

Safety Data Sheet

according to 1907/2006/EC, Article 31

Ena Tender Paste Opaquer / -Bond Opaquer

Revision date: 13.08.2024

Product code: sd316-E

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Ena Tender Paste Opaquer / -Bond Opaquer

Further trade names

Art.-Nr.: ETOL / -D / -P / THOP

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**

Plating agent

1.3. Details of the supplier of the safety data sheet

Company name: Micerium S.p.A.
Street: Via G. Marconi, 83
Place: I-16036 Avegno (GE), Italy
Telephone: +39-0185-7887870
E-mail: quality@micerium.it
Contact person: Dr. Eugenio Miceli
Internet: www.micerium.com
Responsible Department: Dr. Eugenio Miceli

1.4. Emergency telephone number:

Ospedale San Martino Centro Antiveleni (Genoa, Italy) Tel.: +39-010-35-2808
(disp. h. 24/24)

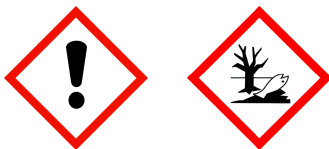
SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****CLP Regulation**

Acute Tox. 4; H332
Skin Sens. 1; H317
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements**CLP Regulation****Hazard components for labelling**

di-urethane dimethacrylate
2-[[[butylamino)carbonyl]oxy]ethyl acrylate
tetramethylene dimethacrylate
diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide

Signal word: Warning**Pictograms:****Hazard statements**

H317 May cause an allergic skin reaction.
H332 Harmful if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves.
P304 IF INHALED:

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P340 Remove person to fresh air and keep comfortable for breathing.
 P312 Call a POISON CENTER/doctor if you feel unwell.
 P501 Dispose of contents/container to Dispose of waste according to applicable legislation..

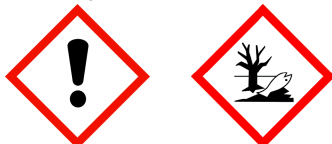
Special labelling of certain mixtures

EUH212 Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

Labelling of packages where the contents do not exceed 125 ml

Signal word: Warning

Pictograms:

**Hazard statements**

H317

Precautionary statements

P261-P280-P501

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Relevant ingredients**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (CLP Regulation)			
41137-60-4	di-urethane dimethacrylate			25 - < 50 %
	Skin Sens. 1B, Aquatic Chronic 2; H317 H411			
63225-53-6	2-[[[butylamino)carbonyl]oxy]ethyl acrylate			2.5 - < 10 %
	Acute Tox. 4, Skin Sens. 1A, Aquatic Chronic 2; H332 H317 H411			
2082-81-7	tetramethylene dimethacrylate			2.5 - < 10 %
	218-218-1	607-134-00-4		
	Skin Sens. 1B; H317			
75980-60-8	diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide			< 2.5 %
	278-355-8	015-203-00-X		
	Repr. 2, Skin Sens. 1B, Aquatic Chronic 2; H361f H317 H411			
10373-78-1	dl-bornane-2,3-dione			< 2.5 %
	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3; H315 H319 H335			
13463-67-7	titanium dioxide			< 2.5 %
	236-675-5	022-006-00-2		
	Carc. 2; H351			

Full text of H and EUH statements: see section 16.

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Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
63225-53-6		2-[[[(butylamino)carbonyl]oxy]ethyl acrylate	2.5 - < 10 %
		inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists)	
75980-60-8	278-355-8	diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide	< 2.5 %
		dermal: LD50 = >2.000 mg/kg mg/kg; oral: LD50 = >5.000 mg/kg mg/kg	
13463-67-7	236-675-5	titanium dioxide	< 2.5 %
		dermal: LD50 = >10.000 mg/kg mg/kg; oral: LD50 = >20.000 mg/kg mg/kg	

SECTION 4: First aid measures**4.1. Description of first aid measures****After inhalation**

Provide fresh air. When in doubt or if symptoms are observed, get medical advice.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. In case of skin irritation, consult a physician.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. Consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink 1 glass of of water. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**

Water spray jet
Carbon dioxide (CO₂)
Extinguishing powder
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Non-flammable.

5.3. Advice for firefighters

Use suitable breathing apparatus. Do not inhale explosion and combustion gases.

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately.
Do not allow entering drains or surface water.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****General advice**

Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray.

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6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For cleaning up

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Local and general ventilation

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Always close containers tightly after the removal of product. Protect against: Light

Recommended storage temperature 10 - 25 °C

Hints on joint storage

No special measures are necessary.

7.3. Specific end use(s)

Plating agent

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
13463-67-7	Titanium dioxide, total inhalable	-	10		TWA (8 h)	WEL

8.2. Exposure controls



Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

Tested protective gloves must be worn

Butyl caoutchouc (butyl rubber)

NBR (Nitrile rubber)

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Permeation time (maximum wear duration): 0,3 mm: 60 min.

Permeation time (maximum wear duration): 0,11 mm: 10 min.

Skin protection

Use of protective clothing.

Respiratory protection

Usually no personal respirative protection necessary.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:

Colour:

Melting point/freezing point:

Boiling point or initial boiling point and

boiling range:

Flammability:

Lower explosion limits:

Upper explosion limits:

Flash point:

Auto-ignition temperature:

Decomposition temperature:

pH-Value:

Viscosity / kinematic:

Water solubility:

Solubility in other solvents

not determined

Partition coefficient n-octanol/water:

Vapour pressure:

Density:

Relative vapour density:

Particle characteristics:

Test method

not determined

251 °C

not determined

not determined

not determined

151 °C

> 370 °C

not determined

not determined

not applicable

No

not determined

not determined

not determined

not determined

not determined

9.2. Other information**Information with regard to physical hazard classes**

Explosive properties

The product is not: Explosive.

Self-ignition temperature

Oxidizing properties

The product is not: oxidising.

ISO/IEC 80079-20-1

SECTION 10: Stability and reactivity**10.1. Reactivity**

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Hazardous polymerisation:

10.4. Conditions to avoid

none

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10.5. Incompatible materials

Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in CLP Regulation

Acute toxicity

Harmful if inhaled.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
63225-53-6	2-[[[(butylamino)carbonyl]oxy]ethyl acrylate				
	inhalation vapour	ATE 11 mg/l			
	inhalation dust/mist	ATE 1,5 mg/l			
75980-60-8	diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide				
	oral	LD50 >5.000 mg/kg mg/kg			
	dermal	LD50 >2.000 mg/kg mg/kg			
13463-67-7	titanium dioxide				
	oral	LD50 >20.000 mg/kg mg/kg			
	dermal	LD50 >10.000 mg/kg mg/kg			

Irritation and corrosivity

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.

Sensitising effects

May cause an allergic skin reaction. (di-urethane dimethacrylate; 2-[[[(butylamino)carbonyl]oxy]ethyl acrylate; tetramethylene dimethacrylate; diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide)

Carcinogenic/mutagenic/toxic effects for reproduction

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

11.2. Information on other hazards

Other information

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP]. Special hazards arising from the substance or mixture!

SECTION 12: Ecological information

12.1. Toxicity

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Toxic to aquatic life with long lasting effects.

Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

The product has not been tested.

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH.

The product has not been tested.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Do not allow to enter into surface water or drains. Send to a hazardous waste incinerator facility under observation of official regulations.

Contaminated packaging

Hazardous waste according to Directive 2008/98/EC (waste framework directive). Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information**Land transport (ADR/RID)****14.1. UN number or ID number:**

UN 3082

14.2. UN proper shipping name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,
di-urethane dimethacrylate, 2-[[[(butylamino)carbonyl]oxy]ethyl acrylate

14.3. Transport hazard class(es):

9

14.4. Packing group:

III

Hazard label:

9



Classification code:

M6

Special Provisions:

274 335 375 601

Limited quantity:

5 L

Excepted quantity:

E1

Transport category:

3

Hazard No:

90

Tunnel restriction code:

-

Inland waterways transport (ADN)**14.1. UN number or ID number:**

UN 3082

14.2. UN proper shipping name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

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14.3. Transport hazard class(es):

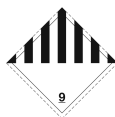
9

14.4. Packing group:

III

Hazard label:

9



Classification code:

M6

Special Provisions:

274 335 375 601

Limited quantity:

5 L

Excepted quantity:

E1

Marine transport (IMDG)**14.1. UN number or ID number:**

UN 3082

14.2. UN proper shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,
di-urethane dimethacrylate, 2-[[[(butylamino)carbonyl]oxy]ethyl acrylate**14.3. Transport hazard class(es):**

9

14.4. Packing group:

III

Hazard label:

9



Special Provisions:

274 335 969

Limited quantity:

5 L

Excepted quantity:

E1

EmS:

F-A, S-F

Air transport (ICAO-TI/IATA-DGR)**14.1. UN number or ID number:**

UN 3082

14.2. UN proper shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.,
di-urethane dimethacrylate, 2-[[[(butylamino)carbonyl]oxy]ethyl acrylate**14.3. Transport hazard class(es):**

9

14.4. Packing group:

III

Hazard label:

9



Special Provisions:

A97 A158 A197 A215

Limited quantity Passenger:

30 kg G

Passenger LQ:

Y964

Excepted quantity:

E1

IATA-packing instructions - Passenger:

964

IATA-max. quantity - Passenger:

450 L

IATA-packing instructions - Cargo:

964

IATA-max. quantity - Cargo:

450 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:

Yes



Danger releasing substance:

di-urethane dimethacrylate

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

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not applicable

Other applicable information

Hazchem code: •3Z

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Authorisations (REACH, annex XIV):

Substances of very high concern, SVHC (REACH, article 59):

diphenyl(2,4,6- trimethylbenzoyl)phosphine oxide

Restrictions on use (REACH, annex XVII):

Entry 75

Information according to Directive
2012/18/EU (SEVESO III):

E2 Hazardous to the Aquatic Environment

National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D):

2 - obviously hazardous to water

Skin resorption/Sensitization:

Causes allergic hypersensitivity reactions.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 1.

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Abbreviations and acronyms

Acute Tox: Acute toxicity
 Skin Irrit: Skin irritation
 Eye Irrit: Eye irritation
 Skin Sens: Skin sensitisation
 Carc: Carcinogenicity
 Repr: Reproductive toxicity
 STOT SE: Specific target organ toxicity - single exposure
 Aquatic Chronic: Chronic aquatic hazard
 CLP: Classification, labelling and Packaging
 REACH: Registration, Evaluation and Authorization of Chemicals
 GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
 UN: United Nations
 EC/EEC: European Community/European Economic Community
 EU: European Union
 CAS: Chemical Abstracts Service
 DNEL: Derived No Effect Level
 DMEL: Derived Minimal Effect Level
 PNEC: Predicted No Effect Concentration
 ATE: Acute toxicity estimate
 LC50: Lethal concentration, 50%
 LD50: Lethal dose, 50%
 LL50: Lethal loading, 50%
 EL50: Effect loading, 50%
 EC50: Effective Concentration 50%
 ErC50: Effective Concentration 50%, growth rate
 NOEC: No Observed Effect Concentration
 BCF: Bio-concentration factor
 PBT: persistent, bioaccumulative, toxic
 vPvB: very persistent, very bioaccumulative
 M-factor: Multiplying factor
 ADR: Accord européen sur le transport des marchandises dangereuses par Route
 (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Regulations concerning the international carriage of dangerous goods by rail
 MARPOL: International Convention for the Prevention of Marine Pollution from Ships
 IBC: Intermediate Bulk Container
 SVHC: Substance of Very High Concern
 For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

Classification for mixtures and used evaluation method according to CLP Regulation

Classification	Classification procedure
Acute Tox. 4; H332	
Skin Sens. 1; H317	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H351 Suspected of causing cancer.
 H361f Suspected of damaging fertility.
 H411 Toxic to aquatic life with long lasting effects.
 EUH212 Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.

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Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)