Optibond™ Solo Plus
Safety Data Sheet

1. Identification

Product name: Optibond™ Solo Plus

Recommended use: Dental Product: Adhesive

Restrictions on use: Restricted to professional users

Supplier: Kerr Corporation
1717 W. Collins Ave.
Orange, CA 92867-5422 - U.S.A.
T 1-800-841-1428 (Customer Service)

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

Issue date: 11/30/2020

2. Hazard(s) identification

Classification:

Physical hazards	Health hazards
Flammable liquids Category 2	Skin corrosion/irritation Category 2 Eye irritation Category 2 Skin sensitization, Category 1

GHS US labeling:

Danger!

Hazard statements (GHS US)	Precautionary statements (GHS US)
H225 - Highly flammable liquid and vapor H315 - Causes skin irritation H317 - May cause an allergic skin reaction H319 - Causes serious eye irritation	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 - Keep container tightly closed. P240 - Ground/Bond container and receiving equipment. P241 - Use explosion-proof electrical, ventilating, lighting equipment. P242 - Use only non-sparking tools. P243 - Take precautionary measures against static discharge. P261 - Avoid breathing vapors. P264 - Wash hands thoroughly after handling. P272 - Contaminated work clothing must not be allowed out of the workplace. P280 - Wear eye protection, protective gloves.

	P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P363 - Wash contaminated clothing before reuse. 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 advice/attention. P370+P378 - In case of fire: Use carbon dioxide (CO2), powder, alcohol-resistant foam, water spray to extinguish. P403+P235 - Store in a well-ventilated place. Keep cool. P501 - Dispose of contents or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

3: Composition/Information on ingredients

Component	CAS-No.	Amount (%)
Ethanol	64-17-5	10 – 30
2-hydroxyethyl methacrylate	868-77-9	10 – 30
Glyceryl dimethacrylate	1830-78-0	1 – 5
Pyrogenic (Fumed) Amorphous Silica	68909-20-6	1 – 5
Alkali fluorosilicates(Na)	16893-85-9	0.1 – 1

***Chemical name, CAS number and/or exact concentration have been withheld as a trade secret**

4. First-aid measures

Inhalation: Remove person to fresh air and keep comfortable for breathing. Get medical attention if symptoms occur.

Skin: Wash skin with plenty of water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention.

Eyes: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion: Call a poison center or a doctor if you feel unwell.

Symptoms/effects: May cause moderate irritation to the eyes. May cause irritation to skin. May cause an allergic skin reaction.

Immediate medical attention and special treatment, if necessary: Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media: Use dry chemical, CO2, water spray or alcohol-resistant foam.

Unsuitable extinguishing media: Do not use water jet.

Fire hazard: Highly flammable liquid and vapor. Vapors are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapors. Prolonged exposure to fire may cause containers to rupture/explode. Thermal decomposition generates: Carbon oxides (CO, CO2). Nitrogen oxides. Phosphorus oxides. Metallic oxides.

Special protective equipment and precautions for fire-fighters: In case of fire: Stop leak if safe to do so. Use water spray or fog for cooling exposed containers. Do not allow run-off from firefighting to enter drains or water courses. Fight fire with normal precautions from a reasonable distance. Do not attempt to take action without suitable protective equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Remove ignition sources. Avoid contact with eyes, skin and clothing. Wear suitable protective clothing. Always wash hands after handling the product. Do not breathe vapors. Ventilate area.

Methods and material for containment and cleaning up: Stop leak if safe to do so. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Use non-sparking tools. Notify authorities if product enters sewers or public waters. Place in a suitable container for disposal in accordance with the waste regulations (see Section 13).

7. Handling and storage

Precautions for safe handling: Avoid contact with eyes, skin and clothing. Wear personal protective equipment. Avoid breathing vapors. Ensure adequate ventilation. Wash hands with water and soap. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment.

Storage conditions: Store in dry, cool, well-ventilated area. Keep away from heat and direct sunlight. Keep container tightly closed.

8. Exposure controls/personal protection

Exposure guidelines:	
Ethanol	1900 mg/m³ TWA OSHA PEL; 1000 ppm TWA OSHA PEL; 1000 ppm STEL ACGIH TLV;
2-hydroxyethyl methacrylate	None established.
Glyceryl dimethacrylate	None established.
Pyrogenic (Fumed) Amorphous Silica	20 mppcf TWA OSHA PEL;
Alkali fluorosilicates(Na)	2.5 mg/m³ TWA OSHA PEL; 2.5 mg/m³ TWA ACGIH TLV;

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

Environmental exposure controls: Avoid release to the environment.

Personal protective equipment:

Materials for protective clothing: Impervious clothing

Hand protection: Wear impervious gloves.

Eye protection: Use suitable eye protection. Chemical goggles

Skin and body protection: Wear suitable protective clothing

Respiratory protection: In operations where exposure limits are exceeded or exposure levels are excessive, an approved respirator should be used. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.

9. Physical and chemical properties

Appearance: Yellow liquid.

Physical state	:	Liquid
Color	:	Light yellow
Odor	:	Fruity
Odor threshold	:	No data available
pH	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	78.24 °C (172.83 °F) (Ethanol)
Flash point	:	18 °C (64.4 °F) (Ethanol)
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Not applicable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	1.25

No additional information available

Solubility	:	In water, material is partially soluble.
Partition coefficient n-octanol/water (Log Pow)	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

10. Stability and reactivity

Reactivity: The product is non-reactive under normal conditions of use, storage and transport.

Chemical stability: Stable under normal conditions.

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

Conditions to avoid: Keep away from open flames, hot surfaces and sources of ignition.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Inhalation: May cause minor irritation to the respiratory tract and to other mucous membranes.

Skin: May cause moderate irritation. May cause an allergic skin reaction.

Eyes: May cause moderate irritation, including burning sensation, tearing, redness or swelling.

Ingestion: May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic symptoms: Prolonged absorption of fluorides may result in fluorosis. Symptoms include joint pain, changes in bone density (osteosclerosis), ossification of ligaments, limited mobility, teeth abnormalities and mottling of the dental enamel.

Carcinogenicity:	Not classified
Ethanol:	This component is not listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, OSHA or the EU CLP.
2-hydroxyethyl methacrylate:	This component is not listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, OSHA or the EU CLP.
Glyceryl dimethacrylate:	This component is not listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, OSHA or the EU CLP.
Pyrogenic (Fumed) Amorphous Silica:	This component is not listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, OSHA or the EU CLP.
Alkali fluorosilicates(Na):	This component is not listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, OSHA or the EU CLP.
Germ cell mutagenicity:	Not classified
Reproductive toxicity:	Not classified

Numerical measures of toxicity:

Acute Toxicity Estimate:	ATE US (oral): 3581.7 mg/kg ATE US (dermal): 14580 mg/kg ATE US (vapors): 145.8 mg/l

The following are the toxicity values for the components:

Ethanol:	Oral rat LD50- ≈ 10470 mg/kg;
2-hydroxyethyl methacrylate:	Oral rat LD50- 5564 mg/kg body weight; Dermal rabbit LD50- > 5000 mg/kg body weight;
Glyceryl dimethacrylate:	No data available
Pyrogenic (Fumed) Amorphous Silica:	Oral rat LD50- > 5000 mg/kg; Dermal rabbit LD50- > 2000 mg/kg;
Alkali fluorosilicates(Na):	Oral rat LD50- 25 – 2000 mg/kg body weight;
Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitization	May cause an allergic skin reaction.
STOT-single exposure	Not classified
STOT-repeated exposure	Not classified

12. Ecological information

Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Ecotoxicity:

Ethanol	14.2 g/L Fish LC50; 100 mg/L Daphnia EC50
2-hydroxyethyl methacrylate	100 mg/L Fish LC50; 380 mg/L Daphnia EC50

Pyrogenic (Fumed) Amorphous Silica	10000 mg/L Fish LC50
Alkali fluorosilicates(Na)	35.4 mg/L Daphnia EC50

Persistence and degradability: No data available
Bioaccumulative potential: No data available
Mobility in soil: No data available

Other adverse effects:

No data available

13. Disposal considerations

Regional legislation (waste): Dispose of in accordance with applicable federal, state, and local regulations.

Additional information: Flammable vapors may accumulate in the container.

14. Transport information

Department of Transportation (DOT)

Proper Shipping Name (DOT) : Ethanol solutions
UN-No.(DOT) : UN1170
Class (DOT) : 3
Packing group (DOT) : II
Hazard labels (DOT) : Flammable liquid

Transport by sea

Proper Shipping Name (IMDG) : ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
UN-No. (IMDG) : 1170
Class (IMDG) : 3
Packing group (IMDG) : II

Air transport

Proper Shipping Name (IATA) : Ethanol solution
UN-No. (IATA) : 1170
Class (IATA) : 3
Packing group (IATA) : II

15. Regulatory information

SARA Section 313 - Emission Reporting: Not subject to reporting requirements of the United States SARA Section 313

CERCLA Section 103:

This product is not subject to reporting under CERLCA. However, many states have more stringent reporting requirements. Report all spills in accordance with local, state, and federal regulations.

SARA 302:

Not applicable

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

California Proposition 65:

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

TSCA: All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

INTERNATIONAL INVENTORIES

Australia AICS:	One or more ingredient(s) are not listed
Canada DSL:	All the components are listed.
China IECSC:	One or more ingredient(s) are not listed
EU EINECS:	One or more ingredient(s) are not listed
Japan ENCS:	One or more ingredient(s) are not listed
Korea KECL:	One or more ingredient(s) are not listed
New Zealand:	One or more ingredient(s) are not listed
Philippines PICCS:	One or more ingredient(s) are not listed
Taiwan CSNN	One or more ingredient(s) are not listed

16. Other information

Revision date : 11/30/2020

NFPA	
NFPA health hazard:	2
NFPA fire hazard:	3
NFPA reactivity:	0

NOTICE

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.

SAFETY DATA SHEET

Section 1. Product And Company Identification

Product Name: Gel Etchant
Product Use: Etching gel

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: December 27, 2018

Section 2. Hazards Identification

GHS Classification:
Skin Corrosion Category 1A
Eye Damage Category 1

Label Elements:
Danger!

Hazard Phrases
Causes severe skin burns and eye damage.

Precautionary Phrases:
Wash thoroughly after handling.
Wear protective gloves, eye protection.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rise skin with water/shower.
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.
Dispose of contents and container in accordance with local and national regulations.

Section 3. Composition/Information on Ingredients

Component	CAS No.	Amount
Phosphoric acid	7664-38-2	35-40%
Cobalt alumina blue spinel	1345-16-0	< 1%

Section 4. First Aid Measures

Inhalation: Immediately remove victim to fresh air. If breathing is difficult, oxygen should be administered by qualified personnel. If breathing has stopped, administer artificial respiration. Get immediate medical attention.

Skin Contact: Flush thoroughly with water. Get medical attention if irritation or symptoms of exposure develop. Remove and launder contaminated clothing before re-use.

Eye Contact: Rinse thoroughly with water. Get medical attention if irritation occurs and persists.

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 severe skin burns and eye damage.

Indication of immediate medical attention and special treatment, if needed: No immediate medical attention is 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, phosphorus oxides, metal oxide, hydrogen.

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. Cool fire-exposed containers with water. Contain water used in firefighting from entering sewers or natural waterways.

Section 6: Accidental Release Measures

Personal precautions, Protective equipment, and Emergency procedures: Evacuate spill area and keep unprotected personnel away. Avoid contact with eyes, skin and clothing. Wear appropriate protective clothing and equipment.

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

Methods and Materials for Containment and Cleaning up: Prompt cleanup and removal are necessary. Soak up spills with inert solids and place in container for disposal according to local regulations.

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. 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
Phosphoric acid	1 mg/m^3 TWA ACGIH TLV 3 mg/m^3 STEL OSHA PEL
Cobalt alumina blue spinel	0.02 mg/m^3 TWA ACGIH

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

Respiratory Protection: None under normal use conditions with adequate ventilation. For operations where the occupational exposure limits are exceeded, an approved respirator with particulate cartridges is recommended. 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.

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:	Blue gel	**Odor:**	Odorless
Odor Threshold:	Not available	**pH:**	0.5 – 1.5
Melting/Freezing Point:	Not available	**Boiling Point/Range:**	100°C
Flash Point:	Not flammable	**Evaporation Rate:**	Not available
Flammability: (Solid, Gas)	Not applicable	**Flammability Limits:**	LEL: Not applicable UEL: Not applicable

Vapor Pressure:	760 mmHg	**Vapor Density:**	Not available
Relative Density:	1.2	**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: 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 extremely high or low temperatures.
Incompatible Materials: Oxidizing materials, reducing materials, metals, acids, alkalis, moisture, peroxides, amines.
Hazardous decomposition products: None if stored normally.

Section 11. Toxicological Information

Potential Health Effects:

Inhalation: May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
Skin Contact: Causes severe skin burns.
Eye Contact: Causes serious eye damage.
Ingestion: Corrosive to the digestive tract. Causes burns. May cause burns to mouth, throat and stomach.
Chronic Hazards: None expected.

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 are mutagenic.

Carcinogen:
Cobalt alumina blue spinel is listed as “Possibly Carcinogenic to Humans” (Group 2B) by IARC.
None of the other 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): No data available.

Specific Target Organ Toxicity (Repeated Exposure): No data available.

Aspiration Toxicity: Not an aspiration hazard.

Acute Toxicity Values:
Product ATE: 3198.8 mg/kg mg/L (Oral); 7198.8 mg/kg (Dermal)
Phosphoric acid: Dermal rat LD50: 2740 mg/kg; Oral rat LD50: 1.25 g/kg
Cobalt aluminate blue spinel: Oral rat LD50: >5000 mg/kg

Section 12. Ecological Information

Toxicity:
Phosphoric acid: 96 hr LC50 Lepomis macrochirus 60 ppm; 48 hr EC50 Daphnia magna 105 ppm.

Persistence and degradability: Biodegradation is not applicable to inorganic substances.

Bioaccumulative Potential: No data available.

Mobility in Soil: Slightly soluble.

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	UN1805	Phosphoric acid solution	8	III	None
EU ADR/RID	UN1805	Phosphoric acid solution	8	III	None
IMDG	UN1805	Phosphoric acid solution	8	III	None
IATA/ICAO	UN1805	Phosphoric acid solution	8	III	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: December 27, 2018
Supersedes Date: December 12, 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.