Material Safety Data Sheet

Opaque

1. Product and company identification

Product name : Opaque

Material uses : Dental product: Dental Restoration

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

In case of emergency : CHEMTREC® (24 hours) U.S. : 1-800-424-9300 International: +1-703-527-3887

2. Hazards identification

Physical state : Liquid. [Paste.]

Color : Various

Odor : Fruity ester-like

Emergency overview

Signal word : WARNING!

Hazard statements : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Precautions : Health effects are based on the uncured material. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Irritating to respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : No known significant effects or critical hazards.

Skin : Irritating to skin. May cause sensitization by skin contact.

Eyes : Irritating to eyes.

Potential chronic health effects

Chronic effects : Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

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.

Target organs : Contains material which may cause damage to the following organs: upper respiratory tract, skin, eye, lens or cornea.

Over-exposure signs/symptoms

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing

Ingestion : No specific data.

2. Hazards identification

Skin : Adverse symptoms may include the following:
irritation
redness

Eyes : Adverse symptoms may include the following:
pain or irritation
watering
redness

Medical conditions aggravated by over-exposure : Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

3. Composition/information on ingredients

Name	CAS number	%
glass, oxide, chemicals	65997-17-3	30-60
7,7,9(or 7,9,9)-trimethyl-4,13-dioxo-3,14-dioxa-5,12-diazahexadecane-1,16-diyl bismethacrylate	72869-86-4	30-60
2,2'-ethylenedioxydiethyl dimethacrylate	109-16-0	5-10
Titanium dioxide	13463-67-7	1-5
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	68909-20-6	1-5
3-trimethoxysilylpropyl methacrylate	2530-85-0	1-5

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

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.

Skin contact : No special measures required. In case of contact, immediately flush skin 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.

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.

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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Antidote information

Product/ingredient name	Antidote information
No antidote information known	

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

Flammability of the product : In a fire or if heated, a pressure increase will occur and the container may burst.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

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.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen 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.

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 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 for 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.

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 in a safe manner.

Storage : 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. 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.

8. Exposure controls/personal protection

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m³	Other	ppm	mg/m³	Other	ppm	mg/m³	Other	Notations
glass, oxide, chemicals	US ACGIH 4/2014	-	5	-	-	-	-	-	-	-	[a]
		-	10	-	-	-	-	-	-	-	[b]
Titanium dioxide	US ACGIH 4/2014	-	10	-	-	-	-	-	-	-	
	AB 4/2009	-	10	-	-	-	-	-	-	-	
	BC 4/2014	-	3	-	-	-	-	-	-	-	[c]
		-	10	-	-	-	-	-	-	-	[b]
	ON 1/2013	-	10	-	-	-	-	-	-	-	[d]
	QC 1/2014	-	10	-	-	-	-	-	-	-	[e]
Silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	US ACGIH 4/2014	-	10	-	-	-	-	-	-	-	[f]
	US ACGIH 4/2014	-	3	-	-	-	-	-	-	-	[a]

8. Exposure controls/personal protection

Form: [a]Respirable [b]Total dust [c]Respirable dust [d]total dust [e]Total dust. [f]Inhalable

Consult local authorities for acceptable exposure limits.

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.

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.

Personal protection

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

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.

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.

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. [Paste.]

Flash point : Not available.

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Various

Odor : Fruity ester-like

pH : Not available.

Boiling/condensation point : Not available.

Melting/freezing point : Not available.

Relative density : 2 [Water = 1]

Density : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Odor threshold : Not available.

Evaporation rate : Not available.

Viscosity : Not available.

Solubility : Insoluble in the following materials: cold water and hot water.

$LogK_{ow}$: Not available.

10. Stability and reactivity

Chemical stability : The product is stable.

Conditions to avoid : Keep away from heat and direct sunlight.

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials and reducing materials.
Amines. Peroxide.

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

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.

11. Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
3-trimethoxysilylpropyl methacrylate	LD50 Oral	Rat	23504 mg/kg	-
2,2'-ethylenedioxydiethyl dimethacrylate	LD50 Oral	Rat	10837 mg/kg	-

Conclusion/Summary : Based on the criteria of the protocol, this product is considered non-cytotoxic per USP 23.

Chronic toxicity

Not available.

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	-

Sensitizer

Not available.

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
glass, oxide, chemicals	A4	3	-	-	-	-
Titanium dioxide	A4	2B	-	+	-	-
Silica, amorphous, fumed, cryst.-free	-	3	-	-	-	-

Mutagenicity

Not available.

Conclusion/Summary : Not mutagenic in Ames test.

Teratogenicity

Not available.

Reproductive toxicity

Not available.

Opaque

12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Titanium dioxide	Acute LC50 3 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 6.5 mg/l Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 >1000000 µg/l Marine water	Fish - Fundulus heteroclitus	96 hours

Persistence/degradability

Not available.

Partition coefficient: n-octanol/water : Not available.

Bioconcentration factor : Not available.

Mobility : Not available.

Toxicity of the products of biodegradation : Not available.

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

13. Disposal considerations

Waste disposal : 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.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

TDG/IMDG/IATA : Not regulated.

15. Regulatory information

United States inventory (TSCA 8b) : All components are listed or exempted.

WHMIS (Canada) : Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

Canada inventory : Not determined.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

International lists : **Australia inventory (AICS)**: Not determined.
China inventory (IECSC): Not determined.
Japan inventory: Not determined.
Korea inventory: Not determined.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.

15. Regulatory information

Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

16. Other information

Label requirements : CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

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 MSDSs 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.

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Date of previous issue : No previous validation

Version : 1

Indicates information that has changed from previously issued version.

Notice to reader

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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.