

SAFETY DATA SHEET

According to Federal Regulation 29 CFR 1910.1200

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: TRAMFLOC® 550

Type of product: Substance

Substance: Polyaluminum chloride/polyamine blend

Synonyms: Polyaluminum chloride

CAS No.: 1327-41-9

EC No.: 215-477-2

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses: This material is used as a water treatment coagulant.

Uses advised against: none

1.3. Details of the supplier of the safety data sheet

Company: Tramfloc, Inc.
6046 FM 2920 Rd. #615
Spring, TX 77379-2542

Telephone: 888-929-8973

Telefax: 480-383-6895

E-mail address: water@tramfloc.com

1.4 Emergency telephone number:

24-hour emergency number: 800-424-9300 CHEMTREC (CCN 20412), Outside US 703-527-3887

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to paragraph (d) of Regulation 29 CFR 1910.1200:

Not classified.

2.2. Label elements

Labelling according to paragraph (f) of Regulation 29 CFR 1910.1200:

Hazard symbol(s): none

Signal word: none

Hazard statement(s): none

Precautionary statement(s): none

2.3. Other hazards

Spills produce extremely slippery surfaces.

SECTION 3. Composition/information on ingredients

3.1 Substances

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|--------------------|----------------------------------------------------|
| Main Constituent: | Polyaluminum Chloride |
| CAS No: | 1327-41-9 |
| EC number: | 215-477-2 |
| Purity: | 50% w/w |
| Synonyms: | Aluminum Chloride, basic |
| Other Constituent: | Water (CAS no 7732-18-5, EC no 231-791-2) ~50% w/w |
| Impurities: | None |
| Additives: | None |

3.2 Mixtures

Hazardous components

none

SECTION 4: First aid measures

4.1. Description of first aid measures

Immediate medical attention is not necessary.

Inhalation:

Supply fresh air. Rinse mouth and nose with water. Contact a physician.

Skin contact:

Rinse with water. If symptoms persist, call a physician.

Eye contact:

Rinse with plenty of lukewarm water, also under the eyelids. If symptoms persist, call a physician.

Ingestion:

Do NOT induce vomiting. Rinse mouth with water. Drink 1 or 2 glasses of water or milk. If symptoms persist, call a physician. Never give anything by mouth to an unconscious person.

Self protection:

Direct contact with the product should be prevented or minimized. Wear gloves in a suitable material such as PVC, Neoprene or Natural rubber.

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

Liquid can cause localized skin irritation in folds of the skin or under tight clothing.

4.3. Indication of any immediate medical attention and special treatment needed.

If Inhaled:

May cause mucous membrane irritation with cough and rhinitis.

If On Skin:

May cause mild irritation dryness and dermatitis.

If In Eyes:

May cause redness, conjunctivitis and short term mild irritation.

If Swallowed:

May cause burning pain in mouth and throat.

SECTION 5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media:

None.

5.2. Special hazards arising from the substance or mixture

Hydrogen chloride may be released when heating above the decomposition temperature.

5.3. Advice for fire-fighters

In the event of fire, wear self-contained breathing apparatus. Fire fighters must wear fire resistant personnel protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Refer to protective measures listed in section "Section 7. Handling and Storage". Wear protective suit and boots. If aerosols or mist are formed, use half mask with combination filter B/P2.

6.2. Environmental precautions

Cover the drains to prevent the product from entering the environment. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3. Methods and material for containment and cleaning up

Contain spills in dyke or use absorptive barriers. Remove larger spills using a vacuum truck. Must be disposed of in accordance with local and national regulations.

6.4. Reference to other sections

Product is water-soluble and compatible with water treatment plants. Product reacts with soaps forming a hydroxide gel.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

The work place and work methods shall be organized in such a way that direct contact with the product is prevented or minimized. Wear gloves in a suitable material such as PVC, Neoprene or Natural rubber. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also consider the specific local conditions under which the product is used, such as the danger of cuts, abrasion and the contact time. Tightly fitted safety goggles must be worn. Material should be transferred in ways that do not create mists or aerosols.

7.2. Conditions for safe storage, including any incompatibilities.

Product should be stored in dry conditions above freezing and below high temperatures (not >60° C).

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| Technical Measures: | Avoid incompatible materials including non acid-proof metals such as aluminum, copper and iron, bases, unalloyed steel and galvanized surfaces. |
| Packaging Materials: | Plastic (PE, PP, PVC), fiberglass-reinforced polyester, epoxy-coated concrete and titanium. High density PE is recommended. |

7.3. *Specific end use(s)*

This product is intended to be used as an antiperspirant and is manufactured under pharmaceutical requirements in the U.S. May also be used in personal care products as a deodorant or an astringent. When used in these applications, the product should be handled as described above to minimize worker exposure to lungs, eyes and skin.

SECTION 8. Exposure controls/personal protection

8.1. *Control parameters*

Occupational exposure limit is 2mg/m³ as Aluminum for soluble Aluminum compounds (OSHA TLV-TLW, ACGIH TLV-TLW, EH40, EU OEL, AGW).

8.2. *Exposure controls*

Occupational Exposure Controls

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| Technical Measures to Prevent Exposure: | Material transfer should be done under conditions of local exhaust ventilation to avoid breathing mist. |
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Personal Protective Equipment

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| Respiratory Protection: | Dust mask. In absence of local exhaust ventilation, approved respirators are recommended. |
| Hand Protection: | Wear gloves in a suitable material such as PVC, Neoprene or Natural rubber. |
| Eye Protection: | Tightly fitting safety goggles must be worn. |
| Skin Protection: | Skin should be covered by clothing at a minimum. Avoid excessive skin contact. |

SECTION 9. Physical and chemical properties

9.1. *Information on basic physical and chemical properties*

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|-----------------------------------|--------------------------------------------|
| Appearance: | Solution, white to light yellow |
| Odor: | Slight, characteristic. |
| PH: | Approximately 4 in a 15% aqueous solution. |
| Melting point/range (° C): | Not applicable. |
| Boiling point/range (° C): | 110 – 115°C. |
| Flash point (° C): | None, product is not flammable. |
| Ignition temperature (° C): | None, product is not flammable. |
| Vapor Pressure (kPa): | 2.3 kPa |
| Density (g/cm ³): | 1.25 – 1.35 g/cm ³ |
| Water Solubility (20 ° C in g/l): | Fully soluble |
| Viscosity, dynamic (mPa s): | 50 mPa s |

9.2. *Other information*

None.

SECTION 10. Stability and reactivity

10.1. Reactivity

Excessive heating after water evaporation for long periods of time can result in the evolution of HCl.

10.2. Chemical stability

Will react with caustics to form aluminum hydroxides. Can corrode ordinary grades of steel.

10.3. Possibility of hazardous reactions

HCl can be evolved during high temperature heating for extended periods of time.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Product is not classified under either the Dangerous Substance Directive or GHS/CLP Regulation.

Information on the product as supplied:

Acute oral toxicity: Not classified. Data not determined.

Acute dermal toxicity: Not classified. Data not determined.

Acute inhalation toxicity:

Skin corrosion/irritation: Not classified. Negative results rabbit skin (OECD 404)

Serious eye damage/eye irritation: Not classified. Negative results rabbit eye (OECD 405)

Respiratory/skin sensitisation: Not classified. Negative result for Aluminum Hydroxy Chloride, CAS 1327-41-9, read across.

STOT - single exposure: Not classified. No STOT identified in animal studies. Human effects can be related to systemic toxicity.

STOT - repeated exposure: Not classified. Read across from chronic (1 year) toxicity study (oral, rat) with Al Citrate, OECD 426 and OECD 452. Read across from short term repeat dose toxicity study (rat) with Aluminum Hydroxy Chloride, CAS 1327-41-9.

Carcinogenicity: Not classified. No studies; none expected.

Mutagenicity/Gentoxicity: Not classified. Negative results for in-vitro mutagenicity testing.

Toxicity for Reproduction: Not classified. Read across from Aluminum Hydroxy Chloride reproductive / developmental toxicity screening test. NOAEL 1000 mg/kg/day (equivalent to 90 mg/kg bw/day Al^{3+}) and Aluminum Citrate one year developmental and chronic neurotoxicity study (oral, rat).

SECTION 12. Ecological information

12.1. Ecotoxicity

Not classified. Zebra fish LC50 (96h) 250 – 500 mg/l (OECD 203), Daphnia Magna EC50 (48h) 530 mg/l, EC50 (bacteria) > 2000 mg/l Fermentation tube test.

12.2. Mobility

Not classified based on rapid hydrolysis and precipitation.

12.3. Persistence and Degradability

Data not determined.

12.4. Results of PBT Assessment

Substance is not toxic.

SECTION 13. Disposal considerations

13.1 Appropriate Disposal / Product

Must be disposed of in accordance with local and national regulations.

13.2 Waste Codes / Waste Designations According to EWC/AVV/U.S. EPA

Not applicable; material is not a hazardous waste.

13.3 Appropriate Packaging

Follow recommendations according to method of disposal and specific disposal facility.

13.4 Additional Information

None.

SECTION 14. Transport information

Land transport (DOT)

Not classified. This is not a hazardous material for transportation as defined by USA Dept. of Transportation.

Sea transport (IMDG)

Not classified. Not a marine pollutant.

Air transport (IATA)

Not classified.

SECTION 15. Regulatory information

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

EU Regulations: Not classified

Restrictions on use: None known.

15.2 National Regulations

Germany: Wassergefährdungsklassen (water hazard class): not a hazard

United States: Antiperspirants are regulated by the FDA as an OTC pharmaceutical. See Antiperspirant Monograph for details on formulation, manufacture and labeling. Maximum percent in an antiperspirant product is regulated.

SECTION 16. Other information

NFPA and HMIS Ratings: NFPA:

Health: 2

Flammability: 0

Instability: 0

HMIS:

Health: 2

Flammability: 0

Physical Hazard: 0

PPE Code: B

Other countries: This product is regulated in Japan and Korea.

Abbreviation Definition

| | |
|------------------|-----------------------------------------------------------------------------|
| < | less than |
| > | greater than |
| % | percent |
| °C | degree Centigrade |
| ACGIH | American Conference of Governmental Industrial Hygienists |
| ADR | European Agreement Concerning the International Carriage of Dangerous Goods |
| Al: | Aluminum |
| Al ³⁺ | aluminum trivalent cation |
| AVV | Abfallverzeichnis-Verordnung |
| B/P2 | breathing, non-toxic particle filter |
| BOD: | Biochemical Oxygen Demand |
| bw | body weight |
| CAS: | Chemical Abstracts Service |
| CLP: | Classification, labeling and packaging |
| cm ³ | cubic centimeter |
| DGR | Dangerous Goods Regulations |
| DSL | Dangerous Substances List |
| EC | Number or (ECN) European Community Number |
| EC ₅₀ | Concentration causing 50% of the maximum response |
| EH40: | UK Environmental Health occupational exposure limits |
| e-mail | electronic mail address |
| EmS | Emergency Schedule |
| ERG | Emergency Response Guidebook |
| EST/EDT | Eastern Standard Time/Eastern Daylight Savings Time |
| EWC | European Waste Council |
| FAX | facsimile number |
| FDA | Food and Drug Administration (USA) |
| g | gram |
| GGVS | Regulation of hazardous transportation for Germany |

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|----------------|--------------------------------------------------------------------------------|
| GHS: | Globally Harmonized System |
| h | hour |
| HCl | hydrogen chloride |
| HMIS | hazardous material information system |
| IATA | International Air Transport Association |
| ICAO-TI | International Civil Aviation Organization Technical Instructions |
| IMDG | International Maritime Dangerous Goods |
| kg | kilogram |
| l | liter |
| LC50 | 50% lethal concentration |
| LD50 | 50% lethal dose |
| m ³ | cubic meter |
| mg | milligram |
| mPa | millipascal |
| No. | number |
| N.O.S: | Not otherwise specified |
| NFPA | National Fire Protection Association |
| NOAEL | no observable adverse effect level |
| OECD | Organization for Economic Co-Operation and Development |
| OSHA: | Occupational Safety and Health Administration |
| OTC | Over the Counter |
| PBT: | Persistent, Bioaccumulative and Toxic |
| PE | polyethylene |
| pH | log hydrogen ion concentration (acid-base scale) |
| PO | Post Office |
| PP | polypropylene |
| PPE | Personal Protective Equipment |
| PVC | polyvinyl chloride |
| RCRA | Resource Conservation & Recovery Act |
| REACH | Registration, Evaluation, Authorization and Restriction of Chemical substances |
| (M)SDS: | (Material) Safety Data Sheet |
| s | second |
| STOT | Specific target organ toxicity |
| TLV-TWA: | Threshold Limit Value – Time-Weighted Average |
| w/w: | weight by weight |

The information contained herein is to the best of our knowledge and belief accurate. However, since the conditions of handling and use are beyond our control, Tramfloc, Inc. makes no guarantee for results obtained, and assumes no responsibility for damages incurred by use of this product. It is the responsibility of the user to comply with all federal, state, and local laws and regulations.