



## Safety Data Sheet

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### SECTION 1: Identification

#### 1.1. Product identifier

3M™ Lava™ Plus High Translucency Zirconia Dyeing Liquid EB, EL, EM (69226, 69227, 69228, 69229)

#### Product Identification Numbers

70-2011-4178-8, 70-2011-4179-6, 70-2011-4229-9, 70-2011-4285-1  
7000055287, 7000055288, 7000055313, 7100024735

#### 1.2. Recommended use and restrictions on use

##### Recommended use

Dental Product, Dyeing solution

##### Restrictions on use

For use only by dental professionals

#### 1.3. Supplier's details

<b>MANUFACTURER:</b>	3M
<b>DIVISION:</b>	Oral Care Solutions Division
<b>ADDRESS:</b>	3M Center, St. Paul, MN 55144-1000, USA
<b>Telephone:</b>	1-888-3M HELPS (1-888-364-3577)

#### 1.4. Emergency telephone number

1-800-364-3577 or (651) 737-6501 (24 hours)

### SECTION 2: Hazard identification

This document has been prepared in accordance with the U.S. OSHA Hazard Communication Standard, which requires the inclusion of all known hazards of the product or ingredients regardless of the potential risk. The risks of the hazards communicated in this document may vary depending on the potential for exposure.

#### 2.1. Hazard classification

Serious Eye Damage/Irritation: Category 2A.  
Skin Corrosion/Irritation: Category 2.

#### 2.2. Label elements

##### Signal word

Warning

**Symbols**

Exclamation mark |

**Pictograms****Hazard Statements**

Causes serious eye irritation.

Causes skin irritation.

**Precautionary Statements****Prevention:**

Wear eye/face protection.

Wear protective gloves.

Wash thoroughly after handling.

**Response:**

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.

IF ON SKIN: Wash with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

**SECTION 3: Composition/information on ingredients**

Ingredient	C.A.S. No.	% by Wt
FERRIC CHLORIDE HEXAHYDRATE	10025-77-1	1 - 5 Trade Secret *
HYDROGEN CHLORIDE	7647-01-0	< 0.5 Trade Secret *
WATER	7732-18-5	> 80 Trade Secret *
POLYETHYLENE GLYCOL	25322-68-3	1 - 10 Trade Secret *
ERBIUM CHLORIDE	10138-41-7	1 - 5 Trade Secret *

\*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

**SECTION 4: First aid measures****4.1. Description of first aid measures****Inhalation:**

Remove person to fresh air. If you feel unwell, get medical attention.

**Skin Contact:**

Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

**Eye Contact:**

Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

**If Swallowed:**

Rinse mouth. If you feel unwell, get medical attention.

**4.2. Most important symptoms and effects, both acute and delayed**

See Section 11.1. Information on toxicological effects.

**4.3. Indication of any immediate medical attention and special treatment required**

Not applicable.

**SECTION 5: Fire-fighting measures****5.1. Suitable extinguishing media**

Material will not burn. Use a fire fighting agent suitable for the surrounding fire.

**5.2. Special hazards arising from the substance or mixture**

None inherent in this product.

**5.3. Special protective actions for fire-fighters**

No special protective actions for fire-fighters are anticipated.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

**6.2. Environmental precautions**

Avoid release to the environment.

**6.3. Methods and material for containment and cleaning up**

Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a metal container approved for use in transportation by appropriate authorities. The container must be lined with polyethylene plastic or contain a plastic drum liner made of polyethylene. Clean up residue with water. Cover, but do not seal for 48 hours. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Avoid prolonged or repeated skin contact. A no-touch technique is recommended. If skin contact occurs, wash skin with soap and water. Acrylates may penetrate commonly-used gloves. If product contacts glove, remove and discard glove, wash hands immediately with soap and water and then re-glove. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Do not get in eyes. Keep away from reactive metals (eg. Aluminum, zinc etc.) to avoid the formation of hydrogen gas that could create an explosion hazard.

**7.2. Conditions for safe storage including any incompatibilities**

No special storage requirements.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
POLYETHYLENE GLYCOL	25322-68-3	AIHA	TWA(as aerosol):10 mg/m <sup>3</sup>	
HYDROGEN CHLORIDE	7647-01-0	OSHA	CEIL:7 mg/m <sup>3</sup> (5 ppm)	
HYDROGEN CHLORIDE	7647-01-0	ACGIH	CEIL:2 ppm	A4: Not class. as human carcin

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

CMRG : Chemical Manufacturer's Recommended Guidelines

OSHA : United States Department of Labor - Occupational Safety and Health Administration

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

### 8.2. Exposure controls

#### 8.2.1. Engineering controls

Use in a well-ventilated area.

#### 8.2.2. Personal protective equipment (PPE)

##### Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:

Safety Glasses with side shields

##### Skin/hand protection

See Section 7.1 for additional information on skin protection.

##### Respiratory protection

None required.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

Physical state

Liquid

Color

Yellow-Orange

#### Specific Physical Form:

Liquid

Odor

Characteristic Odor

Odor threshold

No Data Available

pH

1 - 1.5

Melting point

Not Applicable

Boiling Point

Approximately 100 °C

Flash Point

No flash point

Evaporation rate

No Data Available

Flammability (solid, gas)	Not Applicable
Flammable Limits(LEL)	<i>Not Applicable</i>
Flammable Limits(UEL)	<i>Not Applicable</i>
Vapor Pressure	<i>No Data Available</i>
Vapor Density	<i>No Data Available</i>
Density	1.03 g/cm <sup>3</sup> - 1.07 g/cm <sup>3</sup>
Specific Gravity	1.03 - 1.07 [Ref Std:WATER=1]
Solubility in Water	Complete
Solubility- non-water	<i>No Data Available</i>
Partition coefficient: n-octanol/ water	<i>No Data Available</i>
Autoignition temperature	<i>No Data Available</i>
Decomposition temperature	<i>No Data Available</i>
Viscosity	<i>No Data Available</i>
Volatile Organic Compounds	<i>No Data Available</i>
Percent volatile	<i>No Data Available</i>
VOC Less H <sub>2</sub> O & Exempt Solvents	<i>No Data Available</i>

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

This material is considered to be non reactive under normal use conditions.

### 10.2. Chemical stability

Stable.

### 10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

### 10.4. Conditions to avoid

None known.

### 10.5. Incompatible materials

None known.

### 10.6. Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
Chlorine	Not Specified
Carbon monoxide	Not Specified
Carbon dioxide	Not Specified

## SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

This document has been prepared in accordance with the U.S. OSHA Hazard Communication Standard, which requires the inclusion of all known hazards of the product or ingredients regardless of the potential risk. The risks of the hazards communicated in this document may vary depending on the potential for exposure.

## 11.1. Information on Toxicological effects

### Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

#### Inhalation:

Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

#### Skin Contact:

Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.

#### Eye Contact:

Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

#### Ingestion:

Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

### Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

#### Acute Toxicity

Name	Route	Species	Value
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
POLYETHYLENE GLYCOL	Dermal	Rabbit	LD50 > 20,000 mg/kg
POLYETHYLENE GLYCOL	Ingestion	Rat	LD50 32,770 mg/kg
ERBIUM CHLORIDE	Ingestion	Mouse	LD50 4,417 mg/kg
FERRIC CHLORIDE HEXAHYDRATE	Dermal	Rat	LD50 > 2,000 mg/kg
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	Rat	LD50 1,800 mg/kg
HYDROGEN CHLORIDE	Dermal	Rabbit	LD50 > 5,010 mg/kg
HYDROGEN CHLORIDE	Inhalation-Dust/Mist (4 hours)	Rat	LC50 1 mg/l
HYDROGEN CHLORIDE	Ingestion	Rat	LD50 238 mg/kg

ATE = acute toxicity estimate

#### Skin Corrosion/Irritation

Name	Species	Value
POLYETHYLENE GLYCOL	Rabbit	Minimal irritation
FERRIC CHLORIDE HEXAHYDRATE	Rabbit	Irritant
HYDROGEN CHLORIDE	Human	Corrosive

#### Serious Eye Damage/Irritation

Name	Species	Value
POLYETHYLENE GLYCOL	Rabbit	Mild irritant
FERRIC CHLORIDE HEXAHYDRATE	Rabbit	Corrosive
HYDROGEN CHLORIDE	Rabbit	Corrosive

#### Skin Sensitization

Name	Species	Value
POLYETHYLENE GLYCOL	Guinea pig	Not classified
ERBIUM CHLORIDE	Guinea	Not classified

	pig	
FERRIC CHLORIDE HEXAHYDRATE	Mouse	Not classified
HYDROGEN CHLORIDE	Human and animal	Not classified

**Respiratory Sensitization**

For the component/components, either no data are currently available or the data are not sufficient for classification.

**Germ Cell Mutagenicity**

Name	Route	Value
POLYETHYLENE GLYCOL	In Vitro	Not mutagenic
POLYETHYLENE GLYCOL	In vivo	Not mutagenic
ERBIUM CHLORIDE	In Vitro	Not mutagenic
FERRIC CHLORIDE HEXAHYDRATE	In Vitro	Not mutagenic
HYDROGEN CHLORIDE	In Vitro	Some positive data exist, but the data are not sufficient for classification

**Carcinogenicity**

Name	Route	Species	Value
POLYETHYLENE GLYCOL	Ingestion	Rat	Not carcinogenic
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	Rat	Not carcinogenic
HYDROGEN CHLORIDE	Not Specified	Human and animal	Some positive data exist, but the data are not sufficient for classification

**Reproductive Toxicity**

**Reproductive and/or Developmental Effects**

Name	Route	Value	Species	Test Result	Exposure Duration
POLYETHYLENE GLYCOL	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,125 mg/kg/day	during gestation
POLYETHYLENE GLYCOL	Ingestion	Not classified for male reproduction	Rat	NOAEL 5699 +/- 1341 mg/kg/day	5 days
POLYETHYLENE GLYCOL	Not Specified	Not classified for reproduction and/or development		NOEL N/A	
POLYETHYLENE GLYCOL	Ingestion	Not classified for development	Mouse	NOAEL 562 mg/animal/day	during gestation
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	Not classified for female reproduction	Rat	NOAEL 500 mg/kg/day	prematuring into lactation
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	Not classified for male reproduction	Rat	NOAEL 500 mg/kg/day	prematuring into lactation
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	Not classified for development	Rat	NOAEL 500 mg/kg/day	prematuring into lactation

**Target Organ(s)**

**Specific Target Organ Toxicity - single exposure**

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
POLYETHYLENE GLYCOL	Inhalation	respiratory irritation	Not classified	Rat	NOAEL 1.008 mg/l	2 weeks
HYDROGEN CHLORIDE	Inhalation	respiratory irritation	May cause respiratory irritation		NOAEL Not available	

**Specific Target Organ Toxicity - repeated exposure**

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
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POLYETHYLENE GLYCOL	Inhalation	respiratory system	Not classified	Rat	NOAEL 1,008 mg/l	2 weeks
POLYETHYLENE GLYCOL	Ingestion	kidney and/or bladder   heart   endocrine system   hematopoietic system   liver   nervous system	Not classified	Rat	NOAEL 5,640 mg/kg/day	13 weeks
FERRIC CHLORIDE HEXAHYDRATE	Inhalation	respiratory system	Not classified	Rabbit	NOAEL 0.005 mg/l	60 days
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	endocrine system	Not classified	Rat	NOAEL 250 mg/kg/day	54 days
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	liver   immune system   kidney and/or bladder   respiratory system	Not classified	Rat	NOAEL 1,034 mg/kg/day	90 days
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 1,034 mg/kg/day	54 days

**Aspiration Hazard**

For the component/components, either no data are currently available or the data are not sufficient for classification.

**Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.**

**SECTION 12: Ecological information****Ecotoxicological information**

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

**Chemical fate information**

Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

**SECTION 13: Disposal considerations****13.1. Disposal methods**

Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. Combustion products will include halogen acid (HCl/HF/HBr). Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

**EPA Hazardous Waste Number (RCRA): D002 (Corrosive)**

**SECTION 14: Transport Information**

For Transport Information, please visit <http://3M.com/Transportinfo> or call 1-800-364-3577 or 651-737-6501.

**SECTION 15: Regulatory information**



## 15.1. US Federal Regulations

Contact 3M for more information.

### EPCRA 311/312 Hazard Classifications:

**Physical Hazards**

Not applicable

**Health Hazards**

Serious eye damage or eye irritation

Skin Corrosion or Irritation

## 15.2. State Regulations

Contact 3M for more information.

## 15.3. Chemical Inventories

The components of this product are in compliance with the new substance notification requirements of CEPA.

This material contains one or more substances not listed on the TSCA Inventory. Commercial use of this material is regulated by the FDA.

Contact 3M for more information.

## 15.4. International Regulations

Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

## SECTION 16: Other information

### NFPA Hazard Classification

**Health:** 2 **Flammability:** 0 **Instability:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

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