SAFETY DATA SHEET

8173 MICROMAX™ DIELECTRIC PASTE

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	06-17-2025	300000005706	Date of first issue: 06-17-2025

SECTION 1. IDENTIFICATION

Product name : 8173 MICROMAX™ DIELECTRIC PASTE

Product code : 000000000027047933

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

Other hazards

None known.

GHS label elements

Signal word : Warning

Hazard statements : H227 Combustible liquid.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

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.

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)
Barium titanium trioxide	12047-27-7	>= 30 - < 40
1,1,3,3-Tetramethylurea	632-22-4	>= 20 - < 30
Titanium dioxide	13463-67-7	>= 10 - < 20
Triethyl Phosphate	78-40-0	>= 1 - < 10

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 : None known.

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	Control parame-	Basis

		(Form of exposure)	ters / Permissible concentration	
Titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m3	OSHA Z-1
		TWA (Total dust)	10 mg/m3	OSHA P0
Triethyl Phosphate	78-40-0	TWA	7.45 mg/m3	US WEEL

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	:	white
Odour	:	slight
Flash point	:	180 °F / 82 °C Method: Setaflash closed cup - SCC
Density	:	1.82 g/cm³ (68 °F / 20 °C)
Solubility(ies) Water solubility	:	slightly soluble

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	:	The product is chemically stable under recommended conditions of storage, use and temperature.
Possibility of hazardous reactions	:	No applicable data available.
Conditions to avoid	:	To avoid thermal decomposition, do not overheat.
Incompatible materials	:	Acids Oxidizing agents
Hazardous decomposition products	:	No decomposition if stored and applied as directed. Hazardous thermal decomposition products may include: Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Fluorinated compounds Hydrogen fluoride

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity	:	Acute toxicity estimate: 2,641 mg/kg Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

Components:

1,1,3,3-Tetramethylurea:

Acute oral toxicity	:	LD50 (Rat): 794 mg/kg Remarks: central nervous system effects

Acute dermal toxicity : LD50 (Rabbit): 3,160 mg/kg

Titanium dioxide:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.09 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Triethyl Phosphate:

Acute oral toxicity : LD50 (Rat): 1,165 mg/kg
Target Organs: Central nervous system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.
Remarks: central nervous system effects

Acute inhalation toxicity : LC50 (Rat): > 8.817 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 20,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified due to lack of data.

Components:

Titanium dioxide:

Species : Rabbit
Assessment : No skin irritation
Method : OECD Test Guideline 404
Result : Slight or no skin irritation
Remarks : Minimal effects that do not meet the threshold for classification.

Triethyl Phosphate:

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

Serious eye damage/eye irritation

Not classified due to lack of data.

Components:

Titanium dioxide:

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.

Triethyl Phosphate:

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

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Components:

Titanium dioxide:

Species	:	Guinea pig
Assessment	:	Does not cause skin sensitisation.
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.

Species	:	Mouse
Assessment	:	Does not cause respiratory sensitisation.
Result	:	Does not cause respiratory sensitisation.

Triethyl Phosphate:

Species	:	Mouse
Assessment	:	Does not cause skin sensitisation.
Method	:	OECD Test Guideline 429
Result	:	Does not cause skin sensitisation.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

Titanium dioxide:

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

Triethyl Phosphate:

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

Carcinogenicity

Not classified due to lack of data.

Components:

Titanium dioxide:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen, Tumors were observed in laboratory animals, yet are not considered relevant to humans.

IARC Group 2B: Possibly carcinogenic to humans
Titanium dioxide 13463-67-7

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified due to lack of data.

Components:

Titanium dioxide:

Reproductive toxicity - Assessment : No toxicity to reproduction, Animal testing showed no reproductive toxicity., Animal testing did not show any effects on fertility.
Animal testing showed no developmental toxicity.

Triethyl Phosphate:

Reproductive toxicity - Assessment : No toxicity to reproduction, Animal testing showed no reproductive toxicity.
Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

STOT - single exposure

Not classified due to lack of data.

Components:

Titanium dioxide:

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

Triethyl Phosphate:

Target Organs : Central nervous system
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT - repeated exposure

Not classified due to lack of data.

Components:

Titanium dioxide:

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

Triethyl Phosphate:

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

Repeated dose toxicity

Components:

Titanium dioxide:

Species	:	Rat
NOAEL	:	> 1,000 mg/kg
Application Route	:	Ingestion
Exposure time	:	90 d
Method	:	OECD Test Guideline 408
Remarks	:	No toxicologically significant effects were found.

Triethyl Phosphate:

Species	:	Rat
NOAEL	:	1,000 mg/kg
Application Route	:	Oral
Remarks	:	No toxicologically significant effects were found.

Aspiration toxicity

Not classified due to lack of data.

Components:

Titanium dioxide:

No aspiration toxicity classification

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

1,1,3,3-Tetramethylurea:

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic effects cannot be excluded

Titanium dioxide:

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	NOEC (Lemna minor (duckweed)): 100 mg/l Exposure time: 7 d Method: OECD Test Guideline 221
Toxicity to fish (Chronic toxicity)	:	NOEC (Danio rerio (zebra fish)): 160 mg/l Exposure time: 6 d Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 5 mg/l Exposure time: 21 d Method: OECD Test Guideline 211

Ecotoxicology Assessment

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

Triethyl Phosphate:

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): > 100 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 901 mg/l Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 31.6 mg/l Exposure time: 21 d Method: OECD Test Guideline 211

Ecotoxicology Assessment

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

Persistence and degradability

Components:

Titanium dioxide:

Biodegradability	:	Result: Not biodegradable Remarks: Not applicable

Triethyl Phosphate:

Biodegradability	:	Result: Biodegradable

Bioaccumulative potential

Components:

Titanium dioxide:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Triethyl Phosphate:

Partition coefficient: n-octanol/water : log Pow: 0.8

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
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)

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

Barium titanium trioxide	12047-27-7

TSCA list

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

No substances are subject to a Significant New Use Rule.

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

Polyvinylidenefluoride/hexafluoropropene	9011-17-0

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

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
US WEEL	:	USA. Workplace Environmental Exposure Levels (WEEL)
OSHA P0 / TWA	:	8-hour time weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average
US WEEL / TWA	:	8-hr TWA

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

Revision Date : 06-17-2025

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