

SAFETY DATA SHEETS

This SDS packet was issued with item:

070812727

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).

070812693 074297032 074297057

MATERIAL SAFETY DATA SHEET

OPTIBOND ALL-IN-ONE

Self Etching Adhesive

1 - IDENTIFICATION

Manufacturer: Kerr Corporation
Address: 1717 West Collins Avenue
City, State, Zip: Orange, CA 92867-5422
Telephone: 1-800-KERR-123
24-Hour Emergency: Chemtrec 1-800-424-9300
Date Prepared: May 24, 2006
Date Revised: October 1, 2007

2 - COMPOSITION INFORMATION

Hazardous Ingredients

	<u>CAS #</u>	<u>PEL</u> *	<u>TLV</u> *	<u>%</u>
Acetone	67-64-1	750ppm	500ppm	35-45
Ethyl Alcohol	64-17-5	1000ppm	1000ppm	4-9
Uncured Methacrylate Ester Monomers	109-16-0	N/A	N/A	33-43

*TWA

Other Ingredients

Inert mineral fillers, Ytterbium Fluoride, photoinitiators, accelerators, stabilizers and water

3 - PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N/D
Specific Gravity (H₂O = 1): N/D
Vapor Pressure (mm Hg): N/D
Vapor Density (AIR = 1): N/D
Solubility in Water: Insoluble
Appearance and Odor: Slightly viscous liquid with yellowish tint and a fruity/ketone odor

4 - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): <55 °F
Flammable Limits: LEL: N/E **UEL:** N/E
Extinguishing Media: CO₂, dry chemical, alcohol foam
Special Fire Fighting Procedures: Move container away from fire, if possible and without risk. Wear self-contained breathing apparatus.
Unusual Fire and Explosion Hazards: May be dangerous when exposed to heat or open flame

5 - REACTIVITY DATA

Stability: Stable
Conditions to Avoid: Heat, sparks and open flame
Incompatibility (Material to Avoid): Strong oxidizing agents
Hazardous Decomposition Byproducts: Oxides of carbon
Hazardous Polymerization: Will not occur

6 - HEALTH HAZARD DATA

Routes of Entry:
Skin: May cause skin irritation
Eyes: May cause severe irritation
Inhalation: May cause irritation of the throat and nose. May cause headache, dizziness and drowsiness
Ingestion: May cause irritation, headache, dizziness and drowsiness
Carcinogenicity - NTP: No
IARC Monographs: No **OSHA Regulated Carcinogen:** No

7 - EMERGENCY FIRST AID PROCEDURES

Skin: Wash skin thoroughly with soap and water. If irritation persists, seek medical attention.
Eyes: Flush thoroughly with water for 15 minutes. If irritation persists, seek medical attention.
Inhalation: Remove to fresh air. If irritation persists, seek medical attention.
Ingestion: Do not give liquids if person is unconscious. Seek medical attention.

8 - PRECAUTIONS FOR SAFE HANDLING & USE

Steps to be taken in case material is released or spilled: Eliminate all ignition sources, absorb spills with inert material and transfer to a suitable container for disposal.
Waste Disposal Method: Material should not be allowed to drain to sewers. Dispose of in accordance with federal, state and local regulations.
Precautions to be taken in handling and storing: Store in a cool, dry place away from heat and ignition sources.

9 - CONTROL MEASURES

Respiratory Protection: Recommended
VENTILATION:
Local Exhaust: Recommended to keep exposure below limits
Mechanical (General): Usually sufficient
Protective Gloves: Impervious gloves recommended
Eye Protection: Safety glasses with side shield or face shield
Work/Hygiene Practices: Handle in accordance with good personal hygiene and safety practices. These practices include avoiding unnecessary exposure to material.

10 - TRANSPORTATION INFORMATION

Regulated: DOT, IATA and IMO
Proper Shipping Name: Acetone
Hazard Class: 3
Identification Number: UN 1090
Packing Group: II
Label: Flammable Liquid
Note: See 49CFR173.4 and 49CFR173.150

11 - SPECIAL INFORMATION

HMIS (Hazardous Material Identification System) Rating:
H2 F4 R0
[HMIS Hazard Index: 4 – Severe Hazard; 3 – Serious Hazard;
2 – Moderate Hazard; 1 – Slight Hazard; 0 – Minimum Hazard]

Note: This MSDS was prepared in accordance with the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and is to be used only for this product. The information contained in this MSDS is, to the best of our knowledge, believed to be accurate.

1 . Identification of the material and supplier

Names

Product name : OptiBond® All-In-One
ADG : UN1993
Manufacturer : **Kerr Australia Pty Limited**
 Unit 10, 112-118 Talavera Road
 North Ryde, NSW 2113
 Australia
 Telephone no.: 1 800 643 603
 Email general queries: kerraust.orders@sybrondental.com
 Email technical queries: peter.green@sybrondental.com

Emergency telephone number : 61 401 690 670 (24 hours)

Uses

Area of application : Professional applications.
Material uses : Dental product: Bonding agent
Product type : Liquid.

2 . Hazards identification

Classification : F; R11
 Xi; R36
 R66, R67

Risk phrases : R11- Highly flammable.
 R36- Irritating to eyes.
 R66- Repeated exposure may cause skin dryness or cracking.
 R67- Vapours may cause drowsiness and dizziness.

Statement of hazardous/dangerous nature : HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

Health effects are based on the uncured material.

3 . Composition/information on ingredients

Mixture : Yes.

Ingredient name	CAS number	Concentration
Acetone	67-64-1	30-60
2-Hydroxyethyl methacrylate	868-77-9	<10
Ethyl alcohol	64-17-5	<10
2-hydroxy-1,3-propanediyl bismethacrylate	1830-78-0	<10
Silica, amorphous, fumed, cryst.-free	112945-52-5	<10
Methyl alcohol	67-56-1	<10

Other ingredients, determined not to be hazardous according to Safe Work Australia criteria, and not dangerous according to the ADG Code, make up the product concentration to 100%.

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 or the environment and hence require reporting in this section.

4 . First-aid measures

First-aid measures

Inhalation	: No special measures required. If inhaled, remove to fresh air. 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.
Skin contact	: No special measures required. In case of contact, immediately flush skin with plenty of water. Get medical attention if symptoms occur.
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.
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.
Advice to doctor	: No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Extinguishing media

Suitable	: Use dry chemical, CO ₂ , water spray (fog) or foam.
Not suitable	: Do not use water jet.
Special exposure hazards	: 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Highly flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
Hazardous thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide phosphorus oxides metal oxide/oxides
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.
Hazchem code	: •3YE

6 . Accidental release measures

Personal precautions	: Low release. For professional use only. Handling of product in very small amounts or in situations where release is highly unlikely
Environmental precautions	: Low release. Avoid dispersal of spilt 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).
<u>Methods for cleaning up</u>	
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.

7 . Handling and storage

- Handling** : 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 of in a safe manner.
- Storage** : Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination.
- Combustible liquid** Not applicable.

8 . Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Exposure limits
Acetone	Safe Work Australia (Australia, 1/2014). STEL: 2375 mg/m ³ 15 minutes. STEL: 1000 ppm 15 minutes. TWA: 1185 mg/m ³ 8 hours. TWA: 500 ppm 8 hours.
Ethyl alcohol	Safe Work Australia (Australia, 1/2014). TWA: 1880 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours.
Silica, amorphous, fumed, cryst.-free	Safe Work Australia (Australia, 7/2012). TWA: 10 mg/m ³ 8 hours. Form: Inhalable fraction
Methyl alcohol	Safe Work Australia (Australia, 1/2014). Absorbed through skin. STEL: 328 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 262 mg/m ³ 8 hours. TWA: 200 ppm 8 hours.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Exposure controls

- Engineering measures** : No special measures are required for small quantities under normal and intended conditions of product use.
- Hygiene measures** : No special measures are required for small quantities under normal and intended conditions of product use.
- Eyes** : 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 or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

8 . Exposure controls/personal protection

Hands	: 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.
Respiratory	: No special measures are required for small quantities under normal and intended conditions of product use.
Skin	: 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.

9 . Physical and chemical properties

Physical state	: Liquid. [Viscous (Slight)]
Colour	: Yellow. [Light]
Odour	: Fruity. / Ketone.
Boiling point	: Not available.
Melting point	: Not available.
Vapour pressure	: Not available.
Flash point	: Closed cup: <12.78°C (<55°F)
Flammable limits	: Not available.
Vapour density	: Not available.
pH	: Not available.
Viscosity	: Not available.
Auto-ignition temperature	: Not available.
Solubility	: Partially soluble in the following materials: cold water and hot water.

10 . Stability and reactivity

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 polymerisation will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.
Materials to avoid	: Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Potential acute health effects

Inhalation	: Can cause central nervous system (CNS) depression. Vapours may cause drowsiness and dizziness.
Ingestion	: Can cause central nervous system (CNS) depression.
Skin contact	: Defatting to the skin. May cause skin dryness and irritation.
Eye contact	: Irritating to eyes.
Acute toxicity	

11 . Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Acetone	LC50 Inhalation Vapour	Rat	76 mg/l	4 hours
	LC50 Inhalation Vapour	Rat	30000 ppm	4 hours
	LD50 Dermal	Rabbit	>15800 mg/kg	-
	LD50 Oral	Rat	5800 mg/kg	-
2-Hydroxyethyl methacrylate	LD50 Oral	Rat	4230 mg/kg	-
Ethyl alcohol	LC50 Inhalation Vapour	Rat	124700 mg/m ³	4 hours
	LD50 Oral	Rat	7 g/kg	-
Silica, amorphous, fumed, cryst.-free	LD50 Oral	Rat	3160 mg/kg	-
Methyl alcohol	LC50 Inhalation Vapour	Rat	145000 ppm	1 hours
	LC50 Inhalation Vapour	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-

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

Potential chronic health effects

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Acetone	Eyes - Mild irritant	Rabbit	-	10 microliters	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Severe irritant	Rabbit	-	20 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	395 milligrams	-
Ethyl alcohol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.06666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Eyes - Severe irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-
Methyl alcohol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	40 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary

Skin : Kligman score: Grade I (weak sensitizer)

Carcinogenicity

Conclusion/Summary

: Not available.

Mutagenicity

Conclusion/Summary

: Not available.

11 . Toxicological information

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Chronic effects

: Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

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.

Over-exposure signs/symptoms

Inhalation

: Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Ingestion

: No specific data.

Skin

: Adverse symptoms may include the following:
irritation
dryness
cracking

Eyes

: Adverse symptoms may include the following:
irritation
watering
redness

Target organs

: Contains material which may cause damage to the following organs: blood, kidneys, the reproductive system, liver, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

12 . Ecological information

Ecotoxicity

: No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Acetone	Acute EC50 20.565 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 6000000 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 10000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 100 mg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
		Algae - Ulva pertusa	96 hours
2-Hydroxyethyl methacrylate	Chronic NOEC 4.95 mg/l Marine water	Crustaceans - Daphniidae	21 days
		Daphnia - Daphnia magna - Neonate	21 days
		Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 227000 µg/l Fresh water	Algae - Ulva pertusa	96 hours
		Daphnia - Daphnia magna	48 hours
Ethyl alcohol	Acute EC50 17.921 mg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute EC50 2000 µg/l Fresh water		
	Acute LC50 25500 µg/l Marine water		

12 . Ecological information

Methyl alcohol	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 µl/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 3289 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 100 mg/l Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours

Conclusion/Summary : Not available.

Other ecological information

Persistence/degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Acetone	OECD 301B Ready Biodegradability - CO2 Evolution Test	90.9 % - 28 days	-	-
2-Hydroxyethyl methacrylate	301C Ready Biodegradability - Modified MITI Test (I)	92 to 100 % - 14 days	-	-

Conclusion/Summary : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Acetone	-	-	Readily
2-Hydroxyethyl methacrylate	-	-	Readily
Ethyl alcohol	-	-	Readily
Methyl alcohol	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Acetone	-0.23	-	low
2-Hydroxyethyl methacrylate	0.42	-	low
Ethyl alcohol	-0.35	-	low
Methyl alcohol	-0.77	<10	low

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

13 . Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimised 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.

14 . Transport information

International transport regulations

Regulation	UN number	Proper shipping name	Classes	PG*	Label	Additional information
ADG	UN1993	FLAMMABLE LIQUID, N. O.S. (acetone, ethanol)	3	II		Hazchem code •3YE Special provisions 274
ADR	UN1993	FLAMMABLE LIQUID, N. O.S. (acetone, ethanol)	3	II		Hazard identification number 33 Limited quantity 1 L Special provisions 601, 274, 640D Tunnel code (D/E)
IMDG	UN1993	FLAMMABLE LIQUID, N. O.S. (acetone, ethanol)	3	II		Emergency schedules (EmS) F-E, _S-E_ Special provisions 274
IATA	UN1993	Flammable liquid, n.o.s. (acetone, ethanol)	3	II		Passenger and Cargo Aircraft Quantity limitation: 5 L Packaging instructions: 353 Cargo Aircraft Only Quantity limitation: 60 L Packaging instructions: 364 Limited Quantities - Passenger Aircraft Quantity limitation: 1 L Packaging instructions: Y341 Special provisions A3

PG* : Packing group

15 . Regulatory information

Standard Uniform Schedule of Medicine and Poisons

Not regulated.

Control of Scheduled Carcinogenic Substances

No listed substance

Australia inventory (AICS) : Not determined.

15 . Regulatory information

EU Classification : F; R11
Xi; R36
R66, R67

16 . Other information

Person who prepared the MSDS : IHS
Date of previous issue : No previous validation.
Date of issue/ Date of revision : 2/26/2015.
Version : 1

 Indicates information that has changed from previously issued version.

Disclaimer

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.