

Barium:

Species	:	Rabbit
Result	:	Severe eye irritation
Remarks	:	Irritant

Quartz:

Species	:	Rabbit
Result	:	Slight or no eye irritation
Assessment	:	No eye irritation
Remarks	:	Minimal effects that do not meet the threshold for classification.

Silicon:

Species	:	Rabbit
Remarks	:	slight irritation

Dimethyl phthalate:

Species	:	Rabbit
Result	:	Slight or no eye irritation
Assessment	:	No eye irritation
Method	:	OECD Test Guideline 405
Remarks	:	Minimal effects that do not meet the threshold for classification.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Species	:	Rabbit
Result	:	Mild eye irritation
Assessment	:	Irritating to eyes.

Method : OECD Test Guideline 405

1-Phenoxypropan-2-ol:

Species : Rabbit
Result : Severe eye irritation
Assessment : Irritating to eyes.
Method : Directive 67/548/EEC, Annex V, B.5.

Aluminum:

Remarks : No data available

Zirconium:

Remarks : No data available

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Components:

Quartz:

Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Result : Does not cause skin sensitisation.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Method : Directive 67/548/EEC, Annex V, B.6.
Result : Does not cause skin sensitisation.

1-Phenoxypropan-2-ol:

Test Type : Modified Buehler Test
Species : Guinea pig
Assessment : Not a skin sensitizer.
Method : OECD Test Guideline 406
Result : Did not cause sensitisation on laboratory animals.

Barium:

Remarks : No data available

Barium:

Remarks : No data available

Quartz:

Species : Guinea pig

Assessment : Does not cause skin sensitisation.
Result : Does not cause skin sensitisation.

Silicon:

Remarks : No data available

Dimethyl phthalate:

Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Result : Does not cause skin sensitisation.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Method : Directive 67/548/EEC, Annex V, B.6.
Result : Does not cause skin sensitisation.

1-Phenoxypropan-2-ol:

Test Type : Modified Buehler Test
Species : Guinea pig
Assessment : Not a skin sensitizer.
Method : OECD Test Guideline 406
Result : Did not cause sensitisation on laboratory animals.

Aluminum:

Remarks : No data available

Zirconium:

Remarks : No data available

Germ cell mutagenicity

Not classified due to lack of data.

Components:

Quartz:

Germ cell mutagenicity - Assessment : Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others., Genetic damage in animals was observed in some laboratory tests but not in others.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects., Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Information given is based on data obtained from similar substances.

1-Phenoxypropan-2-ol:

Germ cell mutagenicity - Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic

effects.

Quartz:

Germ cell mutagenicity - Assessment : Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others., Genetic damage in animals was observed in some laboratory tests but not in others.

Dimethyl phthalate:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects., Did not cause genetic damage in cultured bacterial cells., Genetic damage in cultured mammalian cells was observed in one laboratory test but was not observed in others.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects., Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Information given is based on data obtained from similar substances.

1-Phenoxypropan-2-ol:

Germ cell mutagenicity - Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.

Carcinogenicity

May cause cancer.

Components:

Quartz:

Carcinogenicity - Assessment : Human carcinogen., An increased risk of cancer in humans has been shown in workplace-based studies.

Quartz:

Carcinogenicity - Assessment : Human carcinogen., An increased risk of cancer in humans has been shown in workplace-based studies.

Dimethyl phthalate:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen, Overall weight of evidence indicates that the substance is not carcinogenic.

IARC	Group 1: Carcinogenic to humans Quartz (Silica dust, crystalline)	 14808-60-7
OSHA	OSHA specifically regulated carcinogen Quartz (crystalline silica)	 14808-60-7

NTP	Known to be human carcinogen Quartz (Silica, Crystalline (Respirable Size))	14808-60-7

Reproductive toxicity

Not classified due to lack of data.

Components:

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Reproductive toxicity - Assessment : No toxicity to reproduction, Animal testing showed no reproductive toxicity.
Animal testing showed no developmental toxicity.

1-Phenoxypropan-2-ol:

Reproductive toxicity - Assessment : No toxicity to reproduction, Animal testing showed no reproductive toxicity.
Animal testing showed no developmental toxicity.

Dimethyl phthalate:

Reproductive toxicity - Assessment : No toxicity to reproduction, Animal testing showed no reproductive toxicity., No effects on or via lactation, Information given is based on data obtained from similar substances.
Animal testing showed no developmental toxicity.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Reproductive toxicity - Assessment : No toxicity to reproduction, Animal testing showed no reproductive toxicity.
Animal testing showed no developmental toxicity.

1-Phenoxypropan-2-ol:

Reproductive toxicity - Assessment : No toxicity to reproduction, Animal testing showed no reproductive toxicity.
Animal testing showed no developmental toxicity.

STOT - single exposure

Not classified due to lack of data.

Components:

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

1-Phenoxypropan-2-ol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

1-Phenoxypropan-2-ol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

Causes damage to organs (Lungs) through prolonged or repeated exposure.

Components:

Quartz:

Target Organs : Lungs
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

1-Phenoxypropan-2-ol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Quartz:

Target Organs : Lungs
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Dimethyl phthalate:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

1-Phenoxypropan-2-ol:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

Quartz:

Species : multiple species
Application Route : Inhalation
Test atmosphere : dust/mist
Target Organs : Lungs

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Species	:	Rat
Application Route	:	Oral
Remarks	:	No toxicologically significant effects were found.

1-Phenoxypropan-2-ol:

Species	:	Rat
Application Route	:	Oral - drinking water
Remarks	:	No toxicologically significant effects were found.

Species	:	Rabbit
Application Route	:	Dermal
Remarks	:	No toxicologically significant effects were found.

Barium:

Species	:	multiple species
Application Route	:	Oral
Remarks	:	kidney effects

Barium:

Species	:	multiple species
Application Route	:	Oral
Remarks	:	kidney effects

Quartz:

Species	:	multiple species
Application Route	:	Inhalation
Test atmosphere	:	dust/mist
Target Organs	:	Lungs

Silicon:

Remarks	:	No data available

Dimethyl phthalate:

Species	:	Rat
NOAEL	:	770 mg/kg
Application Route	:	Ingestion
Exposure time	:	112 d
Method	:	OECD Test Guideline 408
Remarks	:	No toxicologically significant effects were found. Information given is based on data obtained from similar substances.

Species	:	Mouse
NOAEL	:	2,700 mg/kg
Application Route	:	Skin contact
Exposure time	:	365 d
Method	:	OECD Test Guideline 453
Remarks	:	No toxicologically significant effects were found.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Species	:	Rat
Application Route	:	Oral
Remarks	:	No toxicologically significant effects were found.

1-Phenoxypropan-2-ol:

Species	:	Rat
Application Route	:	Oral - drinking water
Remarks	:	No toxicologically significant effects were found.

Species	:	Rabbit
Application Route	:	Dermal
Remarks	:	No toxicologically significant effects were found.

Aluminum:

Species	:	Human
Application Route	:	Inhalation
Remarks	:	Respiratory tract damage Lung damage

Zirconium:

Remarks	:	No data available

Aspiration toxicity

Not classified due to lack of data.

Components:

Quartz:

No aspiration toxicity classification

1-Phenoxypropan-2-ol:

No aspiration toxicity classification

Quartz:

No aspiration toxicity classification

1-Phenoxypropan-2-ol:

No aspiration toxicity classification

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Quartz:

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic effects cannot be excluded

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 33 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 147.8 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 15 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 7.28 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

1-Phenoxypropan-2-ol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 280 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 370 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Method: Directive 67/548/EEC, Annex V, C.3.

Amines, N-tallow alkyltrimethylenedi-, oleates:

Toxicity to fish	:	LC50 (Fish (unspecified species)): 0.1 - 1 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.001 - 0.01 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (algae): 0.01 - 0.1 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	100

Barium:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae/aquatic plants	:	Remarks: No data available

Barium:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae/aquatic plants	:	Remarks: No data available

Quartz:

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic effects cannot be excluded

Silicon:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae/aquatic plants	:	Remarks: No data available

Dimethyl phthalate:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 39 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 33 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Desmodesmus subspicatus (green algae)): 259.76 mg/l Exposure time: 72 h Method: DIN 38412 EC10 (Desmodesmus subspicatus (green algae)): 193.09 mg/l Exposure time: 72 h
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 11 mg/l Exposure time: 102 d Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 9.6 mg/l Exposure time: 21 d

Ecotoxicology Assessment

Acute aquatic toxicity	:	Harmful to aquatic life.
Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 33 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other	:	LC50 (Daphnia magna (Water flea)): 147.8 mg/l

aquatic invertebrates		Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 15 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (green algae)): 7.28 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

1-Phenoxypropan-2-ol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 280 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 370 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l Exposure time: 72 h Method: Directive 67/548/EEC, Annex V, C.3.

Aluminum:

Toxicity to fish	:	NOEC (Salmo trutta (brown trout)): > 100 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	NOEC (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	NOEC (Scenedesmus capricornutum (fresh water algae)): > 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

Zirconium:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae/aquatic plants	:	Remarks: No data available

Persistence and degradability

Components:

Quartz:

Biodegradability	:	Result: Not biodegradable

Remarks: Not applicable

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Biodegradability : Result: Biodegradable
Method: OECD Test Guideline 301

1-Phenoxypropan-2-ol:

Biodegradability : Biodegradation: 72 %
Exposure time: 28 d
Method: OECD Test Guideline 301
Remarks: Readily biodegradable.

Amines, N-tallow alkyltrimethylenedi-, oleates:

Biodegradability : Remarks: Readily biodegradable.

Quartz:

Biodegradability : Result: Not biodegradable
Remarks: Not applicable

Dimethyl phthalate:

Biodegradability : Result: Biodegradable
Method: OECD Test Guideline 301

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Biodegradability : Result: Biodegradable
Method: OECD Test Guideline 301

1-Phenoxypropan-2-ol:

Biodegradability : Biodegradation: 72 %
Exposure time: 28 d
Method: OECD Test Guideline 301
Remarks: Readily biodegradable.

Bioaccumulative potential

Components:

Quartz:

Bioaccumulation : Remarks: Not applicable

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Partition coefficient: n-octanol/water : log Pow: 3.2
pH: 7

1-Phenoxypropan-2-ol:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Amines, N-tallow alkyltrimethylenedi-, oleates:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Quartz:

Bioaccumulation : Remarks: Not applicable

Dimethyl phthalate:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: 1.54 (77 °F / 25 °C)

Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol:

Partition coefficient: n-octanol/water : log Pow: 3.2
pH: 7

1-Phenoxypropan-2-ol:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : No data is available on the product itself.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : If recycling is not practicable, dispose of in compliance with local regulations.
Do not reuse empty container.Never place unused product down any indoor or out door drain.
Contaminated/not cleaned containers should be treated/handled like product waste.Dispose of container properly.Refer to applicable Local, State/Provincial, and Federal Regulations, as well as industry Standards.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fatty acid salts of Polyamines)
Class	:	9
Packing group	:	III
Labels	:	9
Environmentally hazardous	:	no

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fatty acid salts of Polyamines)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fatty acid salts of Polyamines)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	no

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR

Not regulated as a dangerous good

Special precautions for user

Remarks	:	Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA special provision A197, and ADR/RID special provision 375.

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards	:	Acute toxicity (any route of exposure) Carcinogenicity Specific target organ toxicity (single or repeated exposure)

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Barium	7440-39-3	>= 10 - < 20 %
Dimethyl phthalate	131-11-3	>= 5 - < 10 %
C.I. Pigment Blue 28	1345-16-0	>= 1 - < 5 %

California Prop. 65

WARNING: This product can expose you to chemicals including Quartz, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Regulated Carcinogens

Quartz	14808-60-7

TSCA list

In compliance with TSCA-active Inventory requirements for commercial purposes.

The following substance(s) is/are subject to a Significant New Use Rule:

Bis(2-butoxyethyl) ether	112-73-2	See 40 CFR § 721.10229; Final Rule See 40 CFR § 721.10229; Proposed Rule

The following substance(s) is/are subject to TSCA 12(b) export notification requirements:

Bis(2-butoxyethyl) ether	112-73-2
Zinc	7440-66-6

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA CARC	:	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	:	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA CARC / PEL	:	Permissible exposure limit (PEL)
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit

OSHA Z-1 / TWA : 8-hour time weighted average
OSHA Z-3 / TWA : 8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; 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; TECI - Thailand Existing Chemicals 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

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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