Safety Data Sheet
OptiBond Universal

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : OptiBond Universal

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

Relevant identified uses

Use of the substance/mixture : Dental Adhesive

Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier
KERRHAWE S.A.
Via Strecce n°4
6934 Bioggio (Switzerland)
T +41916100505

Manufacturer
Kerr Corporation
1717 West Collins Avenue
92867 Orange – CALIFORNIA (U.S.A.)
T +41916100505

Contact person : safety@kerrhawe.com - tel. 00-800-41-050-505 (08.00-17.00)

1.4. Emergency telephone number

Emergency number : CHEMTREC® Emergency Call Center. Emergency Telephone Number (for USA only) 001-800-424-9300 International and Maritime Telephone Number +1 (703) 527-3887

Country	Organisation/Company	Address	Emergency number
Gibraltar	GHA Call Centre Zone 2, Level3, St Bernard's Hospital	Harbour Views Road	+350 200 79700 +350 200 72266
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)
Malta	Medicines & Poisons Info Office	Mater Dei Hospital MSD Msida	+356 2545 6504
United Kingdom	National Poisons Information Service (Newcastle Unit)	Claremont Place Newcastle-upon-Tyne, Newcastle	+44 191 2606182/+44 191 2606180 24H

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2	H225
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Skin Sens. 1	H317
STOT SE 3	H335
STOT SE 3	H336

Full text of H statements : see section 16

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS02 GHS07

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.
H336 - May cause drowsiness or dizziness.
EUH066 Repeated exposure may cause skin dryness or cracking.

Precautionary statements (CLP) : P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment
P241 Use explosion-proof electrical, ventilating and lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharge.
P261 Avoid breathing vapors or mists.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves and eye protection.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P333 + P313 If skin irritation or rash occurs: Get medical attention.
P363 Wash contaminated clothing before reuse.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER or doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical attention.
P370 + P378 In case of fire: Use water fog, alcohol foam carbon dioxide or dry chemical to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
P501 Dispose of contents and container in accordance with local and national regulations.

2.3. Other hazards

None identified

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
acetone	(CAS-No.) 67-64-1 (EC-No.) 200-662-2	30 - 60	Flam. Liq. 2, H335 Eye Irrit. 2, H319 STOT SE 3, H336 EUH066
2-hydroxyethyl methacrylate	(CAS-No.) 868-77-9 (EC-No.) 212-782-2	1 - 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317
Glycerol Dimethacrylate	(CAS-No.) 1830-78-0 (EC-No.) 217-388-4	1 - 10	Eye Irrit. 2, H319 Skin Irrit. 2, H315 STOT SE 3, H335
ethanol	(CAS-No.) 64-17-5 (EC-No.) 200-578-6	1 - 10	Flam. Liq. 2, H335
Glycerol Phosphate Dimethacrylate	Proprietary	1 - 10	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

SECTION 4: FIRST AID MEASURES

4.1 Description of First Aid Measures

Inhalation: Move to fresh air. If breathing is difficult have qualified personnel administer oxygen. If breathing has stopped, administer artificial respiration. Get medical attention if breathing is difficult or symptoms of exposure persist.

Skin Contact: Immediately flush skin with water for several minutes while removing contaminated clothing. Wash with soap and water Get medical attention if irritation or rash develops. Launder contaminated clothing before reuse.

Eye Contact: Flush eyes with water for 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Get medical attention if irritation persists.

Ingestion: If conscious, rinse mouth with water. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

4.2 Most Important symptoms and effects, both acute and delayed: Causes eye irritation. Prolonged skin contact may cause irritation, drying and cracking of the skin. May cause allergic skin reaction. Inhalation of mists may cause upper respiratory tract irritation and central nervous system effects such as dizziness and drowsiness. Ingestion may cause gastrointestinal irritation, nausea and vomiting.

4.3 Indication of any immediate medical attention and special treatment needed: Immediate medical attention is not required.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing Media: Use water fog, alcohol foam, carbon dioxide or dry chemical to extinguish. Cool fire exposed containers with water.

5.2 Special Hazards arising from the Substance or Mixture: This product is highly flammable and forms explosive mixtures with air. Vapors are heavier than air and will travel along surfaces to remote ignition sources and flash back. Closed containers may explode if exposed to extreme heat. Combustion may produce carbon and phosphorous oxides

5.3 Advice for Firefighters: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing and equipment. Remove all sources of ignition. Avoid breathing vapors or mists. Ventilate area with explosion proof equipment. Avoid contact with the eyes, skin and clothing.

6.2 Environmental Precautions: Avoid release to the environment. Report spill as required by local and federal regulations.

6.3 Methods and Material for Containment and Cleaning Up: Contain and collect using inert absorbent materials and place in appropriate containers for disposal. Use non-sparking tools and equipment. If spill has not ignited, use water spray to disperse the vapors and protect personnel attempting to stop leak. Do not flush to sewer!

6.4 Reference to Other Sections:

Refer to Section 8 for personal protective equipment and Section 13 for disposal information.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling: Avoid contact with eyes, skin and clothing. Wear appropriate eye protection and gloves when handling (see Section 8). Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Keep product away from heat, sparks, flames and all other sources of ignition. Do not permit smoking in use or storage areas. Use with non-sparking tools and explosion proof equipment. Electrically bond and ground containers for transfer.

Empty containers retain product residues which can be hazardous. Follow all SDS precautions when handling empty containers.

7.2 Conditions for Safe Storage, Including any Incompatibilities: Store in accordance with regulations for the storage of flammable liquids. Store in a cool, dry, well-ventilated area away from heat, direct sunlight and all sources of ignition. Store away from oxidizers and other incompatible materials.

7.3 Specific end use(s): Dental Composite Restorative

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Chemical	Exposure Limit
Acetone	250 ppm TWA, 500 ppm STEL ACGIH TLV 500 ppm TWA EU IOEL 500 ppm TWA, 1000 ppm STEL France OEL 500 ppm TWA, 1000 ppm STEL Germany OEL 500 ppm TWA Italy OEL 600 mg/m3 TWA, 1800 mg/m3 STEL Poland OEL 500 ppm TWA Spain OEL 500 ppm TWA, 1500 ppm STEL UK OEL
Ethanol	1000 ppm STEL ACGIH TLV 1000 ppm TWA, 5000 ppm STEL France OEL 500 ppm TWA, 1000 ppm STEL Germany OEL 1900 mg/m3 TWA Poland OEL 1000 ppm STEL Spain OEL 1000 ppm TWA UK OEL
2-Hydroxyethyl methacrylate	None Established
Glycerol Phosphate Dimethacrylate	None Established
Glycerol Dimethacrylate	None Established

8.2 Exposure Controls:

Recommended Monitoring Procedures: None identified.

Appropriate Engineering Controls: Use with adequate general or local exhaust ventilation to maintain exposures below the occupational exposure limits. Use explosion proof equipment where required.

Personal Protective Measurers

Respiratory Protection: None needed under normal use conditions. In operations where exposure levels are exceeded, an approved respirator with organic vapor cartridges or supplied air respirator should be used. Equipment selection depends on contaminant type and concentration. Select in accordance with applicable regulations and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus. Follow EN 374.

Eye Protection: Chemical safety goggles are recommended if contact is possible. Follow EN 166.

Skin Protection: Impervious gloves such as butyl rubber are recommended if contact is possible. Follow EN 374.

Other protection: Wear protective clothing as needed to avoid skin contact and contamination of personal clothing. Suitable eye and skin washing facilities should be available in the work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	:	Light Yellow liquid
Odour	:	Fruity odor
Odour threshold	:	4.58 ppm (acetone)
pH	:	Not available
Relative evaporation rate	:	Not available
Melting point	:	Not determined
Freezing point	:	Not determined
Boiling point	:	58.08 °C (133°F) (acetone)
Flash point	:	-22 °C (-4°F) (acetone)

Auto-ignition temperature	:	363 °C (685°F) (ethanol)
Decomposition temperature	:	Not available
Flammability (solid, gas)	:	Not applicable
Vapour pressure	:	Not available
Relative vapour density	:	Not available
Relative density	:	Not available
Solubility	:	Insoluble in water. In water, material is partially soluble.
Partition Coefficient: (n-octanol/water)	:	Not determined
Viscosity, kinematic	:	Not available
Viscosity, dynamic	:	Not available
Explosive properties	:	None.
Oxidising properties	:	None
Explosive limits	:	LEL: 2.5 (acetone) UEL: 19 (ethanol)

9.2. Other information

None

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Loss of inhibitor may allow the product to polymerize.

10.2 Chemical Stability: Stable

10.3 Possibility of Hazardous Reactions: Excessive heat and ultraviolet light may allow the product to polymerize.

10.4 Conditions To Avoid: Highly flammable liquid. Keep product away from heat, sparks, flames and all other sources of ignition.

10.5 Incompatible Materials: Strong oxidizing agents, reducing agents, alkalis, amines, sulfur compounds, peroxides, free radical initiators, inert gases and oxygen scavengers.

10.6 Hazardous Decomposition Products: Thermal decomposition will produce carbon and phosphorus oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects:

Potential Health Effects:

Inhalation: Inhalation of vapors or mists may cause respiratory tract irritation and central nervous system effect such headache, dizziness and drowsiness.
Skin Contact: Causes skin irritation with redness. Repeated exposure may cause skin dryness or cracking of the skin. May cause an allergic skin reaction,
Eye Contact: Causes eye irritation with redness, tearing and pain.
Ingestion: Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Acute Toxicity Values:
Acute Toxicity Estimate (ATE): Oral: >5000 mg/kg, Dermal: >2000 mg/kg
Acetone: Oral rat LD50 58 mg/kg, Inhalation rat LC50 76 mg/L/4 hr, Dermal rabbit LD50 >7426 mg/kg
Ethanol: Oral rat LD50 10470 mg/kg, Inhalation rat LC50 116.9 mg/L/4 hr,
2-Hydroxyethyl methacrylate: Oral rat LD50 5564 mg/kg, Dermal rabbit LD50 >5000 mg/kg
Glycerol Phosphate Dimethacrylate: No toxicity data available
Glycerol Dimethacrylate: No toxicity data available

Skin corrosion/irritation: 2-Hydroxyethyl methacrylate, glycerol phosphate dimethacrylate and glycerol dimethacrylate are irritating to rabbit skin.

Eye damage/ irritation: Acetone, 2-hydroxyethyl methacrylate, glycerol phosphate dimethacrylate and glycerol dimethacrylate are irritating to rabbit eyes.

Skin Sensitization: 2-Hydroxyethyl methacrylate was positive in a guinea pig maximization test.

Respiratory Sensitization: No data available. This product is not expected to cause respiratory sensitization.

Germ Cell Mutagenicity: None of the components are germ cell mutagens.

Carcinogenicity: None of the components is listed as a carcinogen or potential carcinogen by EU CLP.

Developmental / Reproductive Toxicity: None of the components have been shown to cause reproductive or developmental effects.

Specific Target Organ Toxicity (Single Exposure): Acetone has been shown to cause central nervous effects including headache, dizziness and drowsiness. Glycerol phosphate dimethacrylate and glycerol dimethacrylate have been shown to cause respiratory irritation.

Specific Target Organ Toxicity (Repeated Exposure): Acetone was found to be mildly toxic to rats when administered in the drinking water for 13 weeks. The minimal toxic dose (LOAEL) was 1,700 mg/kg for male rats with the testis, kidneys, and blood cell system as target organs.

Aspiration Toxicity: **Not an aspiration hazard.**

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity: No toxicity data available for product

Acetone: 96 hr LC50 Oncorhynchus mykiss 5540 mg/L, 48 hr LC50 Artemia salina 2100 mg/L

Ethanol: 96 hr LC50 Pimephales promelas 13.8 mg/L, 48 hr EC50 daphnia magna 12340 mg/L, 72 hr EC50 Selenastrum capricornutum 12900 mg/L

2-Hydroxyethyl Methacrylate: 96 hr LC50 Oryzias latipes >100 mg/kg, 48 hr EC50 daphnia magna 380 mg/L, 72 hr EC50 Pseudokirchneriella subcapitata 345 mg/L

Glycerol Phosphate Dimethacrylate: No data available

Glycerol Dimethacrylate: No data available

12.2 Persistence and Degradability: 2-Hydroxyethyl methacrylate, acetone and ethanol are readily biodegradable.

12.3 Bioaccumulative Potential: 2-Hydroxyethyl methacrylate has a logKow of 0.42 and ethanol has a log Kow of 3. Acetone has a BCF of 3. This suggest the potential for bioaccumulation is low.

12.4 Mobility in Soil: Acetone and ethanol are highly mobile in soil.

12.5 Results of PBT and vPvB assessment: Components are not PBT or vPvB.

12.6 Other Adverse Effects: None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods:

Disposal: For unused product, dispose of in accordance with Federal, State, and local regulations. For used Product, the waste solution must be characterized by the generator and disposed of in accordance with Federal, State, and local regulations.

Container Disposal: Rinse empty container thoroughly with water and offer for recycling, if available.

SECTION 14: TRANSPORT INFORMATION

	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Transport Hazard Class(es)	14.4 Packing Group	14.5 Environmental Hazards
US DOT	UN1133	Adhesives, flammable (ethanol, acetone)	3	II	None
EU ADR/RID	UN1133	Adhesives, flammable (ethanol, acetone)	3	II	None
IMDG	UN1133	Adhesives, flammable (ethanol, acetone)	3	II	None
IATA/ICAO	UN1133	Adhesives, flammable (ethanol, acetone)	3	II	None

14.6 Special Precautions for User: None identified

14.7 Transport in Bulk According to Annex III MARPOL 73/78 and the IBC Code:): Not applicable – product is transported only in packaged form.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

European Regulations:

Water Hazard Class: 1

Other EU Regulations: This product is classified and labeled in accordance with CLP Regulation. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006 (REACH) and its amendment regulation (EU) 2015/830.

VOC content : 460 g/l

International Inventories

US EPA TSCA Inventory: This product is regulated under the Federal Drug Administration (FDA) so it is exempt from the TSCA regulation.

15.2 Chemical Safety Assessment: None required

SECTION 16: OTHER INFORMATION

Data sources	:	EC-regulation 2015/830 /EC, 1907/2006/EC (REACH), 1272/2008/EC (CLP), 790/2009/EC. Transport of dangerous goods (ADR/RID, IMDG, IATA/ICAO). Workplace exposure limits.
Date of issue	:	02/03/2018
Revision date	:	22/05/2018
Supersedes	:	02/03/2018
Date of total revision	:	02/03/2018
Version	:	1.1

Full text of H- and EUH-statements:

Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

The information and recommendations set forth herein are taken from sources believed to be accurate as of the date of preparation, however, KERR Corporation makes no warranty with respect to the accuracy or suitability of the recommendations, and assumes no liability to any use thereof.