SAFETY DATA SHEET

5704J MICROMAX™ DIELECTRIC PASTE

Version	Revision Date:	SDS Number:	Date of last issue: 04-12-2024
8.0	07-27-2025	300000000238	Date of first issue: 01-29-2024

SECTION 1. IDENTIFICATION

Product name : 5704J MICROMAX™ DIELECTRIC PASTE

Product code : 000000000027046238

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)

Flammable liquids : Category 4

Eye irritation : Category 2A

Germ cell mutagenicity : Category 2

Carcinogenicity : Category 2

Reproductive toxicity : Category 1A

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

Other hazards

None known.

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H227 Combustible liquid.
H319 Causes serious eye irritation.
H341 Suspected of causing genetic defects.
H351 Suspected of causing cancer.
H360 May damage fertility or the unborn child.
H372 Causes damage to organs (Blood) through prolonged or repeated exposure if swallowed.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
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/ hearing protection.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 Store in a well-ventilated place.
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)
Calcium zirconium trioxide	12013-47-7	>= 10 - < 20
Aluminum oxide	1344-28-1	>= 10 - < 20
Isobutyric acid, monoester with 2,2,4-trimethylpentane-1,3-diol	25265-77-4	>= 1 - < 10
Bis(2-butoxyethyl) ether	112-73-2	>= 1 - < 10
Pine oil	8002-09-3	>= 1 - < 10

Glass or Ceramic ingredient(s) Silicon, Lead		30 - 40%

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 delayed	:	Causes serious eye irritation. Suspected of causing genetic defects. Suspected of causing cancer. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure if swallowed.

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 fire-fighting	:	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
Calcium zirconium trioxide	12013-47-7	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	NIOSH REL

			(Zirconium)	
Aluminum oxide	1344-28-1	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
		TWA (Respirable particulate matter)	1 mg/m3 (Aluminium)	ACGIH
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
Lead	7439-92-1	TWA	0.05 mg/m3 (Lead)	ACGIH
		PEL	0.05 mg/m3 (Lead)	OSHA CARC
		TWA	0.05 mg/m3 (Lead)	NIOSH REL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Lead	7439-92-1	Lead (Lead)	In blood	Not critical	200 µg/l	ACGIH BEI

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 : camphor

Flash point : 169 °F / 76 °C

Method: Setaflash closed cup - SCC

Density : 2.3 g/cm³ (68 °F / 20 °C)

Solubility(ies)
- Water solubility : slightly soluble (68 °F / 20 °C)

Viscosity
- Viscosity, dynamic : > 100 Pa.s (77 °F / 25 °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.
Incompatible materials	:	Acids
Hazardous decomposition products	:	No decomposition if stored and applied as directed. Under fire conditions: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: > 20 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

Components:

Aluminum oxide:

Acute oral toxicity	:	LD50 (Rat): > 10,000 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50 (Rat): > 5.09 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Remarks: Information given is based on data obtained from similar substances.

Silicon:

Acute oral toxicity	:	LD50 (Rat): 3,160 mg/kg
Acute inhalation toxicity	:	Remarks: No data available
Acute dermal toxicity	:	Remarks: No data available

Lead:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Information given is based on data obtained from similar substances.

Acute inhalation toxicity : LC50 (Rat): > 5.05 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Information given is based on data obtained from similar substances.

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Information given is based on data obtained from similar substances.

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

Pine oil:

Acute oral toxicity : LD50 (Rat): 4,118 mg/kg
Target Organs: Respiratory Tract
Remarks: Respiratory effects

Acute dermal toxicity : LD50 (Rabbit): > 3,000 mg/kg
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

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

Skin corrosion/irritation

Not classified due to lack of data.

Components:

Aluminum oxide:

Species	:	Rabbit
Assessment	:	No skin irritation
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Silicon:

Remarks	:	No data available

Lead:

Species	:	Rabbit
Assessment	:	Not classified as irritant
Method	:	OECD Test Guideline 404
Result	:	No skin irritation
Remarks	:	Information given is based on data obtained from similar substances.

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

Pine oil:

Species	:	Rabbit
Assessment	:	Irritating to skin.

Result : Skin irritation

Aluminum:

Remarks : No data available

1-Phenoxypropan-2-ol:

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

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

Aluminum oxide:

Species : Rabbit
Result : No eye irritation
Assessment : No eye irritation

Silicon:

Species : Rabbit
Remarks : slight irritation

Lead:

Species : Rabbit
Result : No eye irritation
Assessment : Not classified as irritant
Method : OECD Test Guideline 405
Remarks : Information given is based on data obtained from similar substances.

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

Pine oil:

Species : Rabbit
Result : Eye irritation

Assessment : Irritating to eyes.

Aluminum:

Remarks : No data available

1-Phenoxypropan-2-ol:

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

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Components:

Aluminum oxide:

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

Silicon:

Remarks : No data available

Lead:

Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.
Remarks : Information given is based on data obtained from similar substances.

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.

Pine oil:

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

Result : Does not cause skin sensitisation.

Aluminum:

Remarks : No data available

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.

Germ cell mutagenicity

Suspected of causing genetic defects.

Components:

Aluminum oxide:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects., Did not cause genetic damage in cultured mammalian cells.

Lead:

Germ cell mutagenicity - Assessment : In vitro tests showed mutagenic effects, Genetic damage in cultured mammalian cells 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.

Pine oil:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects., Did not cause genetic damage in cultured mammalian cells.

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

Suspected of causing cancer.

Components:

Aluminum oxide:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen., Overall weight of evidence indicates that the substance is not carcinogenic.

Lead:

Carcinogenicity - Assessment : Suspected human carcinogens, An increased incidence of tumours was observed in laboratory animals., Information given is based on data obtained from similar substances.

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.

Pine oil:

Carcinogenicity - Assessment : Not classifiable as a human carcinogen., Animal testing did not show any carcinogenic effects., Information given is based on data obtained from similar substances.

IARC	Group 2B: Possibly carcinogenic to humans	
	Lead	7439-92-1
OSHA	OSHA specifically regulated carcinogen	
	Lead	7439-92-1
	(Lead and inorganic lead compounds)	
NTP	Reasonably anticipated to be a human carcinogen	
	Lead	7439-92-1

Reproductive toxicity

May damage fertility or the unborn child.

Components:

Aluminum oxide:

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

Lead:

Reproductive toxicity - Assessment : Known human reproductive toxicant, Reduced fertility, Information given is based on data obtained from similar substances.
Delayed foetal development (variations), Information given is based on data obtained from similar substances.

Dimethyl phthalate:

Reproductive toxicity - As- : No toxicity to reproduction, Animal testing showed no repro-

sessment | ductive 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.

Pine oil:

Reproductive toxicity - Assessment : No toxicity to reproduction, Animal testing showed no reproductive toxicity., Information given is based on data obtained from similar substances.
Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal 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:

Aluminum oxide:

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

Lead:

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.

Pine oil:

Target Organs : Respiratory system
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

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 (Blood) through prolonged or repeated exposure if swallowed.

Components:

Aluminum oxide:

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

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.

Pine oil:

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:

Aluminum oxide:

Species	:	Rat
NOAEL	:	141 mg/kg
Application Route	:	Ingestion
Exposure time	:	28 d
Method	:	see user defined free text
Remarks	:	No toxicologically significant effects were found. Information given is based on data obtained from similar sub-stances.

Species	:	Rat
Application Route	:	Inhalation
Test atmosphere	:	dust/mist
Exposure time	:	90 d
Method	:	OECD Test Guideline 413
Remarks	:	No toxicological effects warranting significant target organ toxicity classification were seen below the recommended guidance values for classification.

Silicon:

Remarks : No data available

Lead:

Species	:	Rat
LOAEL	:	200

Application Route	:	Oral
Target Organs	:	Blood
Assessment	:	The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.
Remarks	:	altered blood chemistry Information given is based on data obtained from similar substances.

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.

Pine oil:

Species	:	Rat
Application Route	:	Inhalation
Remarks	:	No toxicologically significant effects were found. Information given is based on data obtained from similar substances.

Aluminum:

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

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.

Aspiration toxicity

Not classified due to lack of data.

Components:

Calcium zirconium trioxide:

No aspiration toxicity classification

Aluminum oxide:

No aspiration toxicity classification

Lead:

No aspiration toxicity classification

Pine oil:

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

1-Phenoxypropan-2-ol:

No aspiration toxicity classification

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Calcium zirconium trioxide:

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic effects cannot be excluded

Aluminum oxide:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): Exposure time: 96 h Remarks: Aquatic toxicity is unlikely due to low solubility. Information given is based on data obtained from similar substances.
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Ceriodaphnia dubia (water flea)): Exposure time: 48 h Remarks: Aquatic toxicity is unlikely due to low solubility. Information given is based on data obtained from similar substances.
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Aquatic toxicity is unlikely due to low solubility. Information given is based on data obtained from similar substances.

NOEC (Pseudokirchneriella subcapitata (green algae)): Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Aquatic toxicity is unlikely due to low solubility.

Ecotoxicology Assessment

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

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

Lead:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.107 mg/l Exposure time: 96 h Remarks: Information given is based on data obtained from similar substances.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Ceriodaphnia dubia (water flea)): 0.597 mg/l Exposure time: 48 h Remarks: Information given is based on data obtained from similar substances.
Toxicity to algae/aquatic plants	:	NOEC (algae): 0.0227 mg/l Exposure time: 96 h Remarks: Information given is based on data obtained from similar substances.
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 0.02 mg/l Exposure time: 30 d Remarks: Information given is based on data obtained from similar substances.

Ecotoxicology Assessment

Acute aquatic toxicity	:	Very toxic to aquatic life.
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

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 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

Pine oil:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 18 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 24 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 15 mg/l
Exposure time: 72 h
Remarks: Information given is based on data obtained from similar substances.

NOEC (Selenastrum capricornutum (green algae)): 3.3 mg/l
Exposure time: 72 h
Remarks: Information given is based on data obtained from similar substances.

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

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.

Persistence and degradability

Components:

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

Pine oil:

Biodegradability	:	Result: Not biodegradable

1-Phenoxypropan-2-ol:

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

Bioaccumulative potential

Components:

Aluminum oxide:

Bioaccumulation : Remarks: The substance has the potential to bioaccumulate. Information given is based on data obtained from similar substances.

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

Pine oil:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

1-Phenoxypropan-2-ol:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Mobility in soil

No data available

Other adverse effects

No data available

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
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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 : Regulated by DOT/49CFR as Combustible Liquid when transported in a bulk package (>=119 gallons(450 litres))., Not regulated by DOT in non-bulk package.

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 : Flammable (gases, aerosols, liquids, or solids)
Germ cell mutagenicity
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation

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

Aluminum oxide	1344-28-1
Lead	7439-92-1
Dimethyl phthalate	131-11-3
C.I. Pigment Blue 28	1345-16-0

California Prop. 65

WARNING: This product can expose you to chemicals including Lead, 2,2'-Iminodiethanol, which is/are known to the State of California to cause cancer, and
Lead, which is/are known to the State of California to cause birth defects or other reproductive harm.
For more information go to www.P65Warnings.ca.gov.

California Regulated Carcinogens

Lead	7439-92-1

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
Lead	7439-92-1

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
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
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

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 Substanc-

es; (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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