MATERIAL SAFETY DATA SHEET
CHEMICAL SUBSTANCES AND PRODUCTS
ACCORDING DIRECTIVE 91/155/EEC

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1 IDENTIFICATION OF THE PRODUCT AND COMPANY

1.1 product name: ***VERTEX Acrybond liquid***
chemical characterisation:
Monomer based on methyl methacrylate. $CH_2=C(CH_3)COOCH_3$

1.2 Manufacturer:
Vertex-Dental B.V.
PO Box 10
3700 AA ZEIST
The Netherlands

Distributor: Henry Schein Halas Ltd
44 O'Dea Avenue
NSW 2017 Waterloo
Australia
Tel.02 96976288

1.3 emergency telephone number: + 31 30 6976749 +61296976288

2 COMPOSITION AND INFORMATION ON INGREDIENTS

components	label	CAS no.	[%]	MAC [ppm]
Methyl methacrylate	X_i, F	80-62-6	> 50	10
Acetone	X_i	67-64-1	< 50	500

Occupational Exposure Limit(s) ,if available, are listed in section 8

3 HAZARDS IDENTIFICATION

3.1 routes of entry:
Methyl methacrylate and Acetone is absorbed into the body by inhalation, swallowing and through the skin. A for the health harmful concentration in the air, is quickly reached at a temperature of 20°C.

3.2 carcinogenic aspects:
None of the components of this product are listed by IARC, NTP, OSHA or ACIGH as carcinogens.

3.3 maximum concentration at workplace (MAC):
For methyl methacrylate: 10 ppm = 40 mg/m^3
For Acetone 500ppm = 1200 mg/m^3

3.4 effects short-term:
Liquid or high vapour concentration can irritate eyes and respiratory system and cause skin rashes.

3.5 statement:
This product is classified as hazardous in accordance with criteria of NOHSC and is a dangerous good (ADG Code) Poisons Schedule: None

4 FIRST AID MEASURES

4.1 inhalation:
Remove to fresh air, rest, sit half way up. Get medical help if discomfort persist.
skin:
Remove contaminated clothing. Wash thoroughly with soap and water.
eyes:
Flush thoroughly with water for 15 minutes and contact a doctor.
ingestion:
Wash out the mouth and transport immediately to a hospital.

5 MEASURES IN CASE OF FIRE

5.1 flash point: 10°C

5.2 explosion limits: air vol.% **lower:** 2.1 %
upper: 12.5 %

5.3 auto ignition temperature: 430°C

5.4 extinguisher method:
useful: Powder, A.F.F.F., foam and carbon dioxide.
not useful: Direct jet of water.

5.5 hazardous decomposition products: none

5.6 hazardous reactions:
When heated above the flash point, flammable vapours are emitted which can mix with air and can burn or be explosive. Vapours are heavier than air and may travel to the source of ignition and flash back. Heat can cause polymerisation with rapid release of energy which may rupture container explosively.

6 ACCIDENTAL RELEASE MEASURES

6.1 leakage / spillage:
Warn bystanders. Eliminate sources of ignition. Prevent monomer from entering drains or water sources. Collect liquid in a open barrel. Absorb spilled liquid with inert material as dry earth or other absorbent material and transfer to a save place for disposal.
See point 13 for disposal of the liquid.

6.2 personal precautions:
See point 8 for personal protection.

6.3 environmental precautions:
See point 12 for information concerning the environment.

7 HANDLING AND STORAGE

7.1 handling:
Work in a well ventilated place. Material is inflammable, it must be kept away from naked flames or other sources of ignition. Keep away from food, drinks, and animal feed.

7.2 storage:
Store in a cool dark place, separated from oxidising agents. Container may be filled only for 80 %. Keep container tightly closed to avoid evaporation of the product.

7.3 protection against fire and explosion:
Keep out of direct sunlight or any source of heat, sparks or flame. Take measures against the build-up of electrostatic charges. In case of fire, keep any closed container of monomer cool by using a fine water spray if they cannot be moved away.

8 PERSONAL PROTECTION

8.1 respiratory protection:
Local exhaust ventilation or an adequate mask with a filter useful for organic vapour (type A_2B_2). Possible a half-mask with active carbon may be used (FHMPE).
hand protection: Polyvinylalcohol gloves. Warning: PVA is soluble in water!
eye protection: Protecting glasses.
other protection: None.

8.2 industrial hygiene:
Keep working clothes separately. Take off contaminated clothing immediately. Keep away from food, drinks and animal feed.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1	**appearance:**	colourless, clear liquid
9.2	**odour:**	ester like
9.3	**pH:**	not applicable
9.4	**boiling point:**	56 – 101 ° C
9.5	**melting point:**	-95 - -48 ° C
9.6	**flash point:** Methyl Methacrylate	10 °C
	Acetone	-19 °C
9.7	**auto ignition temperature:**	430°C
9.8	**explosive properties:**	yes, see point 5.2

9.9 oxidising properties: not applicable

9.10	**vapour pressure:**	47 mbar (at 20°C) Methyl methacrylate 233 mbar (Acetone)
9.11	**relative density:**	0.85 (water = 1)
9.12	**water solubility:**	1.5 g / 100 ml (at 20°C)
9.13	**viscosity:**	0.6 mPa×s

10 STABILITY AND REACTIVITY

10.1 stability:
The liquid is stabilised with hydrochinon (CAS-regnr. 123-31-9). However polymerisation may occur when the expiry date and/or storage temperature is considerable exceeded.

10.2 hazardous reactions:
When heated above the flash point, flammable vapours are emitted which can mix with air and can burn or be explosive. Vapours are heavier than air and may travel to the source of ignition and flash back. Heat can cause polymerisation with rapid release of energy which may rupture container explosively.

10.3 hazardous decomposition products:
By use according the instructions; none.

11 INFORMATION ON TOXICITY

According to literature.
Methyl methacrylate is essentially non toxic when absorbed into the body by any route, but for some few individuals is a powerful skin sentisiser. Apart from this skin allergy, human cases of ill health caused by material are of a low probability.

Long-term inhalation test on rats and hamsters with exposure concentrations ranging from 100 to 400 ppm did not show any chronic toxic effects. However concentrations on excess of 100 ppm volume may be irritating for some people. Handling of the product requires adequate ventilation to prevent accumulation of vapours in work areas.

11.1 Methyl methacrylate:

Acute oral rat:	LD_{50} = 7872 mg/kg
Acute skin rabbit:	LD_{50} =>5000 mg/kg
Acute inhalation rat:	LC_{50} = 78000 mg/m³ /4 hours

Human patch test:
Approximate one-third of subjects developed mild redness at site of application. Twenty percent showed sensitivity when tested 10 days later.

11.2 Acetone:

Acute oral rat:	LD_{50} = 5800 mg/kg
Acute skin rabbit:	LD_{50} = 2000 mg/kg
Acute inhalation rat:	LC_{50} = 50.1 g/m³ /4 hours

12 ECOLOGICAL INFORMATION

12.1 Methyl methacrylate:

Ecotoxicity: LC_{50} = (fish, 96 hour): 130 mg/l
EC_{50} = (Daphnia magna, 24 hour) 720 mg/l

Acetone:

Ecotoxicity: LC_{50} = (fish, 96 hour): 5540 mg/l
EC_{50} = (Daphnia magna, 48 hour) 9218 mg/l

Human patch test:
Approximate one-third of subjects developed mild redness at site of application. Twenty percent showed sensitivity when tested 10 days later.

13 DISPOSAL CONSIDERATIONS

Methods of disposal.: Disposal according to the local legislation
Waste of residues Keep waste separate. Because of possible pollution, remove as industrial waste or hazardous waste
Contaminated packaging Keep waste packaging separate. Because of possible pollution , remove as industrial waste or hazardous waste

14 TRANSPORT

14.1 UN no.: 1247

14.2 Land –Road /Rail and inland waterways:

Un.	: 1247
Proper shipping name	: Methyl methacrylate monomer stabilized
ADR/ADNR Rid class	: 3
Packing group	: II
Hazard Identification	: 339
Tremcard	: 30G30.
Tank lorry RN 10500: 339/1247	

14.3 transport through the air:

UN no./ID no	: 1247
ICAO/IATA class	: 3
Packing group air	: II
Proper shipping name	: Methyl methacrylate, monomer stabilized

14.4 transport by sea:

UN IMDG	: 1247
IMDG classs	: 3
Packing group sea	: II
EmS	: 3-07

MFAG :330
Technical name: : Methyl methacrylate, monomer stabilized

14.6 further information:

The product contains more than 50 % methyl methacrylate, monomer, stabilised by hydrochinon.
Registration EC list hazardous material:

Methyl methacrylate	607-035-00-6
Acetone	606-001-00-8

15 REGULATORY INFORMATION / LABELS

Methyl methacrylate, the crosslinker, accelerator and UV absorber are subjected to the law environmental dangerous substances concerning information according packing and labelling.

15.1 hazard category:

The product is subjected to mandatory marking in accordance with the law environmental dangerous substances.

F highly flammable
X_i irritating

15.2 risk phrases:

R 11	Highly flammable
R 36/37/38	Irritating to eyes, respiratory system and skin
R 43	May cause sensitisation by skin contact

15.3 safety phrases:

S 9	Keep container in well ventilated place
S 16	Keep away from ignition sources - no smoking -
S 29	Do not empty into drains
S 33	Take precautionary measures against static discharges

16 FURTHER INFORMATION

The product may at heat development, polymerise spontaneously when the expiry date and/or the storage temperature is considerable exceeded.

When pouring the liquid into smaller containers, use dark glass bottles or aluminium containers only. Do not use transparent containers. Also check the labelling on the new containers concerning the hazard category and the risk and safety phrases.

All information is based on the present state of knowledge and experience. The material safety data sheet serves to describe the product only with regard to safety requirements. Vertex-Dental BV can not been held responsible for the completeness of this material safety data sheet.