

**SAFETY DATA SHEET (EC 1907/2006)****Orthoresin Liquid****DeguDent**

A Dentsply International Company

Material no.		Version	<b>3.4 / GB</b>
Specification	<b>141733</b>	Revision date	<b>21.09.2010</b>
VA-Nr		Print Date	<b>23.09.2010</b>
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**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING****Product information**

Trade name	Orthoresin Liquid
Company	DeguDent GmbH Postfach 1364 D-63403 Hanau
Telephone	+49 (0)6181/59-5767
Telefax	+49 (0)6181/59-5879
Email address	SDB@degudent.de
Emergency telephone number	+49 (0)180 / 23 24-555

Use of the Substance / Preparation For dental use only.

REACH Registration No.: if available listed in Chapter. 3

**2. HAZARDS IDENTIFICATION****Classification as per Directive 67/548/EC or Directive 1999/45/EC**F, Highly flammable  
R11: Highly flammable.Xi, Irritant  
R37/38: Irritating to respiratory system and skin.

R43: May cause sensitisation by skin contact.

**Additional safety information for humans and the environment**

When heated, formation of explosive vapour/air mixtures.

Danger of bursting of closed systems to vigorous exothermic polymerization. Avoid uncontrolled polymerization.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****Information on ingredients / Hazardous components as per Directive 67/548/EC or Directive 1999/45/EC**

<b>• methyl methacrylate</b>		<b>&gt; 90%</b>	
CAS-No.	80-62-6	EC-No.	201-297-1
	F; R11 Xi; R37/38 R43		
<b>• ethylene dimethacrylate</b>		<b>&lt; 10%</b>	
CAS-No.	97-90-5	EC-No.	202-617-2
	Xi; R37 R43		

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See chapter 16 for text of risk phrases

### 4. FIRST AID MEASURES

#### General advice

Take off all contaminated clothing immediately.

#### Inhalation

Move victims into fresh air.

Consult a physician immediately.

#### Skin contact

Wash off immediately with soap and plenty of water.

Consult a physician immediately.

#### Eye contact

With eye held open, thoroughly rinse immediately with plenty of water for at least 5 minutes.

Consult an ophthalmologist.

#### Ingestion

Do not induce vomiting.

Have the mouth rinsed with water.

Have patient drink plenty of water in small sips.

Consult a physician immediately.

#### Notes to physician

Specific therapy/antidote treatment: none known

If required, therapy of irritative effect.

If substance has been swallowed:

Allergic reactions of the skin are possible.

Treatment of allergic reaction if necessary.

Early endoscopy in order to assess mucosa lesions in the oesophagus and stomach which may appear. If necessary, aspirate leftover substance.

### 5. FIRE-FIGHTING MEASURES

#### Suitable extinguishing media

mist, carbon dioxide (CO<sub>2</sub>), quenching foam - polar

#### Extinguishing media which must not be used for safety reasons

high volume water jet

#### Specific hazards during fire fighting

In case of combustion or decomposition of the product, the fumes produced lead to irritations or inflammations of the respiratory tract.

When heated, formation of explosive vapour/air mixtures.

#### Special protective equipment for fire-fighters

In the case of fire, wear respiratory protective equipment independent of surrounding air and chemical protective suit.

#### Further information

In case of fire cool containers or take them to a safe place.

Use water spray to cool unopened containers.

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Keep unauthorized persons away.  
Wear personal protective equipment.  
Avoid coming into contact with the following substance/substance classes: Product.

### Environmental precautions

Prevent substance from entering soil, natural bodies of water and sewer systems.  
Avoid penetration into drainage system or in rooms situated at a lower level because of danger of explosion.

### Methods for cleaning up

Remove all sources of ignition.  
Absorb with liquid-binding material (e.g. inert absorbent sand universal binder).  
Pick up mechanically with a suitable device and collect in a suitable container.

### Additional advice

Ensure explosion proofness.  
Dispose of contaminated material as a waste in a correct manner.

## 7. HANDLING AND STORAGE

### Handling

#### Safe handling advice

Always close container tightly after removal of product.  
Avoid light effect heat sun rays.  
Vapours are heavier than air.  
Only fill up to 90 % of the container as air is required to stabilize.

#### Advice on protection against fire and explosion

Product is flammable.  
product is highly flammable.  
Keep away from sources of ignition - No smoking.  
Explosion-proof installations required.  
Take precautionary measures against static discharges.

### Storage

#### Requirements for storage areas and containers

Keep containers tightly closed in a dry, cool and well-ventilated place.  
Ensure there is good room ventilation.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

• methyl methacrylate			
CAS-No.	80-62-6	EC-No.	201-297-1
Control parameters	50 ppm 208 mg/m3		Time Weighted Average (TWA):(EH40 WEL)
Control parameters	100 ppm 416 mg/m3		Short Term Exposure Limit (STEL):(EH40 WEL)

### Engineering measures

Ensure suitable suction/aeration at the work place and with operational machinery.

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**Personal protective equipment****Respiratory protection**

If workplace exposure limit is exceeded apply Respirator with brown A-type filter.

**Hand protection**

Wear protective gloves made of the following materials: solvent-resistant material.

Glove material	butyl-rubber
Material thickness	0.5 mm
Break through time	60 min
Method	Source: GESTIS substance database (hazardous substance information system of commercial professional associations)

The suitability for a specific workplace should be discussed with the producers of the protective gloves. The exact break through time can be obtained from the protective glove producer and this has to be observed.

preventive skin protection  
Use barrier cream regularly.

**Eye protection**

goggles

**Skin and body protection**

Immediately change moistened and saturated work clothes.  
Use suitable skin protective agents before handling product. Cleanse and apply cream to skin after work.  
Preventive skin protection recommended.

**Hygiene measures**

No eating, drinking, smoking, or snuffing tobacco at work. Wash face and/or hands before break and end of work.

If workplace exposure limits are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used.

Avoid contact with skin and eyes.

After contact with skin, wash immediately with plenty of water.

If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form	liquid
Colour	according to the coloration
Odour	ester-like

**Safety data**

Melting point/range	-48.2 °C	
	related to substance:	methyl methacrylate
Boiling point/range	100.3 °C (1013 hPa)	
	Method: DIN 51 751	
	related to substance:	methyl methacrylate
Flash point	10 °C	
	Method: DIN 51 755	
	related to substance:	methyl methacrylate
Ignition temperature	430 °C	
	Method: DIN 51 794	
	related to substance:	methyl methacrylate
Lower explosion limit	2.1 %(V)	
	related to substance:	methyl methacrylate

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Upper explosion limit	12.5 %(V) related to substance:	methyl methacrylate
Vapour pressure	38.7 hPa (20 °C) related to substance:	methyl methacrylate
Density	0.94 g/cm <sup>3</sup> (20 °C) Method: DIN 51757 related to substance:	methyl methacrylate
Water solubility	15.9 g/l (20 °C) related to substance:	methyl methacrylate
Partition coefficient (n-octanol/water)	POW: 1.38 (measured) (literature value) related to substance:	methyl methacrylate
Viscosity, dynamic	0.63 mPa.s (20 °C) Method: Brookfield method related to substance:	methyl methacrylate

**10. STABILITY AND REACTIVITY**

Conditions to avoid	Avoid light effect / sun rays. Protect from heat sources of ignition.
Materials to avoid	Product polymerizes on contact with radical generating substances such as peroxides, azo compounds, heavy metal compounds, solutions.
Hazardous reactions	Danger of bursting of closed systems to vigorous exothermic polymerization. Avoid uncontrolled polymerization.

**11. TOXICOLOGICAL INFORMATION**

Acute oral toxicity	LD50 Rat: > 5000 mg/kg Method: OECD Test Guideline 401 literature related to substance: methyl methacrylate
Acute inhalation toxicity	LC50 Rat: 29.8 mg/l / 4 h (literature value) related to substance: methyl methacrylate
Acute dermal toxicity	LD50 Rabbit: > 5000 mg/kg literature related to substance: methyl methacrylate
Skin irritation	Rabbit / 24 h not irritating Method: Draize Test related to substance: methyl methacrylate
Eye irritation	Rabbit not irritating

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Method: Draize Test  
related to substance: methyl methacrylate

Sensitization guinea pig: positive and negative literature  
related to substance: methyl methacrylate

Repeated dose toxicity inhalative Rat  
Testing period: 2 years  
NOAEL: 25 mg/kg  
target organ/effect: irritative effects, skin linings literature  
related to substance: methyl methacrylate

Oral Rat  
Testing period: 2 years  
NOAEL: 2000 mg/kg  
drinking water analysis  
no therapy-related results literature  
related to substance: methyl methacrylate

Gentotoxicity in vitro positive and negative literature  
related to substance: methyl methacrylate

Gentotoxicity in vivo no evidence of mutagenic effects literature  
related to substance: methyl methacrylate

Mutagenicity assessment in vivo: no evidence of mutagenic effects

Carcinogenicity inhalative Rat  
related to substance: methyl methacrylate

Oral Rat  
related to substance: methyl methacrylate

inhalative mouse  
related to substance: methyl methacrylate

Oral mouse  
related to substance: methyl methacrylate

inhalative dog  
related to substance: methyl methacrylate

Oral dog  
related to substance: methyl methacrylate

carcinogenicity assessment no evidence that cancer may be caused, literature.  
related to substance: methyl methacrylate

teratogenicity assessment no evidence of teratogenic properties  
related to substance: methyl methacrylate

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Biodegradability	Exposure time: 14 day
	Result: 94 % Readily biodegradable.
	Method: OECD 301 C
	related to substance: methyl methacrylate

**Ecotoxicity effects**

Toxicity to fish	LC50 Lepomis macrochirus: 191 mg/l / 96 h literature related to substance: methyl methacrylate
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	Oncorhynchus mykiss: > 79 mg/l / 96 h literature Method: OECD 203 related to substance: methyl methacrylate
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Toxicity to daphnia	EC50 Daphnia magna: 68 mg/l / 48 h Method: OECD 202 (literature value) related to substance: methyl methacrylate
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	EC50 Daphnia magna: 49 mg/l / 21 d Method: OECD 202 part 2 (literature value) related to substance: methyl methacrylate
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Toxicity to algae	EC50 selenastrum capricornutum: 170 mg/l / 96 h Method: OECD 201 literature related to substance: methyl methacrylate
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Toxicity to bacteria	EC0 Pseudomonas putida: 100 mg/l literature related to substance: methyl methacrylate
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**Further information on ecology**

Further Information	Prevent penetration into soil, stretches of water and drainage systems.
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**13. DISPOSAL CONSIDERATIONS****Product**

Disposal according to local authority regulations.

**Uncleaned packaging**

Disposal according to local authority regulations.

**14. TRANSPORT INFORMATION****Land transport ADR/RID/GGVSEB (Germany)**

Class	3
ADR/RID-Labels	3

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UN-No 1247  
Packaging group II  
orange warning plate 339 / 1247  
Tunnel Restriction Code (ADR) (D/E)  
Description of the goods (Technical name)  
METHYL METHACRYLATE MONOMER, STABILIZED

**Sea transport IMDG-Code/GGVSee (Germany)**

Class 3  
UN-No 1247  
Packaging group II  
EmS F-E, S-D  
Proper technical name (Proper shipping name)  
METHYL METHACRYLATE MONOMER, STABILIZED

**Air transport ICAO-TI/IATA-DGR**

Class 3  
UN-No 1247  
Packaging group II  
Proper technical name (Proper shipping name)  
Methyl methacrylate monomer, stabilized

**Inland waterway transport ADN/ADNR/GGVSEB (Germany)**

Class 3  
ADR/RID-Labels 3  
UN-No / Substance number 1247  
Packaging group II  
Description of the goods (Technical name)  
METHYL METHACRYLATE MONOMER, STABILIZED

**Loading instructions/Remarks**

IATA\_C ERG-Code 3L  
IATA\_P ERG-Code 3L  
IMDG Clear of living quarters.  
ADR Measures as 2.2.3.2.2 ADR/RID/ADNR have been applied.  
ADR Observe listed materials regulation §35, paragraph 1 GGVSEB  
ADNR Measures as 2.2.3.2.2 ADR/RID/ADNR have been applied.

**15. REGULATORY INFORMATION****Labelling according to EC Directives****hazard-defining component(s)**

- methyl methacrylate

<b>Symbol(s)</b>	F Xi	Highly flammable Irritant
<b>R-phrase(s)</b>	R11 R37/38 R43	Highly flammable. Irritating to respiratory system and skin. May cause sensitisation by skin contact.
<b>S-phrase(s)</b>	S2 S24 S37 S46	Keep out of the reach of children. Avoid contact with skin. Wear suitable gloves. If swallowed, seek medical advice immediately and show this container or label.



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### National legislation

employment restriction

The employment limitations under the protection of young persons act, the laws on pregnant women and young mothers and work at home is/are to be observed.

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## 16. OTHER INFORMATION

### Risk phrase (R phrase) texts

- **methyl methacrylate**
  - R11 Highly flammable.
  - R37/38 Irritating to respiratory system and skin.
  - R43 May cause sensitisation by skin contact.
- **ethylene dimethacrylate**
  - R37 Irritating to respiratory system.
  - R43 May cause sensitisation by skin contact.

### Further information

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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