Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (Safe Work Australia, December 2011)

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

70-2011-3806-5 70-2011-3807-3 70-2011-3808-1 70-2011-3809-9 70-2011-3819-8

1.2. Recommended use and restrictions on use

Recommended use

Dental Product, Dyeing solution

Restrictions on use

For use by dental professionals only.

1.3. Supplier's details

Address: 3M Australia - Building A, 1 Rivett Road, North Ryde NSW 2113
Telephone: 136 136
E Mail: productinfo.au@mmm.com
Website: www.3m.com.au

1.4. Emergency telephone number

EMERGENCY: 1800 097 146 (Australia only)

SECTION 2: Hazard identification

This product is classified as a hazardous chemical according to the Model Work Health and Safety Regulations, 2011, in accordance with applicable State and Territory legislation.

Refer to Section 14 of this Safety Data Sheets for product Dangerous Goods Classification.

2.1. Classification of the substance or mixture

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

2.2. Label elements

The label elements below were prepared in accordance with the Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals (Safe Work Australia, December 2011). This information may be different from the actual product label.

Signal word
Warning

Symbols
Exclamation mark |

Pictograms

Hazard statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.

Precautionary statements

Prevention:

P264	Wash thoroughly after handling.
P280E	Wear protective gloves.

Response:

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	IF eye irritation persists: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.

2.3. Other assigned/identified product hazards
None known.

2.4. Other hazards which do not result in classification
Harmful to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Weight
Water	7732-18-5	70 - 97
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	25322-68-3	5 - 10
Ferric chloride, hexahydrate	10025-77-1	1 - 5
Hydrogen chloride.	7647-01-0	< 0.5

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
No critical symptoms or effects. 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
Contain spill. 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. 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	CAS Nbr	Agency	Limit type	Additional comments
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	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	Australia OELs	Peak limit:7.5 mg/m3(5 ppm)	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
Australia OELs : Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment
CMRG : Chemical Manufacturer's Recommended Guidelines
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling
Sen: Sensitiser
Sk: Absorption through the skin may be a significant source of exposure.

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.

Select and use eye protection in accordance with AS/NZS 1336. Eye protection should comply with the performance specifications of AS/NZS 1337.

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

Physical state	Liquid.
Specific Physical Form:	Liquid.
Colour	Yellow-Orange
Odour	Characteristic Odour
Odour threshold	*No data available.*

pH	1 - 1.5
Melting point/Freezing point	*Not applicable.*
Boiling point/Initial boiling point/Boiling range	Approximately 100 ºC
Flash point	No flash point
Evaporation rate	*No data available.*
Flammability (solid, gas)	Not applicable.
Flammable Limits(LEL)	*Not applicable.*
Flammable Limits(UEL)	*Not applicable.*
Vapour pressure	*No data available.*
Vapor Density and/or Relative Vapor Density	*No data available.*
Density	1.03 g/cm3 - 1.09 g/cm3
Relative density	1.03 - 1.09 [*Ref Std:*WATER=1]
Water solubility	Complete
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Autoignition temperature	*No data available.*
Decomposition temperature	*No data available.*
Viscosity/Kinematic Viscosity	*No data available.*
Volatile organic compounds (VOC)	*No data available.*
Percent volatile	*No data available.*
VOC less H2O & exempt solvents	*No data available.*
Molecular weight	*No data available.*

Nanoparticles
This material does not contain nanoparticles.

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. Conditions to avoid
None known.

10.4. Possibility of hazardous reactions
Hazardous polymerisation will not occur.

10.5 Incompatible materials
None known.

10.6 Hazardous decomposition products

Substance	**Condition**
None known.	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 labelling, an ingredient may not be available for exposure, or the data may not be

relevant to the material as a whole.

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 diarrhoea.

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
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Dermal	Rabbit	LD50 > 20,000 mg/kg
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	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
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Rabbit	Minimal irritation
Ferric chloride, hexahydrate	Rabbit	Irritant
Hydrogen chloride.	Human	Corrosive

Serious Eye Damage/Irritation

Name	Species	Value
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Rabbit	Mild irritant

Ferric chloride, hexahydrate	Rabbit	Corrosive
Hydrogen chloride.	Rabbit	Corrosive

Skin Sensitisation

Name	Species	Value
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Guinea pig	Not classified
Ferric chloride, hexahydrate	Mouse	Not classified
Hydrogen chloride.	Human and animal	Not classified

Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	In Vitro	Not mutagenic
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	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
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	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
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Ingestion	Not classified for female reproduction	Rat	NOAEL 1,125 mg/kg/day	during gestation
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Ingestion	Not classified for male reproduction	Rat	NOAEL 5699 +/-1341 mg/kg/day	5 days
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Not specified.	Not classified for reproduction and/or development		NOEL N/A	
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Ingestion	Not classified for development	Mouse	NOAEL 562 mg/animal/day	during gestation
Ferric chloride,	Ingestion	Not classified for	Rat	NOAEL 500	premating into

hexahydrate		female reproduction		mg/kg/day	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
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	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
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	Inhalation	respiratory system	Not classified	Rat	NOAEL 1.008 mg/l	2 weeks
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	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.

Exposure Levels
Refer Section **8.1 Control Parameters** of this Safety Data Sheet.

Interactive Effects
Not determined.

SECTION 12: Ecological 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. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:
GHS Acute 3: Harmful to aquatic life.

Chronic aquatic hazard:
GHS Chronic 3: Harmful to aquatic life with long lasting effects.

No product test data available.

Material	CAS Number	Organism	Type	Exposure	Test endpoint	Test result
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	25322-68-3	Activated sludge	Experimental		EC50	>1,000 mg/l
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	25322-68-3	Atlantic Salmon	Experimental	96 hours	LC50	>1,000 mg/l
Ferric chloride, hexahydrate	10025-77-1		Data not available or insufficient for classification			N/A
Hydrogen chloride.	7647-01-0		Data not available or insufficient for classification			N/A

12.2. Persistence and degradability

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-	25322-68-3	Experimental Biodegradation	28 days	BOD	53 % BOD/ThBOD	OECD 301C - MITI test (I)

hydroxy-ethane-1,2-diol, ethoxylated						
Ferric chloride, hexahydrate	10025-77-1	Data not available-insufficient			N/A	
Hydrogen chloride.	7647-01-0	Data not available-insufficient			N/A	

12.3 : Bioaccumulative potential

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
Poly(oxy-1,2-ethanediyl),alpha-hydro-omega-hydroxy-ethane-1,2-diol, ethoxylated	25322-68-3	Estimated Bioconcentration		Bioaccumulation factor	2.3	Estimated: Bioconcentration factor
Ferric chloride, hexahydrate	10025-77-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Hydrogen chloride.	7647-01-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.4. Mobility in soil
Please contact manufacturer for more details

12.5 Other adverse effects
No information available.

SECTION 13: Disposal considerations

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

SECTION 14: Transport Information

Australian Dangerous Goods Code (ADG) - Road/Rail Transport
UN No.: Not applicable.
Proper shipping name: Not applicable.
Class/Division: Not applicable.
Sub Risk: Not applicable.
Packing Group: Not applicable.

Hazchem Code: Not applicable
IERG: Not applicable.

International Air Transport Association (IATA) - Air Transport
UN No.: Not applicable.

Proper shipping name: Not applicable.
Class/Division: Not applicable.
Sub Risk: Not applicable.
Packing Group: Not applicable.

International Maritime Dangerous Goods Code (IMDG)- Marine Transport
UN No.: Not applicable.
Proper shipping name: Not applicable.
Class/Division: Not applicable.
Sub Risk: Not applicable.
Packing Group: Not applicable.
Marine Pollutant: Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Australian Inventory Status:
This product is regulated by the Therapeutics Goods Administration and is exempt from compliance with the Industrial Chemicals (Notification and Assessment) Act 1989 as amended.

SECTION 16: Other information

Revision information:
Complete document review.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Safety Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications.
Greenguard ® is a United States based program. The 'Low VOC' reference related to United States Federal and State regulations exemptions for some solvents.

3M Australia SDSs are available at www.3m.com.au