SAFETY DATA SHEET

1. Identification

Product identifier	**Bulk EZ Plus**
Other means of identification	
Product code	SDS-055-ZD REV A
Recommended use	Medical device.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Supplier

Company name	Zest Dental Solutions
Address	2875 Loker Avenue East Carlsbad, CA 92010 USA
Telephone	1-800-262-2310
Contact	Customer Service
E-mail	customerservice@zestdent.com
Website	www.zestdent.com
Emergency telephone	800-451-8346 / 760-602-8703

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Sensitization, skin	Category 1
	Specific target organ toxicity, repeated exposure (inhalation)	Category 2 (lungs)
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3
OSHA defined hazards	Not classified.	

Label elements

Signal word	Warning
Hazard statement	Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction. May cause damage to organs (lungs) through prolonged or repeated exposure by inhalation. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention	Do not breathe mist/vapors. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear protective gloves/eye protection/face protection.
Response	If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. 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 advice/attention. Get medical advice/attention if you feel unwell.
Storage	Store away from incompatible materials.

Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Zirconia silica filler	Mixture	15 - 45
Radiopaque filler	Proprietary	12 - 36
Ethoxylated bisphenol A dimethacrylate	41637-38-1	10 - 30
Triethylene glycol dimethacrylate	109-16-0	4 - 13
Bisphenol A gycidyl methacrylate	1565-94-2	1 - 5
Diurethane dimethacrylate	72869-86-4	1 - 5
Initiator	Proprietary	0.5 - 2

Composition comments

All concentrations are in percent by weight unless otherwise indicated. Components not listed are either non-hazardous or are below reportable limits.

The manufacturer has claimed one or more hazardous ingredients as trade secret under the OSHA Hazard Communication Standard. The hazards of this (these) ingredient(s) are given on this SDS.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, hazardous combustion products are released that may include: Carbon oxides. Nitrogen oxides. Fumes of metal oxides. Silicon oxide fumes. Fluorine compounds. Sulfur oxides.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Contains one or more components that will burn if involved in a fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Prevent product from entering drains.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Provide adequate ventilation. When using, do not eat, drink or smoke. Do not breathe mist/vapors. Avoid contact with eyes, skin, and clothing. Contact of resin-based composites with skin should be avoided, especially by anyone having known resin allergies. Avoid eugenol as it will inhibit set. Use only in dry field. Water and oily air will inhibit set and bond. Use a dispensing gun to avoid hand strain. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep away from food and drink. Keep refrigerated. Do not freeze. Do not store composite material in proximity of eugenol-containing products, nor let the composite come into contact with materials containing eugenol. Eugenol can impair the polymerization of the composite and cause discoloration. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA

Components	Type	Value
Silica filler	TWA	80 mg/m3

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Radiopaque filler	PEL	2.5 mg/m3
Zirconia filler	PEL	5 mg/m3

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value	Form
Radiopaque filler	TWA	2.5 mg/m3	Dust.

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
Silica filler	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		20 mppcf	
Zirconia filler	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.
		50 mppcf	Total dust.
		15 mppcf	Respirable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value
Radiopaque filler	TWA	2.5 mg/m3
Zirconia filler	STEL	10 mg/m3
	TWA	5 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Radiopaque filler	TWA	2.5 mg/m3
Silica filler	TWA	6 mg/m3
Zirconia filler	STEL	10 mg/m3
	TWA	5 mg/m3

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
Initiator	TWA	6 mg/m3
		1 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Radiopaque filler	3 mg/l	Fluoride	Urine	*
	2 mg/l	Fluoride	Urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US WEEL Guides: Skin designation

Initiator (CAS Proprietary) Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear approved chemical safety goggles. Face shield is recommended.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Latex gloves. Other suitable gloves can be recommended by the glove supplier.

Skin protection

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection None required where adequate ventilation conditions exist. In case of insufficient ventilation, wear suitable respiratory equipment. Follow OSHA respirator regulations (29CFR 1910.134) and use NIOSH/MSHA approved respirators.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing must not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Viscous paste.

Color White to slightly brownish.

Odor None.

Odor threshold Not applicable.

pH Neutral.

Melting point/freezing point Not available.

Initial boiling point and boiling range Not available.

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not applicable for mixtures.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials. Excessive heat. Freezing temperatures.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Decomposition is not expected under normal conditions of use and storage. For hazardous combustion products, see section 5.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs through prolonged or repeated exposure by inhalation.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.
Ingestion	May cause discomfort if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.

Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

Components	Species	Test Results
Initiator (CAS Proprietary)		
Acute		
Dermal		
LD50	Rat	500 mg/kg
Inhalation		
LC50	Rat	220 ppm, 4 hours
Oral		
LD50	Rat	800 mg/kg
Silica filler (CAS Proprietary)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, 24 Hours

Components	Species	Test Results
Inhalation		
Dust		
LC50	Rat	> 0.14 mg/l, 4 Hours
Oral		
LD50	Rat	> 3300 mg/kg
Zirconia filler (CAS Proprietary)		
Acute		
Inhalation		
Aerosol		
LC50	Rat	> 4.3 mg/l, 4 Hours
Oral		
LD50	Rat	> 5000 mg/kg

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Not classifiable as to carcinogenicity to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Radiopaque filler (CAS Proprietary)	3 Not classifiable as to carcinogenicity to humans.
Silica filler (CAS Proprietary)	3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure May cause damage to organs (lungs) through prolonged or repeated exposure by inhalation.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. May cause damage to organs through prolonged or repeated exposure.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

Components		Species	Test Results
Initiator (CAS Proprietary)			
Aquatic			
Crustacea	EC50	Daphnia	7 mg/l, 24 hours
Fish	LC50	Fish	3.9 mg/l, 96 hours
Zirconia filler (CAS Proprietary)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	> 1000 mg/l, 48 hours
Fish	LC50	Danio rerio	> 100 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Ethoxylated bisphenol A dimethacrylate (CAS 41637-38-1)	5.3 - 5.62
Triethylene glycol dimethacrylate (CAS 109-16-0)	1.88

Mobility in soil No data available for this product.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

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

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Initiator (CAS Proprietary) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA) All components are either listed on the TSCA 8(b) inventory and designated “active” or exempt from listing.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Initiator	Proprietary	0.5 - 2

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Initiator (CAS Proprietary)
Silica filler (CAS Proprietary)
Zirconia filler (CAS Proprietary)

US. New Jersey Worker and Community Right-to-Know Act

Initiator (CAS Proprietary)
Radiopaque filler (CAS Proprietary)

US. Pennsylvania Worker and Community Right-to-Know Law

Initiator (CAS Proprietary)
Radiopaque filler (CAS Proprietary)
Silica filler (CAS Proprietary)

US. Rhode Island RTK

Initiator (CAS Proprietary)
Radiopaque filler (CAS Proprietary)
Silica filler (CAS Proprietary)
Zirconia filler (CAS Proprietary)

16. Other information, including date of preparation or last revision

Issue date 07-April-2022

Revision date -

Version # 01

NFPA ratings

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