

Safety Data Sheet

ArgenZ Liquid

1: IDENTIFICATION

1.1 Product identifier

ArgenZ Liquids

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: The Argen Corporation

ADDRESS: 5855 Oberlin Drive, San Diego, CA 92111 USA

1.4 Emergency telephone number: CHEMTREC: 1-703-741-6090 (Collect calls accepted)

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.

2.3 Hazards not otherwise classified: None.

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 | >70 Trade Secret * |
| SULFURIC ACID H ₂ SO ₄ | 7647-01-0 | 0 - 15 Trade Secret * |
| CHROMIUM(III) CHLORIDE HEXAHYDRATE | 10060-12-5 | 0-5 |
| ERBIUM(III) CHLORIDE HEXAHYDRATE | 10025-75-9 | 0-5 |
| IRON(III) CHLORIDE HEXAHYDRATE | 10025-77-1 | 0-5 |
| MANGANESE SULFATE MONOHYDRATE | 10034-96-5 | 0-5 |
| NICKEL(II) CHLORIDE HEXAHYDRATE | 7791-20-0 | 0-5 |
| PRASEODYMIUM(III) CHLORIDE HYDRATE | 19423-77-9 | 0-5 |
| PROPYLENE GLYCOL | 57-55-6 | 0-5 |

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

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: Never give anything by mouth to an unconscious person. 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.

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.

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.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid prolonged or repeated skin or eye 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

| Ingredient | C.A.S. No. | Agency | Limit type | Additional Comments |
|--|------------|--------|----------------------------------|---|
| HYDROGEN CHLORIDE | 7647-01-0 | ACGIH | CEIL:2 ppm | A4: Not classifiable as a human carcinogen |
| HYDROGEN CHLORIDE | 7647-01-0 | OSHA | CEIL:7 mg/m ³ (5 ppm) | |
| CHROMIUM TRICHLORIDE HEXAHYDRATE | 10060-12-5 | OSHA | 0.500000 mg/m ³ | USA. Occupational Exposure Limits - Table Z-1 Limits for Air Contaminants. Not classifiable as a human carcinogen |
| IRON TRICHLORIDE HEXAHYDRATE | 10025-77-1 | ACGIH | 1.000000 mg/m ³ | Upper Respiratory Tract irritation Skin irritation varies |
| SULFURIC ACID H ₂ SO ₄ | 7647-01-0 | OSHA | 5 ppm 7.59 mg/m ³ | |
| NICKEL(II) CHLORIDE HEXAHYDRATE | 7791-20-0 | OSHA | 1.000000 mg/m ³ | Lung damage Nasal cancer Not classifiable as a human carcinogen |

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 Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry

hands.

Full contact: Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Splash contact: Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario. See Section 7.1 for additional information on skin protection.

Body Protection: Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

| | |
|--|---|
| General Physical Form: | Liquid |
| Specific Physical Form: | Liquid |
| Odor, Color, Grade: | Yellowish orange color, 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): | Not Applicable |
| Flammable Limits(UEL): | Not Applicable |
| Vapor Pressure: | No Data Available |
| Vapor Density: | No Data Available |
| Density: | 1.03 g/cm ³ - 1.09 g/cm ³ |
| Specific Gravity: | 1.03 - 1.09 [Ref Std: WATER=1] |
| Solubility in Water: | 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: | No Data Available |
| Molecular weight: | No Data Available |
| Volatile Organic Compounds: | No Data Available |
| Percent volatile | No Data Available |
| VOC Less H₂O & Exempt Solvents | No Data Available |

9.2 Other safety information: No data available

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:

Substance: None known.

Condition: Not Specified

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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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 |
| 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 |
| CHROMIUM TRICHLORIDE HEXAHYDRATE | Ingestion | Rat | LD50 1,790 mg/kg |
| IRON TRICHLORIDE HEXAHYDRATE | Ingestion | Rat | LD50 900 mg/kg |
| NICKEL(II) CHLORIDE HEXAHYDRATE | Ingestion | Rat | LD50 105 mg/kg |
| PRASEODYMIUM(III) CHLORIDE HYDRATE | Ingestion | Mouse | LD50 2,987 mg/kg |
| SULFURIC ACID H ₂ SO ₄ | Inhalation | Rat | LC50 3124 ppm (1 hour) |
| SULFURIC ACID H ₂ SO ₄ | Dermal | Rabbit | LD50 >5010 mg/kg |
| PROPYLENE GLYCOL | Ingestion | Rat | LD50 20,000 mg/kg |

ATE = acute toxicity estimate

Skin Corrosion/Irritation

| Name | Species | Value |
|--|---------|--------------------------|
| FERRIC CHLORIDE HEXAHYDRATE | Rabbit | Irritant |
| SULFURIC ACID H ₂ SO ₄ | Human | Causes severe skin burns |
| HYDROGEN CHLORIDE | Human | Corrosive |

Serious Eye Damage/Irritation

| Name | Species | Value |
|--|---------|---------------------------|
| FERRIC CHLORIDE HEXAHYDRATE | Rabbit | Corrosive |
| SULFURIC ACID H ₂ SO ₄ | Rabbit | Causes serious eye damage |
| HYDROGEN CHLORIDE | Rabbit | Corrosive |

Skin Sensitization

| Name | Species | Value |
|--|------------------|-----------------|
| ERBIUM CHLORIDE | Guinea pig | Not sensitizing |
| FERRIC CHLORIDE HEXAHYDRATE | Mouse | Not sensitizing |
| SULFURIC ACID H ₂ SO ₄ | Rabbit | Causes burns |
| HYDROGEN CHLORIDE | Human and animal | Not sensitizing |

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 |
|--|----------|--|
| 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 |
| SULFURIC ACID H ₂ SO ₄ | In Vitro | No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. |
| NICKEL(II) CHLORIDE HEXAHYDRATE | In Vitro | In vitro tests showed mutagenic effects |

Carcinogenicity

| Name | Route | Species | Value |
|--|---------------|------------------|--|
| FERRIC CHLORIDE HEXAHYDRATE | Ingestion | Rat | Not carcinogenic |
| SULFURIC ACID H ₂ SO ₄ | Not Specified | Rat | This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA. |
| 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 Results | Exposure Duration |
|--|---------------|--|---------|---------------------|----------------------------|
| FERRIC CHLORIDE HEXAHYDRATE | Ingestion | Not toxic to female reproduction | Rat | NOAEL 500 mg/kg/day | prematuring into lactation |
| FERRIC CHLORIDE HEXAHYDRATE | Ingestion | Not toxic to male reproduction | Rat | NOAEL 500 mg/kg/day | prematuring into lactation |
| SULFURIC ACID H ₂ SO ₄ | Not Specified | This product is not expected to cause reproductive or developmental effects. | | | |
| FERRIC CHLORIDE HEXAHYDRATE | Ingestion | Not toxic to 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 Results | Exposure Duration |
|-------------------|------------|------------------------|----------------------------------|---------|---------------------|-------------------|
| 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 Results | Exposure Duration |
|-----------------------------|------------|--|--|---------|-----------------------|-------------------|
| FERRIC CHLORIDE HEXAHYDRATE | Inhalation | respiratory system | Some positive data exist, but the data are not sufficient for classification | Rabbit | NOAEL 0.005 mg/l | 60 days |
| FERRIC CHLORIDE HEXAHYDRATE | Ingestion | endocrine system | Some positive data exist, but the data are not sufficient for classification | Rat | NOAEL 250 mg/kg/day | 54 days |
| FERRIC CHLORIDE HEXAHYDRATE | Ingestion | liver/immune system/kidney and/or bladder/respiratory system | Some positive data exist, but the data are not sufficient for classification | Rat | NOAEL 1,034 mg/kg/day | 90 days |
| FERRIC CHLORIDE HEXAHYDRATE | Ingestion | hematopoietic system | Some positive data exist, but the data are not sufficient for classification | 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 SDS for additional toxicological information on this material and/or its components.

12. ECOLOGICAL INFORMATION

Ecotoxicological information

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

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. 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)

14. TRANSPORT INFORMATION

Land transport ADR/RID

ADR/RID class: No hazardous good according to the regulation. Maritime transport

IMDG: IMDG Class: No hazardous good according to the regulation. Air transport

ICAO-TI and IATA-DGR: ICAO/IATA Class: No hazardous good according to the regulation. Special precautions for user: Not applicable

Transport is not regulated by the United States Department of Transportation and

may be transported in alkali proof containers as a non-hazardous material. Trucks transporting/carrying bulk material should be covered to prevent dust generation.

15. REGULATORY INFORMATION

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

Radiological Protection: The regulations pertaining to radiological protection vary from country to country. It is the responsibility of the buyer to ensure that those are met in accordance with his/her law.

Canada WHMIS: All chemicals in this product do not possess a WHMIS classification.

Canada DSL: All chemicals in this product are listed on the Canadian Domestic Substances List inventory list.

European Union EINECS: All chemicals in this product are listed in the European Inventory of Existing Commercial Chemical Substances.

California Prop 65: None of the chemicals in this product are listed as known to cause cancer or reproductive toxicity.

ROC: None of the chemicals in this product are listed in the 11th edition of the National Toxicology Program(NTP) Annual Report on Carcinogens as known or reasonably suspected carcinogens.

IARC: None of the chemicals in this product have been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs.

311/312 Hazard Categories:

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

Immediate Hazard - Yes

Delayed Hazard - No

15.2 State Regulations: Contact Argen Corporation 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 Argen Corporation for more information.

15.4. International Regulations: Contact Argen Corporation for more information.

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

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.

Version Number: 1.00 Issue Date: 02/27/2018 Supersedes Date: n/a

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