

MATERIAL SAFETY DATA SHEET

Complies with Approved Code of Practice: Chemical (Hazard Information and Packaging for Supply) Regulations 2002 (UK) and European 91/155/EEC, 67/548/EEC, 1999/45/EC format, Australian NOHSC: 1008, 10005(1999), 2011(2003), 1003(1995) and ANSI Standard Z400.1 and U.S. Federal OSHA Hazard Communication

Section 1 Identification of the Substance/Preparation and Company

1.1 PRODUCTS IDENTIFICATION: zb[®]63 binder clear

1.2 USE OF SUBSTANCE: zb[®]63 clear is a mixture formula to be used to fuse powder for making rapid-prototyping 3D models.

1.3. COMPANY: Z Corporation
32 Second Ave.
Burlington, MA 01803
Contact Person: Manager of Technical Services
Telephone Number: 781-852-5050
Foreign Contact: +(45) 48 14 11 22
Svanevang 2, 3450 Allerød, Denmark
Date of Preparation: 6/09

1.4. FOR CHEMICAL EMERGENCY: Spill Leak Fire Exposure or Accident
Call CHEMTREC Day or Night
DOMESTIC NORTH AMERICAN: 800-424-3887
INTERNATIONAL, CALL 703-527-3887 (collect calls accepted)

Section 2 Hazards Identification

Potential Human Health Effects:

Prolonged and repeated exposure may cause skin allergic reactions. May be harmful if swallowed.

Target Organs or Systems:

Kidney, skin, eyes

Route of Exposure:

Skin Contact: May cause skin irritation and/or allergic reactions.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

Signs and Symptoms of Exposure:

Prolonged or repeated exposure can cause: Nausea, headache, and vomiting.

Carcinogens:

This preparation does not contain any known or suspected carcinogens in concentrations of 0.1 percent or greater.

Potential Environmental Effects:

No significant environmental hazards are expected if material is released to the environment.

Section 3 Composition/Information of Ingredients

Substance is a mixture with following general composition:

Components	Approximate % by weight	C.A.S. No. & EINECS No.
Humectant	<10%	Trade Secret
Water	65-99%	7732-18-5

Section 4 First Aid Measures

Inhalation:

Remove from area to fresh air. Seek medical attention if breathing becomes difficult.

Eye Contact:

Immediately flush eyes with copious amounts of water for at least 15 minutes. Call a physician.

Skin Contact:

Immediately wash with soap and rinse with copious amounts of water.

Ingestion:

Wash out mouth with water provided the person is conscious and seek medical attention.

Section 5 Fire-Fighting Measures

Flammable Properties:

Not considered to be a fire hazard (primarily water)

Extinguishing Media:

Water spray, carbon dioxide, dry chemical powder or appropriate foam.

Fire Fighting Protective Equipment

A self-contained breathing apparatus and full protective clothing should be worn in fire conditions.

Unusual Fire & Explosion:

This product's major component is water, thus it will not readily burn. If the water is boiled off, the remaining components may emit toxic fumes under fire conditions such as carbon monoxide, carbon dioxide, and oxides of nitrogen.

Section 6 Accidental Release Measures

Procedures of Personal Precautions:

Exercise appropriate precautions to minimize direct contact with skin or eyes. Wear, chemical safety goggles, and rubber gloves.

Environmental Precautions:

This material poses no significant environmental hazards; however, it is important to minimize contamination of sewage water, soil, groundwater, drainage systems, or bodies of water.

Methods of Cleaning Up:

Contain spills immediately with inert materials (eg. sand, earth). Avoid discharge to sanitary and natural waters. Place in closed containers for disposal. Wash spill site after material pickup is complete prior to re-occupancy.

Waste Disposal Method:

Follow safe solid waste disposal guidelines in accordance with federal, state, and local regulations. National or regional provisions may also be in force. It is the responsibility of the generator to determine whether the material meets the criteria of a hazardous waste.

Section 7 Handling and Storage

Handling Precautions:

User Exposure: Wear appropriate protective equipment when handling this product. (See Section 8 of this MSDS). Wash thoroughly after handling.

Storage Precautions:

Suitable: Keep tightly closed. **Incompatible do not store with:** Strong oxidizers or strong reducing agents

Special Requirements:

Store in a cool place. Other requirements for handling and storage are found in the Technical Bulletin that describes the use of the product and specific procedures.

Section 8 Exposure Controls & Personal Protection

Exposure Limits:

Component	IOELVs (UK)	EC OEL	ACGIH TLV	OSHA PEL
Humectant	TWA = 10 mg/m ³	TWA = 10 mg/m ³	10 mg/m ³ irritation	10 mg/m ³ as a mist 5 mg/m ³ as respirable

Notations:

IOELVs = Indicative Occupational Exposure Limit Values

TLV = Threshold Limit Value

OEL = Occupational Exposure Limits

PEL = Permissible Exposure Limit

TWA = Time weighted average

Exposure Controls:

Ventilation Controls:

Use in well-ventilated areas.

Respiratory Protection:

Respirators are generally not needed under normal conditions of use. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where protection is desired, use multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges.

Protective Gloves:

If skin contact exists, chemical resistive gloves should be worn. Butyl rubber and nitrile rubber have greater than 8 hour breakthrough time for the hazardous components.

Eye Protection:

Chemical splash goggles should be worn when possibility exists for eye contact due to splashing, spraying liquid, airborne particles or vapor. Equipment should conform to EN 166 or ANSI standards.

Skin Protection:

Special skin protection is generally not needed for the designed usage. If clothing becomes contaminated wash clothing before reuse.

Other Controls:

Safety shower and eyewash. Always use good personal hygiene and housekeeping practices. Wash thoroughly after handling.

Environmental Exposure Controls:

This product is not known to contain chemical components requiring specific environmental exposure controls. Specific environmental requirements however, do vary and each user needs to follow local Community environmental protection requirements.

Section 9 Physical & Chemical Properties

Clarity: Clear
 Flash point: Not Applicable (NA)
 Flammability: NA
 Vapor pressure: Not applicable (NA)
 Specific Gravity: (H₂O = 1): >1
 Auto-ignition temperature: NA
 VOC by Weight = 0% (EPA Method 24)

Initial boiling point: 212⁰ F water
 Evaporation rate: Same as water
 Upper/lower flammable limits: NA
 Vapor density: Not known
 Solubility: Water
 Melting point/freezing point: NA

Section 10 Stability and Reactivity

Stability: Stable

Conditions to Avoid: Moisture

Materials to Avoid: Incompatible: Strong oxidizers, strong bases, strong acids, strong reducing agents

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, nitrogen oxides, aldehydes

Hazardous Polymerization: Will not occur

Section 11 Toxicological Information

Data for product components only, mixture not evaluated.

1. Humectant	
Rat	Ingestion LD50 12,600 mg/kg Inhalation LC50 >570 mg/m ³ Generative cell mutagenicity (in vitro mutagenicity tests): DNA inhibition - Ingestion 1 mg/kg cytogenetic analysis Reproductive Toxicity- <i>Intratesticular-Rat TDLo: 1600 mg/kg (male ID pre):Reproductive effects</i>
Rabbit	Eye – corrosive 4 hr Skin LD50 >10,000 mg/kg Skin Corrosion Property-stimulativeness 500 mg 24H mild irritation Skin adult 500mg/24H Mild irritation effects Eye Critical Damage and stimulativeness adult 126 mg mild irritation Eye Critical Damage and stimulativeness adult 500 mg/24H mild irritation
Human	Generative cell mutagenicity (in vitro mutagenicity tests) DNA inhibition – Lymphocyte 200 mmol/L Oral-Human TDLo: 1600 mg/kg (male ID pre):Reproductive effects

Section 12 Ecological Information

Data for product components only, preparation not evaluated.

1. Humectant	
Fathead minnow	LC50 44,000 mg/l
Goldfish	LC50 >5,000 mg/l
Rainbow trout	LC50 67,500 mg/l 96 h
Other Fish	LC50 >100,000 mg/l

Section 13 Disposal Considerations

Follow safe solid waste disposal guidelines in accordance with governmental regulations (community, national or regional). Contact a licensed professional waste disposal service to dispose of this mixture. As with all foreign substances do not allow to enter the storm or sewer drainage systems.

Contaminated Packaging: Dispose of as unused product.

Section 14 Transportation Information

This is not a regulated material for transportation.

Section 15 Regulatory Information

Ingredient	EPA TSCA	European Economic Community (EEC)				Canada Regs	
		EINECS	European Community Standards	Listed as dangerous chemicals	EEC Symbol	DSL	NPRI
(1) Humectant	Yes	Yes	10 mg/m ³	No	None	Yes	No

Relevant European R and S phrases for the mixture/ preparation: None

SARA Title III, Section 313: This product does not contain a chemical which is defined as toxic chemicals under and subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

This product does not contain chemicals subject to the reporting requirements under the Canadian National Pollutant Release Inventory (NPRI).

California Proposition 65: This product does not contain chemicals which are known to the state of California to cause cancer.

Section 16 Other Information

HMIS (Hazardous Materials Information System) for secondary labeling:

Health 1*

Fire Hazard 0

Physical Hazards 0

Personal Protective Equipment B

*additional chronic hazards present

References

- 1) 2009 Threshold Limit Values and Biological Exposure Indices. American Conference of Governmental Industrial Hygienists.
- 2) MSDS + Cheminfo CD-ROM, Canadian Centre for Occupational Health and Safety
- 3) SAX'S Dangerous Properties of Industrial Materials, Tenth Edition
- 4) TSCA & SARA Title III, U.S. Environmental Protection Agency and the National Technical Information Services
- 5) Raw Material Manufacturers Material Safety Data Sheets
- 6) US National Institute of Medicines Toxnet current edition

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