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® 556

Type of product: Substance

Substance: Aluminum Chloride, Basic

Synonyms: ½ Basic Aluminum Chloride, Polyaluminum Chloride Hydroxide, Polybasic Aluminum Complex

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 coagulant. It is also used as a Lewis acid in chemical reactions.

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

Danger, Causes severe burns and eye damage.

Corrosive, corrosive to metals

2.2. Label elements

OSHA (USA): Hazardous by definition of Hazard Communication Standard

WHIMS (Canada): Class E Corrosive Liquid

H314: Causes severe skin burns and eye damage.

H290: May be corrosive to metals.

2.3. Other hazards

Spills produce extremely slippery surfaces.

SECTION 3. Composition/information on ingredients

3.1 Substances

Main Constituent:	Aluminum Chloride, Basic
CAS No:	1327-41-9
EC number:	215-477-2
Purity:	33% w/w
Synonyms:	½ Basic Aluminum Chloride, Polyaluminum Chloride Hydroxide, Polybasic Aluminum Complex
Other Constituent:	Water (CAS no 7732-18-5, EC no 231-791-2) ~60% w/w
Impurities:	None
Additives:	None

3.2 Mixtures

Hazardous components

Aluminum Chloride, basic, corrosive, R35; Causes severe burns

3.3 Additional Information

See section 2, 4

SECTION 4: First aid measures

4.1. Description of first aid measures

P310, Immediately call a doctor, physician

Inhalation:

P340, Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Skin contact:

P353, Rinse skin with water/shower. P360, remove/take off all contaminated clothing.

Eye contact:

P351, Rinse continuously with water for several minutes.

Ingestion:

P330, Rinse mouth with water. P331, Do NOT induce vomiting, drink 1 or 2 glasses of water or milk.

Self protection:

P260, Do not breathe dust/fume/gas/mist/vapors/spray. P264, Wash skin thoroughly after handling. P280, Wear protective gloves, protective clothing, protective eye protection, face protection.

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

If Inhaled:

Symptoms of severe burns.

If On Skin:

Symptoms of severe burns.

If In Eyes:

Symptoms of severe burns.

If Swallowed:

Symptoms of severe burns.

Danger: Causes severe burns.

Treatment, See Section 4.2-4.5

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.

5.4. Additional Information

Wear protective gloves/protective clothing/eye protection/face protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Refer to protective measures listed in section “Handling and Storage”. Wear protective gloves/protective clothing/eye protection/face protection. Isolate and ventilate area. Keep material away from metals and bases.

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

If possible, dam the liquid with sand or earth. Collect the product by a suitable means. Place everything into closed, labeled plastic containers. Must be disposed of in accordance with local and national regulations.

6.4. Reference to other sections

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).

Technical Measures:	Material is corrosive to metals. Also highly acidic so contact with bases should be avoided.
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 a Lewis acid catalyst and can be used as a chemical reagent. It can also be used as a flocculent in water treatment. When used in these applications, the product should be handled as described above to prevent 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

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

Personal Protective Equipment

Respiratory Protection:	Avoid breathing vapor. 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 skin contact.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Solution, white to light yellow
Odour:	Pungent, astringent
PH:	> 2 neat
Melting point/range (° C):	-15°C
Boiling point/range (° C):	Above 105°C, product decomposes
Flash point (° C):	None, product is not flammable.
Ignition temperature (° C):	None, product is not flammable.
Vapor Pressure (kPa):	23 mbar
Specific Gravity:	1.13-1.29
Density (g/cm3):	not applicable

Water Solubility (20 ° C in g/l): Miscible in all proportions.

Viscosity, dynamic (mPa s): 10 mPa s

Dust Explosion Hazard: Not applicable.

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. Will corrode metals with evolution of hydrogen. Avoid all materials that react with strong acids.

10.3. Possibility of hazardous reactions

HCl can be evolved during heating. Hydrogen can be generated from reactions with metals.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Product classified as a Danger under GHS/CLP regulations. Classified as a toxic material (D2B) under WHIMS and an acute health hazard under SARA Title III Sec 311/312.

Information on the product as supplied:

Acute oral toxicity: Not classified. Rat ingestion study, OECD 401, LD50 (rat) indicates 380 mg/kg.

Acute dermal toxicity: No data.

Acute inhalation toxicity: No data.

Skin corrosion/irritation: Category 1, Corrosive pH - 2

Serious eye damage/eye irritation: Category 1, Corrosive pH - 2

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 stuidies; 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 Al3+) 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) 100 – 500 mg/l (OECD 203), Daphnia Magna EC50 (48h) 397mg/l, EC50 (bactéria) > 1000 mg/l Fermentation tube test.

12.2. Mobility

Not classified based on rapid hydrolysis and precipitation.

12.3. Persistence and Degradability

Inorganic product, not degradable. Cannot be eliminated from water by biological purification processes.

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

RCRA Hazardous waste: Listed as D002 (Corrosive)

13.3 Appropriate Packaging

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

13.4 Additional Information

None.

SECTION 14. Transport information

14.1 Land transport (ADR/RID and GGVS/GGVE)

Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (1/3 Basic Aluminum Chloride)

UN Number: 3264
Classification: Class 8
Packaging Group: III
Hazard Label: Corrosive
Placard: Corrosive
Emergency Information: ERG: 154

14.2 Maritime transport (IMDG-Code/GGVSea)

Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (1/3 Basic Aluminum Chloride)
UN Number: 3264
Classification: Class 8
Packaging Group: III
Hazard Label: Corrosive
Placard: 2581
Emergency Information: EmS: 8-06

14.3 Air transport (ICAO-TI and IATA/DGR)

Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (1/3 Basic Aluminum Chloride)
UN Number: 3264
Classification: Class 8
Packaging Group: III
Hazard Label: Corrosive
Emergency Information: ERG: 8L

SECTION 15. Regulatory information

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

EU Regulations:	Danger, causes severe burns and eye damage. Corrosive, corrosive to metals.
Restrictions on use:	Maximum precent in an antiperspirant product is regulated.
15.2 National Regulations	
Germany:	Wassergefahrdungsklasses (water hazard class): hazard class 1, low hazard to water.
United States:	Antiperspirants are regulated by the FEDA 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: 2

PPE Code: J

Canada DSL Registration: DSL

WHIMS Classification D2B – Toxic Material, E – corrosive

NSF – Maximum use in drinking water 250 mg/L.

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
Al3+	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
cm3	cubic centimeter
DGR	Dangerous Goods Regulations
DSL	Dangerous Substances List
EC	Number or (ECN) European Community Number
EC50	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
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

m3	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, Authorisation 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.