



Safety Data Sheet

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SECTION 1: Identification

1.1. Product identifier

3M™ Lava™ Plus High Translucency Zirconia Dyeing Liquid A2, A3, A3.5, A4, B3, B4, C3, C4, D3 (69177, 69178, 69204, 69205, 69206, 69207, 69210, 69211, 69214, 69215, 69217)

Product Identification Numbers

LE-F100-1170-6, 70-2011-3806-5, 70-2011-3807-3, 70-2011-3808-1, 70-2011-3809-9, 70-2011-3812-3, 70-2011-3813-1, 70-2011-3816-4, 70-2011-3817-2, 70-2011-3819-8, 70-2011-4216-6, 70-2011-4217-4
7100005028, 7100005025, 7100005020, 7100005017, 7100005087, 7100005103, 7100005138, 7100005123, 7100005129, 7000055304, 7000055305

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

MANUFACTURER:	3M
DIVISION:	Oral Care Solutions Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	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 1.

Skin Corrosion/Irritation: Category 2.

2.2. Label elements

Signal word

Danger

Symbols

Corrosion |

Pictograms



Hazard Statements

Causes serious eye damage.

Causes skin irritation.

Precautionary Statements

Prevention:

Wear protective gloves and eye/face protection.

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 ON SKIN: Wash with plenty of soap and water.

Immediately call a POISON CENTER or doctor/physician.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

10% of the mixture consists of ingredients of unknown acute oral toxicity.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
WATER	7732-18-5	> 70 Trade Secret *
Erbium trichloride hydrate	19423-85-9	1 - 15 Trade Secret *
POLYETHYLENE GLYCOL	25322-68-3	5 - 10 Trade Secret *
FERRIC CHLORIDE HEXAHYDRATE	10025-77-1	1 - 5 Trade Secret *
HYDROGEN CHLORIDE	7647-01-0	< 0.5 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 for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately 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

Serious damage to the eyes (corneal cloudiness, severe pain, tearing, ulcerations, and significantly impaired or loss of vision).

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

Contain spill. For large spills, if necessary, get assistance from professional spill clean up team. For small spills, carefully cover the spill with soda ash (sodium carbonate) or sodium bicarbonate. Work from around the perimeter inward. Avoid splashing. Add enough water to ease mixing and stir. Continue stirring and adding water and neutralizing agent until the reaction stops. Let cool before collecting. Or use a commercially available 'Acid spill' clean-up kit. Follow the kit directions exactly, as specified. 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. 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
IRON SALTS, SOLUBLE	10025-77-1	ACGIH	TWA(as Fe):1 mg/m3	
POLYETHYLENE GLYCOL	25322-68-3	AIHA	TWA:10 mg/m3	
HYDROGEN CHLORIDE	7647-01-0	ACGIH	CEIL:2 ppm	A4: Not class. as human carcin
HYDROGEN CHLORIDE	7647-01-0	OSHA	CEIL:7 mg/m3(5 ppm)	

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	<i>Not Applicable</i>
Boiling Point	Approximately 100 °C
Flash Point	No flash point
Evaporation rate	<i>No Data Available</i>
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 - 1.09 g/cm3
Specific Gravity	1.03 - 1.09 [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>
Molecular weight	<i>No Data Available</i>
Volatile Organic Compounds	<i>No Data Available</i>
Percent volatile	<i>No Data Available</i>
VOC Less H2O & 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>
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.

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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:

Corrosive (Eye Burns): Signs/symptoms may include cloudy appearance of the cornea, chemical burns, severe pain, tearing, ulcerations, significantly impaired vision or complete loss of 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
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
Erbium trichloride hydrate	Professional judgment	Irritant
POLYETHYLENE GLYCOL	Rabbit	Minimal irritation
FERRIC CHLORIDE HEXAHYDRATE	Rabbit	Irritant
HYDROGEN CHLORIDE	Human	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Erbium trichloride hydrate	Professional judgment	Corrosive

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
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
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	premating into lactation
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	Not classified for male reproduction	Rat	NOAEL 500 mg/kg/day	premating into lactation
FERRIC CHLORIDE HEXAHYDRATE	Ingestion	Not classified for development	Rat	NOAEL 500 mg/kg/day	premating into lactation

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Erbium trichloride hydrate	Inhalation	respiratory irritation	Some positive data exist, but the	similar	NOAEL Not	

			data are not sufficient for classification	health hazards	available	
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
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.

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: 3 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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