

SAFETY DATA SHEETS

This SDS packet was issued with item:

074298873

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

074298931 074298964

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

074298865 074298907

SAFETY DATA SHEET

Section 1. Product And Company Identification

Product Name: OptiBond™ FL Prime

Product Use: Dental product: Primer

Manufacturer: Kerr Corporation
1717 W. Collins Ave.
Orange, CA 92867-5422
U.S.A.

Information Phone Number: 1-800-841-1428 (Customer Service)

Chemical Emergency Phone Number (Chemical Spills, Leaks, Fire, Exposure or Accident only):
CHEMTREC 1-800-424-9300 (in the US) 1-703-527-3887 (Outside the US)

SDS Date of Preparation/Revision: February 7, 2019

Section 2. Hazards Identification

GHS Classification:

Flammable Liquids Category 2
Skin Corrosion Category 1B
Serious Eye Damage/Eye Irritation Category 1
Skin Sensitization Category 1
Specific Target Organ Toxicity Single Exposure Category 3
Specific Target Organ Toxicity Repeated Exposure Category 2

Label Elements:

Danger!



Hazard Phrases

Highly flammable liquid and vapor.
Causes serious eye damage.
Causes skin irritation.
May causes an allergic skin reaction.
May cause respiratory irritation.
May cause drowsiness and dizziness.
May cause damage to organs through prolonged or repeated exposure.

Precautionary Phrases:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Use explosion-proof electrical/ventilating/lighting and all material-handling equipment.

Use only non-sparking tools.
 Take precautionary measures against static discharge.
 Do not breathe vapors.
 Wash hands thoroughly after handling.
 Use only outdoors or in a well-ventilated area.
 Contaminated work clothing should not be allowed out of the workplace.
 Wear protective gloves/protective clothing/eye protection/face protection.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. If skin irritation or a rash occurs: Get medical attention.
 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER/ doctor/.../if you feel unwell.
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. Immediately call a POISON CENTER or doctor.
 Store in a well-ventilated place. Keep container tightly closed.
 Store locked up.
 Dispose of contents and container in accordance with local and national regulations.

Section 3. Composition/Information on Ingredients

Component	CAS No.	Amount
2-hydroxyethyl methacrylate	868-77-9	10-30%
Ethanol	64-17-5	10-30%
2-[2-(methacryloyloxy)ethoxycarbonyl]benzoic acid	27697-00-3	10-30%
Glycerol phosphate dimethacrylate	N/A	5-10%

Section 4. First Aid Measures

Inhalation: Remove victim to fresh air. If breathing is difficult or irritation persists, get medical attention.

Skin Contact: Remove contaminated clothing and shoes. Flush skin thoroughly with water for several minutes. Get medical attention if irritation or rash occurs. Launder clothing before re-use.

Eye Contact: Immediately flush eyes with large quantities of water for several minutes, while holding the eyelids apart. Remove contact lenses if easy to do so. Continue rinsing. Get medical attention if irritation persists.

Ingestion: Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if you feel unwell.

Most important symptoms and effects, acute and delayed: Causes serious eye damage and skin irritation. May cause an allergic skin reaction. Inhalation of vapor can cause central nervous system depression, may cause drowsiness, dizziness, and respiratory irritation.

Indication of immediate medical attention and special treatment, if needed: Immediate medical attention is not required.

Section 5. Fire Fighting Measures

Suitable (and Unsuitable) Extinguishing Media: Use any media appropriate for the surrounding fire. Cool fire exposed containers with water.

Specific Hazards Arising from the Chemical: Combustion may produce carbon dioxide, carbon monoxide, and phosphorus oxides.

Special Protective Equipment and Precautions for Fire-fighters: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored. Contain water used in firefighting from entering sewers or natural waterways.

Section 6: Accidental Release Measures

Personal precautions, Protective equipment, and Emergency procedures: Avoid contact with eyes, skin and clothing. Wear appropriate protective clothing and equipment. Do not breathe dust or vapors.

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

Methods and Materials for Containment and Cleaning up: Collect material with an inert absorbent material and place in appropriate, labeled container for disposal.

Section 7. Handling and Storage

Precautions for Safe Handling: Prevent contact with eyes, skin and clothing. Always wear impervious gloves, chemical safety goggles and protective clothing when handling this material. Wash thoroughly with soap and water after handling. Do not eat, drink or smoke in the work area. Do not breathe dust or vapors. Use with adequate ventilation. Remove and wash contaminated clothing before reuse.

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

Conditions for Safe Storage, Including any Incompatibilities: Store in a cool, dry, well-ventilated area away from direct sunlight. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers.

Section 8. Exposure Controls / Personal Protection

Exposure Limits

Chemical	Exposure Limit
2-hydroxyethyl methacrylate	None Established.
Ethanol	1000 ppm TWA NIOSH REL
2-[2-(methacryloyloxy)ethoxycarbonyl]benzoic acid	None Established.
Glycerol phosphate dimethacrylate	None Established.

Appropriate Engineering Controls: Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits.

Respiratory Protection: In operations where exposure levels are exceeded, an approved dust/mist respirator 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.

Hand protection: Impervious gloves are suggested to prevent skin contact. Contact your glove supplier for selection assistance.

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

Skin Protection: Wear protective clothing as needed to avoid skin contact and contamination of personal clothing.

Hygiene measures: Suitable eye and skin washing facilities should be available in the work area.

Section 9. Physical and Chemical Properties

Appearance:	Light yellow liquid	Odor:	Fruity
Odor Threshold:	Not available	pH:	2
Melting/Freezing Point:	Not available	Boiling Point/Range:	78°C (Ethanol)
Flash Point:	18°C (64.4°F) (Ethanol)	Evaporation Rate:	Not available
Flammability: (Solid, Gas)	Highly flammable liquid and vapor	Flammability Limits:	LEL: Not available UEL: Not available
Vapor Pressure:	Not available	Vapor Density:	Not available
Relative Density:	0.96	Solubilities:	Soluble in water
Partition Coefficient: (N-Octanol/Water)	Not available	Autoignition Temperature:	Not available
Decomposition Temperature:	Not available	Viscosity:	Not available

Section 10. Stability and Reactivity

Reactivity: Thermal decomposition generates corrosive vapors.

Chemical Stability: Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

Possibility of Hazardous Reactions: No dangerous reactions known under normal conditions of use.

Conditions to avoid: Avoid flames, sparks, all sources of ignition, direct sunlight, extremely high or low temperatures.

Incompatible Materials: Oxidizing materials.

Hazardous decomposition products: Thermal decomposition may release flammable gases.

Section 11. Toxicological Information

Potential Health Effects:

Inhalation: Inhalation of vapor can cause central nervous system depression. May cause drowsiness, dizziness, and respiratory irritation.

Skin Contact: Direct contact causes skin irritation and may cause an allergic skin reaction.

Eye Contact: Direct contact causes serious eye damage.

Ingestion: Ingestion can cause central nervous system depression and may cause burns to mouth, throat and stomach.

Chronic Hazards: Prolonged or repeated exposure to ethanol may cause damage to organs. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Skin corrosion/irritation: This product is expected to cause severe skin burns.

Eye damage/ irritation: This product is expected to cause serious eye damage.

Skin Sensitization: No adverse effects expected. Components are not sensitizers.

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

Germ Cell Mutagenicity: No data available.

Carcinogen: None of the components are listed as a carcinogen or potential carcinogen by IARC, NTP, ACGIH, or OSHA.

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

Specific Target Organ Toxicity (Single Exposure): May cause respiratory tract irritation.

Specific Target Organ Toxicity (Repeated Exposure): Repeated exposure to ethanol may damage the liver.

Aspiration Toxicity: Not an aspiration hazard.

Acute Toxicity Values:

Product ATE: 10434.1 mg/kg (Oral)

2-hydroxyethyl methacrylate: LD50 Oral rat: 5050 mg/kg; LD50 Dermal rabbit: >3000 mg/kg

Ethanol: LD50 Oral rat: 7060 mg/kg; LD50 Dermal rabbit: >20000 mg/m³;

LC50 Inhalation rat: 124.700 mg/L/4 hr

Section 12. Ecological Information

Toxicity:

2-hydroxyethyl methacrylate: 96 hr LC50 Pimephales promelas 227 mg/L;

72 hr IC50 Algae 836 mg/L; 48 hr EC50 Daphnia magna >280 mg/L

Ethanol: 96 hr LC50 Pimephales promelas 13500 mg/L; 48 hr EC50 Daphnia magna 2000 µg/L;

48 hr LC50 Crustacenas 25500 ug/L

This product is classified as very toxic to the aquatic environment with long-term adverse effects. Releases to the environment should be avoided.

Persistence and degradability: Product is readily biodegradable.

Bioaccumulative Potential:

2-hydroxyethyl methacrylate has a BCF of 1.3 – 1.5, log P_{ow} 0.42, potential for bioaccumulative is low.
Ethanol: log P_{ow} -0.35, potential for bioaccumulative is low.

Mobility in Soil: No data available.

Other Adverse Effects: No data available.

Section 13. Disposal Considerations

Disposal: For unused product, dispose of in accordance with Federal and local regulations.

Container Disposal: Dispose of empty container in accordance with Federal and local regulations.

Section 14. Transport Information

	UN Number	UN Proper Shipping Name	Hazard Class(s)	Packing Group	Environmental Hazards
US DOT	UN1170	Ethanol mixture	3	II	None
EU ADR/RID	UN1170	Ethanol mixture	3	II	None
IMDG	UN1170	Ethanol mixture	3	II	None
IATA/ICAO	UN1170	Ethanol mixture	3	II	None

Special Precautions for User: Transport within user’s premises: Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

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

Section 15. Regulatory Information

U.S. Federal Regulations:

EPA SARA 311/312 Hazard Classification: Refer to Section 2 for OSHA Hazard Classification.

EPA SARA 313: This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): None

Protection Of Stratospheric Ozone: This product is not known to contain or to have been manufactured with ozone depleting substances as defined in 40 CFR Part 82, Appendix A to Subpart A.

CERCLA SECTION 103: This product is not subject to CERCLA reporting requirements; however, many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

International Inventories

US EPA TSCA Inventory: All of the components of this product are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory or exempt.

Canada CEPA: All of the components of this material are listed on the DSL or exempt.

Section 16. Other Information

Effective Date: February 7, 2019

Supersedes Date: November 25, 2013

Revision Summary: All Sections – New SDS format

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.

Section 1. Identification

GHS product identifier : OptiBond FL Adhesive
Other means of identification : Not available.
Product type : Paste.

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

Product use : Dental product: Adhesive.
Area of application : Professional applications.

Manufacturer : **Kerr Corporation**
 1717 West Collins Avenue
 Orange, CA 92867-5422
 Telephone no.: 1-800-KERR-123

e-mail address of person responsible for this SDS : edwin.varela@kavokerrgroup.com

Emergency telephone number (with hours of operation) : CHEMTREC® (24 hours) U.S. : 1-800-424-9300 International: +1-703-527-3887

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Health effects are based on the uncured material.

Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 4
 SKIN CORROSION/IRRITATION - Category 2
 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
 Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 78%

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Harmful if swallowed.
 Causes serious eye irritation.
 Causes skin irritation.
 May cause respiratory irritation.
 Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Section 2. Hazards identification

- Prevention** : Wear protective gloves. Wear eye or face protection. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
- Response** : Get medical attention if you feel unwell. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Store locked up.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.

CAS number/other identifiers

- CAS number** : Not applicable.
- Product code** : Not available.

Ingredient name	Other names	%	CAS number
2-hydroxyethyl methacrylate	2-hydroxyethyl methacrylate	10 - 30	868-77-9
3-trimethoxysilylpropyl methacrylate	3-trimethoxysilylpropyl methacrylate	5 - 10	2530-85-0
2-hydroxy-1,3-propanediyl bismethacrylate	2-hydroxy-1,3-propanediyl bismethacrylate	5 - 10	1830-78-0
alkali fluorosilicates(Na)	disodium hexafluorosilicate	1 - 5	16893-85-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : No special measures are required. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
- Inhalation** : No special measures required. If inhaled, remove to fresh air. Get medical attention if symptoms occur.
- Skin contact** : No special measures required. In case of contact, immediately flush skin with plenty of water. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Get medical attention if adverse health effects persist or are severe.

Most important symptoms/effects, acute and delayed

Potential acute health effects

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Section 4. First aid measures

- Eye contact** : Causes serious eye irritation.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : Causes skin irritation.
- Ingestion** : Harmful if swallowed. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : In case of major fire and large quantities: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : In case of fire, use water spray (fog), foam, dry chemical or CO₂.
- Unsuitable extinguishing media** : Do not use water jet.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
metal oxide/oxides

Special protective actions for fire-fighters : In case of major fire and large quantities: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Low release. For professional use only. Handling of product in very small amounts or in situations where release is highly unlikely.
- For emergency responders** : Low release. See also the information in "For non-emergency personnel".

- Environmental precautions** : Low release. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.
- Large spill** : Small Quantity. For professional use only. Absorb with an inert material and place in an appropriate waste disposal container.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : No special measures are required for small quantities under normal and intended conditions of product use. For professional use only. Put on appropriate personal protective equipment (see Section 8). Handle with care and dispose in a safe manner.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
alkali fluorosilicates(Na)	ACGIH TLV (United States, 6/2013). TWA: 2.5 mg/m ³ , (as F) 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 2.5 mg/m ³ , (as F) 8 hours. OSHA PEL Z2 (United States, 2/2013). TWA: 2.5 mg/m ³ 8 hours. Form: Dust OSHA PEL (United States, 2/2013). TWA: 2.5 mg/m ³ , (as F) 8 hours.

- Appropriate engineering controls** : No special measures are required for small quantities under normal and intended conditions of product use.
- Environmental exposure controls** : No special measures are required for small quantities under normal and intended conditions of product use.

Individual protection measures

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Section 8. Exposure controls/personal protection

- Hygiene measures** : No special measures are required for small quantities under normal and intended conditions of product use.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : No special measures are required for small quantities under normal and intended conditions of product use.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : No special measures are required for small quantities under normal and intended conditions of product use.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid. [Paste.]
- Color** : Yellow. [Light]
- Odor** : Fruity.
- Odor threshold** : Not available.
- pH** : 5
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not applicable.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1.1
- Solubility** : Insoluble in the following materials: cold water and hot water.
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- SADT** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions to avoid** : Keep away from heat. Light.
- Incompatible materials** : Reactive or incompatible with the following materials: oxidizing materials and reducing materials.
Peroxide.
Amines.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2-hydroxyethyl methacrylate	LD50 Oral	Rat	4230 mg/kg	-
3-trimethoxysilylpropyl methacrylate	LD50 Oral	Rat	23504 mg/kg	-
alkali fluorosilicates(Na)	LD50 Oral	Rat	125 mg/kg	-

Conclusion/Summary : Based on the criteria of the protocol, this product is considered non-cytotoxic per ISO 10993-5.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
3-trimethoxysilylpropyl methacrylate	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
alkali fluorosilicates(Na)	Skin - Mild irritant	Rabbit	-	500 milligrams	-

Sensitization

Product/ingredient name	Route of exposure	Species	Result
OptiBond FL Adhesive	skin	Guinea pig	Not sensitizing

Conclusion/Summary

Skin : Kligman score: Grade I (weak sensitizer)

Mutagenicity

Product/ingredient name	Test	Experiment	Result
OptiBond FL Adhesive	-	Subject: Bacteria	Negative

Carcinogenicity

Not available.

Section 11. Toxicological information

Classification

Product/ingredient name	OSHA	IARC	NTP
alkali fluorosilicates(Na)	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
2-hydroxyethyl methacrylate	Category 3	Not applicable.	Respiratory tract irritation
2-hydroxy-1,3-propanediyl bismethacrylate	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
alkali fluorosilicates(Na)	Category 1	Not determined	bones and teeth

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : Causes skin irritation.
- Ingestion** : Harmful if swallowed. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Section 11. Toxicological information

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Causes damage to organs through prolonged or repeated exposure.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	1125.2 mg/kg
Dermal	3473.7 mg/kg
Inhalation (vapors)	34.74 mg/l

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
2-hydroxyethyl methacrylate	Acute LC50 227000 µg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
alkali fluorosilicates(Na)	Acute LC50 49000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2-hydroxyethyl methacrylate	301C Ready Biodegradability - Modified MITI Test (I)	92 to 100 % - 14 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
2-hydroxyethyl methacrylate	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
2-hydroxyethyl methacrylate	0.42	-	low
3-trimethoxysilylpropyl methacrylate	2.1	-	low

Mobility in soil

Section 12. Ecological information

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **Commerce control list precursor:** alkali fluorosilicates(Na)
United States inventory (TSCA 8b): Not determined.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

Date of issue/Date of revision : 07/16/2014 **Date of previous issue** : No previous validation **Version** : 1 9/11

Section 15. Regulatory information

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard
 Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
2-hydroxyethyl methacrylate	10 - 30	No.	No.	No.	Yes.	No.
3-trimethoxysilylpropyl methacrylate	5 - 10	No.	No.	No.	Yes.	No.
2-hydroxy-1,3-propanediyl bismethacrylate	5 - 10	No.	No.	No.	Yes.	No.
alkali fluorosilicates(Na)	1 - 5	No.	No.	No.	Yes.	Yes.

SARA 313

Not applicable.

State regulations

Massachusetts : The following components are listed: MINERAL WOOL FIBER; SODIUM SILICA FLUORIDE

New York : None of the components are listed.

New Jersey : The following components are listed: FLUORIDES; SODIUM FLUOROSILICATE; SILICATE(2-), HEXAFLUORO-, DISODIUM

Pennsylvania : None of the components are listed.

California Prop. 65

None of the components are listed.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	*	2
Flammability		0
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Section 16. Other information

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision : 07/16/2014

Date of previous issue : No previous validation

Version : 1

Prepared by : IHS

Key to abbreviations : ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References : HCS (U.S.A.)- Hazard Communication Standard
 International transport regulations

☑ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Section 1. Product And Company Identification

Product Name: OptiBond™ FL Adhesive

Product Use: Dental product: Adhesive

Manufacturer: Kerr Corporation
1717 W. Collins Ave.
Orange, CA 92867-5422
U.S.A.

Information Phone Number: 1-800-841-1428 (Customer Service)

Chemical Emergency Phone Number (Chemical Spills, Leaks, Fire, Exposure or Accident only):
CHEMTREC 1-800-424-9300 (in the US) 1-703-527-3887 (Outside the US)

SDS Date of Preparation/Revision: April 24, 2019

Section 2. Hazards Identification

GHS Classification:

Acute Toxicity Category 4

Skin Corrosion Category 2

Serious Eye Damage/Eye Irritation Category 2A

Specific Target Organ Toxicity Single Exposure Category 3

Specific Target Organ Toxicity Repeated Exposure Category 1

Label Elements:

Danger!



Hazard Phrases

Harmful if swallowed.

Causes serious eye irritation.

Causes skin irritation.

May cause respiratory irritation.

Causes damage to organs through prolonged or repeated exposure.

Precautionary Phrases:

Do not breathe vapors.

Wash hands thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Get medical attention if you feel unwell.

IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

IF ON SKIN (or hair): Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or a rash occurs: Get medical attention.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If eye irritation persists: Get medical attention.

Store locked up.

Dispose of contents and container in accordance with local and national regulations.

Section 3. Composition/Information on Ingredients

Component	CAS No.	Amount
Glass, oxide, chemicals	65997-17-3	30-60%
2-hydroxyethyl methacrylate	868-77-9	10-30%
Ytterbium trifluoride	13760-80-0	10-30%
3-trimethoxysilylpropyl methacrylate	2530-85-0	5-10%
2-hydroxy-1,3-propanediyl bismethacrylate	1830-78-0	5-10%
Alkali fluorosilicates (Na)	16893-85-9	1-5%

Section 4. First Aid Measures

Inhalation: Remove victim to fresh air. If breathing is difficult or irritation persists, get medical attention.

Skin Contact: Immediately flush skin thoroughly with plenty of water for several minutes. Get medical attention if irritation or rash occurs. Launder clothing before re-use.

Eye Contact: Immediately flush eyes with large quantities of water for several minutes. Get medical attention if symptoms occur.

Ingestion: Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious or convulsing person. Keep the victim calm and warm. Get immediate medical attention.

Most important symptoms and effects, acute and delayed: Causes serious eye irritation and skin irritation. May cause respiratory irritation. Product is harmful if swallowed.

Indication of immediate medical attention and special treatment, if needed: Immediate medical attention is not required.

Section 5. Fire Fighting Measures

Suitable (and Unsuitable) Extinguishing Media: Use any media appropriate for the surrounding fire. Cool fire exposed containers with water.

Specific Hazards Arising from the Chemical: Combustion may produce carbon dioxide, carbon monoxide, halogenated compounds, and metal oxides.

Special Protective Equipment and Precautions for Fire-fighters: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where

chemicals are used or stored. Contain water used in firefighting from entering sewers or natural waterways.

Section 6: Accidental Release Measures

Personal precautions, Protective equipment, and Emergency procedures: Avoid contact with eyes, skin and clothing. Wear appropriate protective clothing and equipment. Do not breathe dust or vapors.

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

Methods and Materials for Containment and Cleaning up: Collect material with an inert absorbent material and place in appropriate, labeled container for disposal.

Section 7. Handling and Storage

Precautions for Safe Handling: Prevent contact with eyes, skin and clothing. Always wear impervious gloves, chemical safety goggles and protective clothing when handling this material. Wash thoroughly with soap and water after handling. Do not eat, drink or smoke in the work area. Do not breathe dust or vapors. Use with adequate ventilation. Remove and wash contaminated clothing before reuse.

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

Conditions for Safe Storage, Including any Incompatibilities: Store in a cool, dry, well-ventilated area away from direct sunlight. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers.

Section 8. Exposure Controls / Personal Protection

Exposure Limits

Chemical	Exposure Limit
Glass, oxide, chemicals	10 mg/m ³ TWA ACGIH TLV (total) 5 mg/m ³ TWA ACGIH TLV (inhalable fraction)
2-hydroxyethyl methacrylate	None Established
Ytterbium trifluoride	2.5 mg/m ³ TWA ACGIH TLV
3-trimethoxysilylpropyl methacrylate	None Established
2-hydroxy-1,3-propanediyl bismethacrylate	None Established
Alkali fluorosilicates (Na)	2.5 mg/m ³ TWA ACGIH TLV

Appropriate Engineering Controls: Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits.

Respiratory Protection: In operations where exposure levels are exceeded, an approved dust/mist respirator 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.

Hand protection: Impervious gloves are suggested to prevent skin contact. Contact your glove supplier for selection assistance.

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

Skin Protection: Wear protective clothing as needed to avoid skin contact and contamination of personal clothing.

Hygiene measures: Suitable eye and skin washing facilities should be available in the work area.

Section 9. Physical and Chemical Properties

Appearance:	Light yellow liquid	Odor:	Fruity
Odor Threshold:	Not available	pH:	5
Melting/Freezing Point:	Not available	Boiling Point/Range:	Not available
Flash Point:	Not available	Evaporation Rate:	Not available
Flammability: (Solid, Gas)	Not available	Flammability Limits:	LEL: Not available UEL: Not available
Vapor Pressure:	Not available	Vapor Density:	Not available
Relative Density:	1.1	Solubilities:	Insoluble in water
Partition Coefficient: (N-Octanol/Water)	Not available	Autoignition Temperature:	Not available
Decomposition Temperature:	Not available	Viscosity:	Not available

Section 10. Stability and Reactivity

Reactivity: The product is not expected to be reactive.

Chemical Stability: Stable under normal storage and handling conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to avoid: Avoid heat and light.

Incompatible Materials: Oxidizing materials, reducing materials, peroxide, and amines.

Hazardous decomposition products: None if stored normally.

Section 11. Toxicological Information

Potential Health Effects:

Inhalation: May cause respiratory irritation.

Skin Contact: Direct contact causes skin irritation.

Eye Contact: Direct contact causes serious eye irritation.

Ingestion: Harmful if swallowed. Ingestion may be irritating to mouth, throat and stomach.

Chronic Hazards: Causes damage to organs through prolonged or repeated exposure.

Skin Sensitization: No adverse effects expected. Components are not sensitizers.

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

Germ Cell Mutagenicity: None of the components have shown mutagenic activity in animal studies.

Carcinogen: None of the components are listed as a carcinogen or potential carcinogen by IARC, NTP, ACGIH, or OSHA.

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

Specific Target Organ Toxicity (Single Exposure): Single exposure to 2-hydroxyethyl methacrylate and 2-hydroxy-1,3-propanediyl bismethacrylate may cause respiratory tract irritation.

Specific Target Organ Toxicity (Repeated Exposure): Repeated exposure to Alkali fluorosilicates (Na) may cause damage to bones and teeth.

Aspiration Toxicity: Not an aspiration hazard.

Acute Toxicity Values:

Product ATE: 1125.2 mg/kg (Oral); 3473.7 mg/kg (Dermal); 34.74 mg/L (Inhalation as vapors)
2-hydroxyethyl methacrylate: LD50 Oral rat: 5050 mg/kg; LD50 Dermal rabbit: >3000 mg/kg
3-trimethoxysilylpropyl methacrylate: LD50 Oral rat: 23504 mg/kg; LD50 Dermal rat: >2000 mg/kg
Alkali fluorosilicates (Na): LD50 Oral rat: 125 mg/kg

Section 12. Ecological Information

Toxicity:

2-hydroxyethyl methacrylate: 96 hr LC50 Pimephales promelas 227 mg/L;
Alkali fluorosilicates (Na): 96 hr LC50 Lepomis macrochirus 49 mg/L

This product is classified as toxic to the aquatic environment. Releases to the environment should be avoided.

Persistence and degradability: Product is readily biodegradable.

Bioaccumulative Potential:

2-hydroxyethyl methacrylate has a BCF of 1.3 – 1.5, log P_{ow} 0.42, potential for bioaccumulative is low.
3-trimethoxysilylpropyl methacrylate: log P_{ow} 2.1, potential for bioaccumulative is low.

Mobility in Soil: No data available.

Other Adverse Effects: No data available.

Section 13. Disposal Considerations

Disposal: For unused product, dispose of in accordance with Federal and local regulations.

Container Disposal: Dispose of empty container in accordance with Federal and local regulations.

Section 14. Transport Information

	UN Number	UN Proper Shipping Name	Hazard Class(s)	Packing Group	Environmental Hazards
US DOT	None	Not Regulated	None	None	None
EU ADR/RID	None	Not Regulated	None	None	None
IMDG	None	Not Regulated	None	None	None
IATA/ICAO	None	Not Regulated	None	None	None

Special Precautions for User: Transport within user's premises: Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

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

Section 15. Regulatory Information

U.S. Federal Regulations:

EPA SARA 311/312 Hazard Classification: Refer to Section 2 for OSHA Hazard Classification.

EPA SARA 313: This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): None

Protection Of Stratospheric Ozone: This product is not known to contain or to have been manufactured with ozone depleting substances as defined in 40 CFR Part 82, Appendix A to Subpart A.

CERCLA SECTION 103: This product is not subject to CERCLA reporting requirements; however, many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

International Inventories

US EPA TSCA Inventory: All of the components of this product are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory or exempt.

Canada CEPA: All of the components of this material are listed on the DSL or exempt.

Section 16. Other Information

Effective Date: April 24, 2019

Supersedes Date: July 16, 2014

Revision Summary: All Sections – New SDS format

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.