SAFETY DATA SHEET
according to EC- directive 1907/2006/EC

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

Product Name	Orthomet orthodontic acrylic liquid
Based on methyl methacrylate:	
CAS-No.	80-62-6
EU Index No.	607-035-00-6
REACH No.	01-2119452498-28
EINECS-No.	201-297-1

1.2. Relevant identified uses of the substance or mixture and uses advised against
For use in dental applications.

1.3. Details of the supplier of the safety data sheet

Supplier	Metrodent Limited Lowergate Works, Lowergate Paddock, Huddersfield United Kingdom +44 1484 461616 sales@metreodent.com

1.4. Emergency contacts

Office Hours	Metrodent Limited +44 1484 461616

2. HAZARDS IDENTIFICATION

2.1. 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

2.2. Label elements
In Accordance with Regulation EC 1272/2008
Signal word Danger
GHS Pictogram

H315
H317
H335

H225

2.3. Other hazards
None

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)	P302+352	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		Methyl methacrylate for labelling

2.3. 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

3.1. 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

4. FIRST AID MEASURES

4.1. 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.

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

Causes skin and eye irritation. Skin sensitisation.

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

No

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media	Foam, dry powder, carbon dioxide
Unsuitable extinguishing media	Water

5.2. Special hazards arising from the substance or mixture

No

5.3. Advice for firefighters — Wear self-contained breathing apparatus and full protective clothing

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Take care for adequate ventilation. Use personal protective clothing. Keep away from sources of ighition. Use breathing apparatus if exposed to vapour/dust/mist/aerosol.

6.2. 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.

6.3. 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.

6.4. Reference to other sections

For personal protection see section 8.

For disposal considerations see section 13.

7. HANDLING AND STORAGE

7.1. 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.

7.2. 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.

7.3. Specific end use(s)

No

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. 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	
WEL (8hrs)	208mg/m3	50 ppm
WEL (15mins)	416 mg/m3	100 ppm

8.2. Exposure controls

Monitoring Data

For monitoring procedures and technical data refer to, for instance, The National Institute for Health and Safety (NIOSH) – Manual of Analytical Methods, method 2537

Derived No-Effect Level (DNEL)	Critical Component	Routes of Exposure (LONG-TERM)	DNEL
	Methyl Methacrylate	Inhalation	210mg/m3
		Dermal	74.3mg/m3
		Oral	-

Predicted No-Effect Concentration (PNEC)	Critical Component	Routes of Exposure (LONG-TERM)	PNEC
	Methyl Methacrylate	Water	0.94mg/l
		Soil	-
		Air	-

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

8.3. 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.
Body protection	On handling larger quantities: face mask, chemical-resistant boots and rubber apron.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. 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)
Lower Explosion Limit	2.1% vol. @ 10.5°C
Upper Explosion Limit	12.5% vol.
Vapour Pressure	47hPa @ 20°C
Relative Density	0.94g/cm3 @ 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)

9.2. Other information

10. STABILITY AND REACTIVITY

10.1. Reactivity — Refer to sections 2.3 and 10.2

10.2. Chemical stability — Stable under normal temperature conditions and when used as directed. No decomposition occurs when used as directed.

10.3. Possibility of hazardous reactions

Refer to section 2.3.

10.4. 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.

10.5. Incompatible materials

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

10.6. Hazardous decomposition products

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

11.TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Metabolism	The substance is rapidly metabolised	
Acute Oral Toxicity	LD50 rat	>5000mg/kg
	LD50 mouse	=5200mg/kg
	LD50 rabbit	>5000mg/kg
Acute Inhalation Toxicity	LC50 rat, 4h	29.8mg/l
	LC50 mouse, 3h	33mg/l
Acute Dermal Toxicity	LD50 rabbit	>5000mg/kg
Caustic Burning/Skin Irritation	Rabbit, 24h (OECD 405)	Not irritating-slightly irritating
	If skin contact is prolonged and/or 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)	Sensitising
	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)	
Aspiration Hazard	No evidence for hazardous properties (structure-activity relationship)	
Germ Cell Mutagenicity	+ve as well as –ve results in in vitro mutagenicity/genotoxicity tests. No experimental evidence of genotoxicity in vivo 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/Teratogenicity	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	NOAEL, 25ppm
	Findings: damage to nasal mucous membrane	400ppm
	Rat, dilute ingestion, 6-2000ppm	NOAEL, 2000ppm
	Findings: no toxic effect	

General Information Avoid contact with skin and eyes and inhalation of substance vapours

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity

Aquatic Environment	Hazardous to the aquatic environment	Acute Aquatic Toxicity Cat. 3
Aquatoxicity, fish	LC50 Oncorhynchus mykiss, 96h	>79mg/l
	LC50 Lepomis macrochirus, 72h	264mg/l
	LC50 Lepomis macrochirus, 96h	191mg/l
Aquatoxicity, invertebrates	EC50 Daphnia magna, 48h (OECD 202)	69mg/l
	Daphnia magna, 21d flow through (OECD 202)	NOEC, 37mg/l
Aquatoxicity, aquatic plants	EC50 Selenastrum capricornutum, 72hr (OECD 201)	>110mg/l
	EC3 Scenedesmus quadricauda, 8d (DIN 38412:9)	37mg/l
Toxicity in Microorganisms	EC3 Pseudomonas putida, 16h	100mg/l

12.2. Persistence and Degradability

Persistence and Degradability	No evidence for hazardous properties	
Biodegradability	Readily degradable, 14d, 28d (OECD 301, 301C) The substance in inherently biodegradable, but not readily biodegradable to OECD criteria	94%

12.3. Bioaccumulative potential

Bioaccumulation: No evidence for hazardous properties

12.4. Mobility in soil

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

12.5. Results of PBT and vPvB assessment

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

12.6. Other adverse effects

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

13. DISPOSAL CONSIDERATIONS

13.1. 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, LOW: Chemicals and gases in containers, 16 05

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.

Always check the given waste code according to the actual conditions of manufacturing, formulation or use in your facility.

14. TRANSPORT INFORMATION

14.1.	UN number	UN 1247	Hazard Class 3, flammable liquids Packing Group II
14.2.	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/GGVSe	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

14.3.	Transport hazard class(es)	Refer to section 14.2
14.4.	Packing group	Refer to section 14.2
14.5.	Environmental hazards	Refer to section 14.2, not applicable if unmentioned
14.6.	Special precautions for user	Refer to section 14.2
14.7.	Transport in bulk according to the IBC code	
	For transport approval see regulatory information	MARPOL 73/78, Annex II – Regulations for Control of Pollution by Noxious Liquid Substances in Bulk SOLAS Chapter VII – Carriage of Dangerous Goods

15. REGULATORY INFORMATION

15.1. 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	
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
	PICCS (RP)	listed or exempt
	IECSC (CN)	listed or exempt
	HSNO (NZ)	listed or exempt Code: HSR001195

15.2. Chemical safety assessment A chemical safety assessment has not been carried out by the supplier.

16. OTHER 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

This datasheet has been re-written and replaces all previous versions. The information and all further technical advice is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the substances in terms of their safety and handling requirements. The instructions given here are valid only for the product as supplied, not for derivatives resulting from its use. It implies no liability or other legal responsibility on our part. In particular, no warranty, whether expressed or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection of incoming goods.