

## SAFETY DATA SHEETS

**This SDS packet was issued with item:**

074344784

**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).**

073072329 074344685 074344693 074344701 074344719 074344727 074344735 074344743 074344750 074344768  
074344776 074344792 074344800 074344818 074344826 074344834 074344842 074344859 074344867 074344875  
074344883 074344891 074344909 074344917

# MATERIAL SAFETY DATA SHEET

## REVOLUTION – FORMULA 2

Flowable Light Cure Composite

### 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:** July 28, 2000

### 2 - COMPOSITION INFORMATION

#### Hazardous Ingredients

|                                     | <u>CAS#</u> | <u>PEL</u> | <u>TLV</u> | <u>%</u> |
|-------------------------------------|-------------|------------|------------|----------|
| Uncured methacrylate ester monomers | 109-16-0    | N/A        | N/A        | 38-53    |

#### Other Ingredients

Inert mineral fillers, activators and stabilizers

### 3 - PHYSICAL AND CHEMICAL PROPERTIES

**Boiling Point:** N/D  
**Specific Gravity (H<sub>2</sub>O = 1):** 2.5  
**Vapor Pressure (mm Hg):** N/D  
**Vapor Density (AIR = 1):** N/D  
**Solubility in Water:** Insoluble  
**Appearance and Odor:** Colored paste with fruity ester-like odor.

### 4 - FIRE AND EXPLOSION HAZARD DATA

**Flash Point (Method Used):** N/D  
**Flammable Limits:** LEL: N/A UEL: N/D  
**Extinguishing Media:** Chemical foam, CO<sub>2</sub> and dry chemical  
**Special Fire Fighting Procedures:** Wear self-contained breathing apparatus.  
**Unusual Fire and Explosion Hazards:** Heat can cause polymerization with rapid release of energy.

### 5 - REACTIVITY DATA

**Stability:** Stable if stored as directed.  
**Conditions to Avoid:** Heat, light, aging and contamination  
**Incompatibility (Material to Avoid):** Reducing and oxidizing agents, peroxides and amines  
**Hazardous Decomposition Byproducts:** Oxides of carbon  
**Hazardous Polymerization:** May occur

### 6 - HEALTH HAZARD DATA

**Routes of Entry:**  
**Skin:** Prolonged or repeated exposure to uncured material may cause irritation or skin rash especially in sensitive individuals.  
**Eyes:** May cause irritation and damage if not removed promptly.  
**Inhalation:** Prolonged or excessive inhalation may cause respiratory tract irritation.  
**Ingestion:** Uncured material may be harmful if swallowed.  
**Carcinogenicity -** NTP: No  
**IARC Monographs:** No OSHA Regulated Carcinogen: No

### 7 - EMERGENCY FIRST AID PROCEDURES

**Skin:** Wash skin thoroughly with soap and water.  
**Eyes:** Flush with water for 15 minutes including under the eyelids. If irritation persists, seek medical attention.  
**Inhalation:** Remove to fresh air. If irritation persists, seek medical attention.  
**Ingestion:** Rinse mouth with water. Do not induce vomiting. Seek medical attention.

### 8 - PRECAUTIONS FOR SAFE HANDLING & USE

**Steps to be taken in case material is released or spilled:** Absorb spills with inert material. Keep spilled material out of sewers.  
**Waste Disposal Method:** Unpolymerized (uncured) material may be RCRA hazardous waste. Incinerate uncured material 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, light and ignition.

### 9 - CONTROL MEASURES

**Respiratory Protection:** Avoid prolonged or excessive breathing of vapors of uncured material.  
**VENTILATION:**  
**Local Exhaust:** Good general ventilation should be sufficient to control airborne levels of vapors released by uncured material.  
**Mechanical (General):** Good general ventilation recommended.  
**Protective Gloves:** Impervious gloves recommended when contacting uncured material.  
**Eye Protection:** Safety glasses recommended.  
**Work/Hygiene Practices:** Handle in accordance with good personal hygiene and safety practices. These practices include avoiding unnecessary exposure to uncured material.

### 10 - TRANSPORTATION INFORMATION

Not DOT regulated.

### 11 - SPECIAL INFORMATION

**HMIS (Hazardous Material Identification System) Rating:**  
H2 F1 R2 PPE – gloves and safety glasses. Hazard information relates only to uncured material.  
[HMIS Hazard Index: 4 – Severe Hazard; 3 – Serious Hazard; 2 – Moderate Hazard; 1 – Slight Hazard; 0 – Minimum Hazard]

**Note:** Hazard information contained on this MSDS relates only to material in its uncured state. Thorough biocompatibility and toxicity testing of the cured material and its extracts have demonstrated that the material is non-toxic.

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.

## SAFETY DATA SHEET

### Section 1. Product And Company Identification

**Product Name:** Revolution Formula 2

**Product Use:** Dental product: Composite

**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:** March 28, 2019

### Section 2. Hazards Identification

**GHS Classification:**

Skin Irritation Category 2

Eye Irritation Category 2A

Skin Sensitization Category 1

Specific Target Organ Toxicity Single Exposure Category 3

**Label Elements:**

Warning!



**Hazard Phrases**

Causes serious eye irritation.

Causes skin irritation.

May cause an allergic skin reaction.

May cause respiratory irritation.

**Precautionary Phrases:**

Avoid breathing 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: Wash with plenty of soap and water. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or 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 |
|---|------------|--------|
| Poly(oxy-1,2-ethanediyl), $\alpha,\alpha'$ -[(1-methylethylidene)di-4,1-phenylene]bis[ $\omega$ -[(2-methyl-1-oxo-2-propen-1-yl)oxy]- | 41637-38-1 | 10-30% |
| 2,2'-ethylenedioxydiethyl dimethacrylate  | 109-16-0   | 10-30% |
| (1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate  | 1565-94-2  | 5-15%  |
| 3-trimethoxysilylpropyl methacrylate  | 2530-85-0  | 1-5%   |

### Section 4. First Aid Measures

**Inhalation:** Immediately remove victim to fresh air. Get medical attention if symptoms occur.

**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 serious eye irritation and skin irritation. May cause an allergic skin reaction 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 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. 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. Do not breathe 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:** Prompt cleanup and removal are necessary. Absorb spills with an inert material and place it in an appropriate waste disposal container.

## 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 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   |
|---|------------------|
| Poly(oxy-1,2-ethanediyl), $\alpha,\alpha'$ -[(1-methylethylidene)di-4,1-phenylene]bis[ $\omega$ -[(2-methyl-1-oxo-2-propen-1-yl)oxy]- | None Established |
| 2,2'-ethylenedioxydiethyl dimethacrylate  | None Established |
| (1-methylethylidene)bis[4,1-phenyleneoxy(2-hydroxy-3,1-propanediyl)] bismethacrylate  | None Established |
| 3-trimethoxysilylpropyl methacrylate  | None Established |

**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

|   |                       |                                  |  |
|---|-----------------------|----------------------------------|--|
| <b>Appearance:</b>                              | Various colored paste | <b>Odor:</b>                     | Fruity ester-like odor                     |
| <b>Odor Threshold:</b>                          | Not available         | <b>pH:</b>                       | Not available                              |
| <b>Melting/Freezing Point:</b>                  | Not available         | <b>Boiling Point/Range:</b>      | Not available                              |
| <b>Flash Point:</b>                             | Not flammable         | <b>Evaporation Rate:</b>         | Not available                              |
| <b>Flammability: (Solid, Gas)</b>               | Not applicable        | <b>Flammability Limits:</b>      | LEL: Not applicable<br>UEL: Not applicable |
| <b>Vapor Pressure:</b>                          | Not available         | <b>Vapor Density:</b>            | Not available                              |
| <b>Relative Density:</b>                        | 2.5                   | <b>Solubilities:</b>             | Insoluble in water                         |
| <b>Partition Coefficient: (N-Octanol/Water)</b> | Not available         | <b>Autoignition Temperature:</b> | Not available                              |
| <b>Decomposition Temperature:</b>               | Not available         | <b>Viscosity:</b>                | 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 direct sunlight. Heat can cause polymerization with rapid release of energy.

**Incompatible Materials:** Oxidizing materials, reducing materials, amine, and peroxide.

**Hazardous decomposition products:** None if stored normally.

## Section 11. Toxicological Information

### Potential Health Effects:

**Inhalation:** May cause respiratory irritation.

**Skin Contact:** Causes skin irritation and may cause an allergic skin reaction.

**Eye Contact:** Causes serious eye irritation.

**Ingestion:** None known.

**Chronic Hazards:** Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Skin corrosion/irritation:** This product causes skin irritation.

**Eye damage/ irritation:** This product causes serious eye irritation.

**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 Poly(oxy-1,2-ethanediyl),  $\alpha,\alpha'$ -[(1-methylethylidene)di-4,1-phenylene]bis[ $\omega$ -[(2-methyl-1-oxo-2-propen-1-yl)oxy]- and 2,2'-ethylenedioxydiethyl dimethacrylate may cause respiratory tract irritation.

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

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

**Acute Toxicity Values:**

Poly(oxy-1,2-ethanediyl),  $\alpha,\alpha'$ -[(1-methylethylidene)di-4,1-phenylene]bis[ $\omega$ -[(2-methyl-1-oxo-2-propen-1-yl)oxy]-: LD50 Oral rat: >2000 mg/kg; LD50 Dermal rat: >2000 mg/kg

2,2'-ethylenedioxydiethyl dimethacrylate: LD50 Oral rat: 10837 mg/kg

3-trimethoxysilylpropyl methacrylate: LD50 Oral rat: 23504 mg/kg; LD50 Dermal rabbit: >15000 mg/kg

## Section 12. Ecological Information

**Toxicity:**

Poly(oxy-1,2-ethanediyl),  $\alpha,\alpha'$ -[(1-methylethylidene)di-4,1-phenylene]bis[ $\omega$ -[(2-methyl-1-oxo-2-propen-1-yl)oxy]-: 96 hr LD50 Fish >100 mg/L; 48 hr EC50 Daphnia magna >100 mg/L; 72 hr Algae >100 mg/L

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

**Bioaccumulative Potential:**

Poly(oxy-1,2-ethanediyl),  $\alpha,\alpha'$ -[(1-methylethylidene)di-4,1-phenylene]bis[ $\omega$ -[(2-methyl-1-oxo-2-propen-1-yl)oxy]- has a BCF of 2372, log  $P_{ow}$  3.43 – 5.62, potential for bioaccumulative is high.

2,2'-ethylenedioxydiethyl dimethacrylate: log  $P_{ow}$  1.88, 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 |
|-------------------|-----------|-------------------------|-----------------|---------------|-----------------------|
| <b>US DOT</b>     | None      | Not Regulated           | None            | None          | None                  |
| <b>EU ADR/RID</b> | None      | Not Regulated           | None            | None          | None                  |
| <b>IMDG</b>       | None      | Not Regulated           | None            | None          | None                  |
| <b>IATA/ICAO</b>  | None      | Not Regulated           | None            | None          | None                  |

**Special Precautions for User:** None identified

**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:** March 28, 2019

**Supersedes Date:** March 16, 2015

**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.