SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
US OSHA HCS 2024

Issuing Date 09-Oct-2024 **Revision date** 11-Jul-2025 **Revision Number** 6

1. Identification

Product identifier

Product Name FROG Clarifier 4Pro

Other means of identification

UN number or ID number UN1759

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use Pool Clarifier

Restrictions on use Consumer use
Use only for intended applications

Details of the supplier of the safety data sheet

Manufacturer Address
King Technology, Inc.
6000 Clearwater Dr.
Minnetonka, MN 55343
+1 (952) 933-6118

E-mail sdsinfo@kingtechnology.com

Emergency telephone number

Emergency telephone CHEMTREC Emergency Tel. #: 1-800-424-9300 (Canada and USA)

2. Hazard(s) identification

Classification of the substance or mixture

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

Hazards not otherwise classified (HNOC)
Not applicable.

Label elements

Danger

Hazard statements
May be corrosive to metals.
Causes severe skin burns and eye damage.
Precautionary Statements - Prevention
Do not breathe dust.
Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves, protective clothing, eye protection and face protection.
Keep only in original packaging.
Precautionary Statements - Response
Immediately call a POISON CENTER or doctor.
Specific treatment (see supplemental first aid instructions on this label).
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
Wash contaminated clothing before reuse.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER or doctor.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
Absorb spillage to prevent material damage.
Precautionary Statements - Storage
Store locked up.
Store in corrosion resistant container with a resistant inner liner.

Precautionary Statements - Disposal
Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

Hazards classified under paragraph (d)(1)(ii) of 1910.1200
No information available.

Other information
Harmful to aquatic life.

3. Composition/information on ingredients

Substance

Chemical name	CAS No.	Weight-%	Trade secret
Aluminum Sulfate	10043-01-3	>55	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. First-aid measures

Description of first aid measures

General advice If exposed or concerned: Get medical advice and attention. Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, (trained personnel should) give oxygen. Get immediate medical attention.
Eye contact	IF IN EYES Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical attention.
Skin contact	IF ON SKIN: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention.
Ingestion	IF SWALLOWED: Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical attention.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

Symptoms	Skin burns, irreversible damage to eyes, damage to mucous membranes, blistering, redness, pain. Prolonged contact may cause redness and irritation. Nausea. Headache. Burning sensation.
Effects of Exposure	None known.

Indication of any immediate medical attention and special treatment needed

Note to physicians	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Carbon dioxide (CO2). Foam. Dry chemical.
Unsuitable extinguishing media	CAUTION: Use of water spray when fighting fire may be inefficient.
Specific hazards arising from the chemical	Cool containers with flooding quantities of water until well after fire is out.
Hazardous combustion products	Thermal decomposition can lead to release of irritating and toxic gases and vapors, Sulfur oxides.

Explosion data

Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other information Aluminum Sulfate may absorb moisture, and powders or crystals can solidify into a single mass. Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Prevent materials or runoff from entering drains, sewers, streams, ground water or bodies of water.

Methods for cleaning up Ensure adequate ventilation. Avoid generation of dust. Avoid breathing dust or spray mist.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Keep container closed when not in use. Use only in well-ventilated areas. Minimize dust generation and accumulation. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. In case of inadequate ventilation wear respiratory protection.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands and face before breaks and immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep tightly closed in a dry and cool place. Keep away from open flames, hot surfaces and sources of ignition. Store in original container. Protect from moisture. Store locked up. Keep out of the reach of children.

8. Exposure controls/personal protection

Control Parameters

Exposure Limits

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Aluminum Sulfate 10043-01-3	-	(vacated) TWA: 2 mg/m³ Al Aluminum	TWA: 2 mg/m³; Al

Note See section 16 for terms and abbreviations.

Other information on limit values Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering controls Showers

Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield. Tight sealing safety goggles. Wear safety glasses with side shields (or goggles).

Hand protection Chemical resistant gloves. Wear suitable gloves.

Skin and body protection Wear appropriate chemical resistant clothing. Wear suitable protective clothing. Chemical resistant apron.

Respiratory protection When inhalation exposure is expected, use NIOSH approved respirator with APF 50 or greater in accordance with 29 CFR 1910.134.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance	crystalline
Physical state	Solid
Color	White
Odor (includes odor threshold)	Odorless

Property	**Values**	**Remarks • Method**
Melting point / freezing point	88 °C / 190.4 °F	Tempature of water of hydration loss
Boiling point (or initial boiling point or boiling range)		No data available
Flammability		No data available
Flammability Limit in Air		
Upper flammability or explosive limits		No data available
Lower flammability or explosive limits		No data available
Flash point		No data available
Autoignition temperature		No data available
Decomposition temperature		
SADT (°C)		No data available
pH	3.5	(1% diluted solution)
pH (as aqueous solution)		No data available
Kinematic viscosity		No data available
Dynamic viscosity		No data available
Solubility		No data available
Water solubility	7.28 lbs./gal. @ 68 °F	
Partition coefficient n-octanol/water (log value)		No data available
Vapor pressure (includes evaporation rate)		No data available
Evaporation rate		No data available
Density and/or relative density		No data available
Bulk density	~65 lbs./ft3	
Liquid Density		No data available
Relative vapor density		No data available
Particle characteristics		
Particle Size		No data available
Particle Size Distribution		No data available

Other information

Molecular weight	No information available
VOC content	No information available

Softening point No information available

Information with regard to physical hazard classes

Explosives

Explosive properties No information available

Oxidizing properties No information available

10. Stability and reactivity

Reactivity No information available.

Chemical stability Stable at normal ambient temperatures and when used as recommended.

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization None under normal processing.

Conditions to avoid Moisture. Exposure to air or moisture over prolonged periods.

Incompatible materials Strong alkalis, Carbon steel, Moisture, Acids.

Hazardous decomposition products Thermal decomposition or combustion products may include the following substances:, Aluminum oxides, Sulfur trioxide.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation Dusts of this product may cause irritation of the nose, throat, respiratory tract. Corrosive by inhalation. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

Eye contact Causes serious eye damage. Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.

Skin contact Corrosive. Causes burns. Contact with moist skin may cause skin burns.

Ingestion May be fatal if swallowed and enters airways. Can burn mouth, throat, and stomach. Ingestion causes burns of the upper digestive and respiratory tracts. May cause lung damage if swallowed. Causes burns. Abdominal pain.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Eye damage. May cause blindness. May cause redness and tearing of the eyes. Prolonged contact may cause redness and irritation. Nausea. Headache. Burning sensation.

Acute toxicity Based on available data, the classification criteria are not met.

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Aluminum Sulfate 10043-01-3	= 1930 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients. Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye damage. Causes burns.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

Other adverse effects No information available.

Interactive effects No information available.

12. Ecological information

Ecotoxicity The environmental impact of this product has not been fully investigated.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Aluminum Sulfate 10043-01-3	-	LC50: =27.9mg/L (96h, Pimephales promelas)	-	-

Persistence and degradability No information available.

Bioaccumulation No information available.

Mobility No information available.

Other adverse effects No information available.

13. Disposal considerations

Disposal methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. Transport information

Note: General: In small packages, such as most consumer sizes, the products may be eligible for limited quantity exceptions. Details depend on package and mode of transport. If shipped in larger quantities, product is fully regulated as defined below.

DOT

UN number or ID number	UN1759
Proper shipping name	Corrosive solids, n.o.s.
Transport hazard class(es)	8
Packing group	III
Reportable quantity (lbs)	Aluminum Sulfate: RQ (lb)= 5000.00
Reportable quantity (lbs) (calculated)	Aluminum Sulfate: RQ (lb)= 8333.00
Reportable quantity (kg)	(Aluminum Sulfate: RQ (kg)= 2270.00)
Reportable quantity (kg) (calculated)	Aluminum Sulfate: RQ (kg)= 3783.33
Special Provisions	128, IB8, IP3, T1, TP33
DOT Marine Pollutant	NP
Description	UN1759, Corrosive solids, n.o.s. (Aluminum Sulfate), 8, III
Emergency Response Guide Number	154

IATA

UN number or ID number	UN1759
UN proper shipping name	Corrosive solid, n.o.s.
IATA Technical Name	Aluminum Sulfate
Transport hazard class(es)	8
Packing group	III
Environmental hazards	No
Special Provisions	A3, A803
ERG Code	8L
Description	UN1759, Corrosive solid, n.o.s. (Aluminum Sulfate), 8, III

IMDG

UN number or ID number	UN1759
UN proper shipping name	Corrosive solid, n.o.s.
Technical Name	Aluminum Sulfate
Transport hazard class(es)	8
Packing group	III
Marine pollutant indicator	NP
Special Provisions	223, 274 F-A S-B
Description	UN1759, Corrosive solid, n.o.s. (Aluminum Sulfate), 8, III

15. Regulatory information

International Inventories

Contact supplier for inventory compliance status

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Aluminum Sulfate 10043-01-3	5000 lb	-	-	X

CAA (Clean Air Act)
This product does not contain any substances regulated as pollutants pursuant to Clean Air Act (CAA).

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Aluminum Sulfate 10043-01-3	5000 lb / 2270 kg (final RQ)	-

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Aluminum Sulfate 10043-01-3	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

16. Other information

NFPA	**Health hazards** 3	**Flammability** 1	**Instability** 1	**Special hazards** -
HMIS	**Health hazards** 3	**Flammability** 1	**Physical hazards** 4	**Personal protection** D

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend

ACGIH	American Conference of Governmental Industrial Hygienists
ADN	Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe)
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road (Europe)
AIIC	Australian Inventory of Industrial Chemicals
ATE	Acute Toxicity Estimate
ASTM	American Society for the Testing of Materials
bar	Biological Reference Values for Chemical Compounds in the Work Area
BAT	Biological tolerance values for occupational exposure
BEL	Biological exposure limits
bw	Body weight
Ceiling	Maximum limit value
CMR	Carcinogen, Mutagen or Reproductive Toxicant
DOT	Department of Transportation (United States)
DSL	Domestic Substances List (Canada)
EmS	Emergency Schedule
ENCS	Existing and New Chemical Substances (Japan)
EPA	U.S. Environmental Protection Agency
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO	International Civil Aviation Organization
IECSC	Inventory of Existing Chemical Substances in China
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISO	International Organization for Standardization
KECI	Korean Existing Chemicals Inventory
LC50	Lethal Concentration to 50% of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
n.o.s.	Not Otherwise Specified
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
NOELR	No Observable Effect Loading Rate
NTP	National Toxicology Program (United States)
NZIoC	New Zealand Inventory of Chemicals
OECD	Organization for Economic Cooperation and Development
OEL	Occupational exposure limits
OSHA	Occupational Safety and Health Administration of the US Department of Labor
PBT	Persistent, Bioaccumulative and Toxic substance
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PMT	Persistent, Mobile and Toxic
PPE	Personal protective equipment
QSAR	Quantitative Structure Activity Relationship
RID	Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe)
SADT	Self-Accelerating Decomposition Temperature
SAR	Structure-activity relationship
SARA	Superfund Amendments and Reauthorization Act
SDS	Safety Data Sheet
SL	Surface Limit

STEL	Short Term Exposure Limit
STOT RE	Specific target organ toxicity - Repeated exposure
STOT SE	Specific target organ toxicity - Single exposure
TCSI	Taiwan Chemical Substance Inventory
TDG	Transport of Dangerous Goods (Canada)
TSCA	Toxic Substances Control Act (United States)
TWA	Time-Weighted Average
UN	United Nations
VOC	Volatile organic compounds
vPvB	Very Persistent and Very Bioaccumulative
vPvM	Very Persistent and Very Mobile
As	Allergenic substance
DS	Dermal Sensitizer
Ot	Ototoxicant
pOt	Ototoxicant - potential to cause hearing disorders
PS	Photosensitizer
RS	Respiratory Sensitizer
S	Sensitizer
poS	Sensitizer - capable of causing occupational asthma
Sa	Simple asphyxiant
Sd	Skin designation
pSd	Skin designation - potential for cutaneous absorption
Sdv	Skin designation - vacated
Sk	Skin notation
dSk	Skin notation - danger of cutaneous absorption
pSk	Skin notation - potential for cutaneous absorption

Key literature references and sources for data used to compile the SDS
U.S. Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
U.S. Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
International Organization for Economic Co-operation and Development (OECD) Environment, Health, and Safety Publications
International Organization for Economic Co-operation and Development (OECD) High Production Volume Chemicals Program
International Organization for Economic Co-operation and Development (OECD) Screening Information Data Set
United Nations World Health Organization (WHO)

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Revision Note Initial Release.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the

date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet