

**1. IDENTIFICATION OF SUBSTANCES / PREPARATION AND COMPANY**

Product Name: Enigma High Base Liquid  
 Product Code: 422, 423, 843, 844, 846

Application: With Enigma High Base or colour tone powders, forms a heat cured acrylic denture base.

Company: Davis Schottlander & Davis Ltd  
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**2. HAZARD IDENTIFICATION**

**Classification of the substance or mixture**

This substance is classified as hazardous according to GHS.

Regulation EC1272/2008

Physical	H225	Flammable Liquids	Hazard category 2
Health	H315	Irritation of skin	Hazard category 2
	H317	Skin sensitisation	Hazard category 1B
	H335	Specific Target Organ Toxicity - Single exposure (inhalation)	Hazard category 3

**Label elements**

In Accordance with Regulation EC 1272/2008

Signal word Danger

GHS Pictogram



H315 H317 H335



H225

Hazard Statement	H225	Highly flammable liquid or vapour
	H315	Causes skin irritation
	H317	May cause an allergic skin reaction
	H335	May cause respiratory irritation

Precautionary Statement  
(Prevention)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection

(Response)

P303+361+353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

(Disposal) P501 Dispose of contents/container in accordance with local regulation

Hazardous components for labelling: Methyl methacrylate

**Other hazards:**

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

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Substances**

In accordance with Regulation EC 1272/2008

Component	CAS No. EC Index No. REACH No. EINECS No.	Content	Hazard/category/statement
Methyl Methacrylate	80-62-6 607-035-00-6 01-2119452498-28 201-29701	>98%	Flam. Liq./2/H225 Skin Irrit./2/H315 Skin Sens./1/H317 STOT SE (inhalation)/3/H335
Ethylene Glycol Dimethacrylate	97-90-5 607-114-00-5 Pre-registered 202-617-2	2.5-10%	Skin Sens./1/H317 STOT SE (inhalation)/3/H335

In accordance with Directive 67/548/EC or Directive 1999/45/EC

Component	CAS No.	Hazard symbol - r-phrase	content
Methyl Methacrylate	80-62-6	F,Xi – 11,36/37/38, 43	>98%
Ethylene Glycol Dimethacrylate	97-90-5	Xi – 37, 43	2.5-10%

### 4. FIRST AID MEASURES

**Description of first aid measures**

General advice Medical treatment is necessary if symptoms occur which are obviously caused by skin or eye contact with the product, or by vapour inhalation. Remove soiled soaked clothing immediately.

Inhalation Move casualty to fresh air and keep them calm. Seek medical attention.

Skin contact Wash off immediately with soap and water. If skin irritation occurs, seek medical attention.

Eye contact Holding eyelids open, immediately rinse thoroughly with plenty of water. Seek medical advice.

Ingestion Do not induce vomiting. Immediately contact a doctor.

**Most important symptoms and effects, both acute and delayed**

Causes skin and eye irritation. Skin sensitisation.

## 5. FIRE FIGHTING MEASURES

### Extinguishing media

Suitable extinguishing media: Foam, dry powder, carbon dioxide

Unsuitable extinguishing media: Water

**Special hazards arising from the substance or mixture:** No

**Advice for fire fighters:** Wear self-contained breathing apparatus and full protective clothing.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective clothing. Keep away from sources of ignition. Use breathing apparatus if exposed to vapour/dust/mist/aerosol.

### Environmental procedures

Do not allow to enter drains/surface water/ground water/sewerage systems. If entry occurs IMMEDIATELY alert The Environment Agency or other equivalent appropriate body.

### Methods and material for containment and cleaning up

Larger volumes: remove mechanically (by pumping). Use explosion-proof equipment. Smaller volumes and/or residues: contain with absorbent material (eg. sand, diatomaceous earth, acid absorbent, universal absorbent or sawdust). Dispose of in accordance with local regulations.

### Reference to other sections

For personal protection see section 8.

For disposal considerations see section 13.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Ensure the area is well ventilated. Keep container tightly closed. Keep away from heat, sparks and open flame – no smoking. Take precautionary measures against static discharge. In the event of fire, use explosion-proof equipment only. Cool the endangered containers with water. When heated above the flashpoint and/or during spraying (atomising), ignitable mixtures may form in air.

### Conditions of safe storage, including any incompatibilities

Keep only in the original container and do not allow temperature to exceed 30°C. Protect from light. Fill the container by approx. 90% only as oxygen (air) is required for stabilisation. With large storage containers, ensure oxygen supply is sufficient to allow stability. Can polymerise with intense heat release.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Control parameters:

Components or products of decomposition according to point 10, with limit values related to the place of work which require monitoring.

**Methyl Methacrylate**

**CAS No. 80-62-6**

# SAFETY DATA SHEET

WEL (8hrs) 208mg/m<sup>3</sup> 50 ppm  
WEL (15mins) 416 mg/m<sup>3</sup> 100 ppm

**Exposure controls:**  
Derived No-Effect Level (DNEL)

Critical Component	Routes of Exposure (LONG-TERM)	DNEL
Methyl Methacrylate	Inhalation Dermal Oral	210mg/m <sup>3</sup> 74.3mg/m <sup>3</sup> -

Predicted No-Effect Concentration (PNEC)

Critical Component	Routes of Exposure (LONG-TERM)	PNEC
Methyl Methacrylate	Water Soil Air	0.94mg/l - -

General protective measures: Do not inhale vapours. Avoid contact with eyes and skin.

**Personal Protective Equipment:**



**Hygiene measures:** Store work clothes separately. Remove soiled or soaked clothing immediately. Follow the usual good standards of occupational hygiene. Clean skin thoroughly after handling. Apply skin cream.

**Respiratory protection:** If ventilation is insufficient, breathing apparatus to be used in case of high concentrations, short term: filter appliance, filter A.

**Hand protection:** Butyl rubber gloves (0.7mm), break through time 60 minutes (EN 374:2004). In practice, due to variable exposure conditions, this information can only be used as an aid to selection of a suitable chemical protection glove. This information does not substitute suitability tests by the end user. A suitable glove type should be selected for each work environment. Gloves should be replaced regularly, especially after extended contact with the substance.

**Eye protection:** Wear approved, tightly fitting safety goggles.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties:**

Form: Liquid  
Colour: Colourless  
Odour: Ester-like  
Melting Temperature: -48°C  
Boiling Temperature: 100.3°C @ 1.013hPa  
Flashpoint: 10°C (method DIN 51755 - closed cup)  
Ignition Temperature: 430°C (method DIN 51794)

# SAFETY DATA SHEET

Lower Explosion Limit:	2.1% vol. @ 10.5°C
Upper Explosion Limit:	12.5% vol.
Vapour Pressure:	47hPa @ 20°C
Relative Density:	0.94g/cm <sup>3</sup> @ 20°C
Relative Vapour Density:	>1 @ 20°C (related to air)
Solubility in Water:	1.6g/l @ 20°C, difficult to mix
Solubility (Qualitative):	Miscible with most organic solvents
pH value:	Not applicable
Partition Co-efficient:	logPow 1.38 (measured, n-Octanol/water)
Viscosity (Dynamic):	0.6mPa·s @ 20°C (method Brookfield)

## Other information:

None

## 10. STABILITY AND REACTIVITY

### Reactivity:

Refer to sections 2.3 and 10.2

### Chemical stability:

Stable under normal temperature conditions and when used as directed. No decomposition occurs when used as directed.

### Possibility of hazardous reactions:

Refer to section 2.3.

### Conditions to avoid:

The substance is normally supplied in a stabilised form. If the permissible storage period/storage temperature is exceeded, the product may polymerise with heat generation. Avoid excessive heat for long periods of time. Avoid heat, flames and other sources of ignition.

### Incompatible materials:

Free radical initiators  
Reducing agents  
Tertiary amines  
Heavy metals  
Peroxides  
Oxidising agents  
Mineral acids  
Strong acids/alkalis

### Hazardous decomposition products:

Oxides of carbon. No decomposition occurs when used as directed.

## 11. TOXICOLOGY INFORMATION

### Information on toxicological effects:

Metabolism:	The substance is rapidly metabolised	
Acute Oral Toxicity:	LD <sub>50</sub> rat	>5000mg/kg
	LD <sub>50</sub> mouse	=5200mg/kg
	LD <sub>50</sub> rabbit	>5000mg/kg
Acute Inhalation Toxicity:	LC <sub>50</sub> rat, 4h	29.8mg/l
	LC <sub>50</sub> mouse, 3h	33mg/l
Acute Dermal Toxicity:	LD <sub>50</sub> rabbit	>5000mg/kg
Caustic Burning/Skin Irritation:	Rabbit, 24h (OECD 405)	Not irritating-

	If skin contact is prolonged and/or	slightly irritating
	frequent, irritations cannot be excluded. Skin Irritant Category 2 (UN-GHS)	
Serious Eye Damage/Irritation:	Rabbit, 24h	Not irritating- slightly irritating
Respiratory/Skin Sensitisation:	Guinea pig (OECD 406) Repeated exposure may cause skin dryness or cracking. In humans, various types of allergic reactions have been observed (symptoms: headache, eye irritations, skin affectations). Skin Irritant Category 1B (UN-GHS)	Sensitising
Aspiration Hazard:	No evidence for hazardous properties (structure-activity relationship).	
Germ Cell Mutagenicity:	+ve as well as -ve results in <i>in vitro</i> mutagenicity /genotoxicity tests. No experimental evidence of genotoxicity <i>in vivo</i> is available. In general, not mutagenic according to international criteria	
Carcinogenicity:	Non-carcinogenic in inhalation and feeding studies performed in rats, mice and dogs	
Reprotoxicity/Teratogenicit:	No indication of toxic effects in experimental models	
Human Health Hazard Assessment:	CMR:no	
Specific Target Organ Toxicity - single exposure:	respiratory tract irritation	Hazard Category 3
Specific Target Organ Toxicity - repeated exposure:	no evidence for hazardous properties rat, inhalation, 25-400ppm Findings: damage to nasal mucous membrane Rat, dilute ingestion, 6-2000ppm Findings: no toxic effect	NOAEL, 25ppm 400ppm NOAEL, 2000ppm
General Information:	Avoid contact with skin and eyes and inhalation of substance vapours.	

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity:

Aquatic Environment	Hazardous to the aquatic environment	Acute Aquatic Toxicity Category 3
Aquatoxicity, fish	LC <sub>50</sub> <i>Oncorhynchus mykiss</i> , 96h	>79mg/l

# SAFETY DATA SHEET

	LC <sub>50</sub> <i>Lepomis macrochirus</i> , 72h	264mg/l
	LC <sub>50</sub> <i>Lepomis macrochirus</i> , 96h	191mg/l
Aquatic toxicity, invertebrates	EC <sub>50</sub> <i>Daphnia magna</i> , 48h (OECD 202) <i>Daphnia magna</i> , 21d flow through (OECD 202)	69mg/l NOEC, 37mg/l
Aquatic toxicity, aquatic plants	EC <sub>50</sub> <i>Selenastrum capricornutum</i> , 72hr (OECD 201) EC3 <i>Scenedesmus quadricauda</i> , 8d (DIN 38412:9)	>110mg/l 37mg/l
Toxicity in Microorganisms	EC3 <i>Pseudomonas putida</i> , 16h	100mg/l

## Persistence and degradability:

Persistence and Degradability No evidence for hazardous properties

Biodegradability Readily degradable, 14d, 28d (OECD 301, 301C) 94%  
The substance is inherently biodegradable, but not readily biodegradable to OECD criteria

## Bioaccumulative potential:

Bioaccumulation No evidence for hazardous properties

## Mobility in soil:

Mobility The substance has poor water solubility.  
No evidence for hazardous properties.

## Results of PBT and vPvB assessment:

Persistent, Bioaccumulative or Toxic No (REACH, Annex VIII)  
very Persistent, very Bioaccumulative No (REACH, Annex VIII)

## Other adverse effects:

General Information Do not allow to enter soil, waterways or waste water

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods:

**Substance:** Waste is hazardous and to be treated as controlled waste. Product must be disposed of as special waste after consultation with local waste authorities and the disposal company in a suitable and licensed facility.

**Packaging:** Contaminated packaging should be emptied optimally and after appropriate professional cleaning may be taken for re-use. Packaging that cannot be cleaned should be disposed of professionally. Do not puncture or incinerate, even when empty. Contaminated rags and the like must be discarded into designated a fireproof bucket.

List of Waste, Chemicals and gases in containers, 16 05  
LOW

16 05 06 Laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals.

16 05 08 Discarded organic chemicals consisting of or containing dangerous substances.

## 14. TRANSPORT INFORMATION

**UN number:** UN 1247 Hazard Class 3, flammable liquids Packing Group II



**UN proper shipping name:**

**Land Transport ADR/GGVSEB** UN/Germany  
UN 1247 METHYL METHACRYLATE MONOMER MONOMER,  
STABILISED, Class 3, Group II, Tunnel restriction code D/E  
Hazard no. 339

**Land Transport RID/GGVSEB**  
UN 1247 METHYL METHACRYLATE MONOMER MONOMER,  
STABILISED, Class 3, Group II  
Hazard no. 339

**Inland Waterway Transport  
ADNR/GGVSEB** UN 1247 METHYL METHACRYLATE MONOMER MONOMER,  
STABILISED, Class 3, Group II

**Shipment by Sea  
IMDG/GGVSee** UN 1247 METHYL METHACRYLATE MONOMER MONOMER,  
STABILISED, Class 3, Group II  
EmS F-E, S-D  
Marine pollutant No

**Air Transport ICAO/IATA**  
UN 1247 METHYL METHACRYLATE MONOMER MONOMER,  
STABILISED, Class 3, Group II

**Transport hazard class(es):**

Refer to section 14.2

**Packing group:**

Refer to section 14.2

**Environmental hazards:**

Refer to section 14.2, not applicable if unmentioned

**Special precautions for user:**

Refer to section 14.2

## 15. REGULATORY INFORMATION

**Safety, health and environmental regulations/legislation specific for the substance or mixture.**

**National Legislation**

Occupational Restrictions	Note for juveniles. Note for pregnant women and nursing mothers EC Directive 92/85/EEC
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Status of Registration	REACH (EU)	registered/pre-registered
	TSCA (USA)	listed or exempt
	DSL (CDN)	listed or exempt
	AICS (AUS)	listed or exempt
	METI (J)	listed or exempt
	ECL (KOR)	listed or exempt



# SAFETY DATA SHEET

PICCS (RP)	listed or exempt	
IECSC (CN)	listed or exempt	
HSNO (NZ)	listed or exempt	Code: HSR001195

## Chemical safety assessment

Labelling in accordance with GefStoffV/EC

Methyl Methacrylate

Hazard symbols	F	Highly flammable
	Xi	Irritant
H-statements from Section 3	H225	Highly flammable liquid and vapour
	H315	Causes skin irritation
	H317	May cause an allergic skin reaction
	H335	May cause respiratory irritation

## 16. FURTHER INFORMATION

The substance is normally supplied in a stabilised form.

If the permissible storage period and/or storage temperature is noticeably exceeded, the substance may polymerise with heat evolution.

The instructions given here are valid only for the substance as supplied, not for derivatives resulting from its use.

**References:** Quoted manuals and standards  
IMO  
OECD-SIDS  
SIAR  
NIH  
NIOSH  
UNECE

The data given above covers exclusively the safety requirements of the product(s) and is based on our current knowledge and experience. It does not signify any warranty with regards to the products properties. This product is only supplied for specific uses in dentistry and must be used in accordance with the directions for use.