

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

GHS PRODUCT IDENTIFIER

BSW 867

OTHER MEANS OF IDENTIFICATION

CAS:	Mixture not listed in registry
EC:	Mixture not listed in registry
RTECS:	Mixture not listed in registry
ICSC:	Mixture not listed in registry
CHEMICAL FAMILY:	Mixture
SYNONYMS:	None
PROPER SHIPPING NAME:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
CHEMICAL FORMULA:	Mixture not determined
PRODUCT STOCK CODE/S:	BSW010(25Kg), BSW017(200Kg), BSW018(1000Kg)

RECOMMENDED USE	RESTRICTIONS ON USE
BSW 867 is a cost-effective liquid blend of multiple coagulants and flocculants suitable for use in many applications, including potable water production from water with high turbidity.	Not for use by end users.

SUPPLIER'S DETAILS

STANDFAST CONTRACTORS (PVT) LTD T/A BLUE STEEL WATER

17 Halford Road, Greystone Park Harare

Zimbabwe

Tel: 00263 24 885 220

Cell: 077 682 9247

info@bluesteelwater.com
<http://www.bluesteelwater.co.za>

SDS Enquiries Only

sheq@aquatradesa.co.za

EMERGENCY PHONE NUMBER		
NAME	TEL	HOURS AVAILABLE
Head Office	00263 24 885 220	24/7

SECTION 2 — HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Corrosive to Metals (Category 1), H290

Aquatic Toxicity - Acute (Category 3), H402

Serious Eye Damage/Irritation (Category 1), H318

Aquatic Toxicity - Chronic (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS LABEL ELEMENTS**Hazard Phrase**

Danger

Hazard statements

May be corrosive to metals.
Causes serious eye damage.

Harmful to aquatic life with long lasting effects.

Precautionary statements

Keep only in original packaging.
Wear protective gloves/protective clothing/eye protection/face protection.
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/doctor.
Absorb spillage to prevent material damage.
Store in a corrosion resistant plastic or glass container with a resistant inner liner.

OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION

PBT assessment does not apply.

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS	EC	MIN %	MAX %	HAZARD NOTES
Polyaluminium Chloride	1327-41-9	215-477-2	15	25	H290: May be corrosive to metals. H318: Causes serious eye damage.
Metal Chlorohydrates			20	30	H315: Causes skin irritation H319: Causes serious eye irritation.
Polymer			20	30	H402: Harmful to aquatic life. H412: Harmful to aquatic life with long lasting effects.

SECTION 4 — FIRST-AID MEASURES**DESCRIPTION OF NECESSARY FIRST AID MEASURES**

Call 112 or 10177 or your local emergency help number immediately, for emergency assistance. Call the Poison Control Center at +27 21 931 6129 – Tygerberg or +27 21 658 5308 – Red Cross, Email: poisonsinformation@uct.ac.za, Website: <https://www.afritox.co.za> for further instructions. Provide them with information such as the compound taken, quantity and time of ingestion, age, weight, and general health status of affected individual. Carefully remove the individual from the exposure area.

IF INHALED	·Supply fresh air. ·Rinse mouth and nose with water. ·If symptoms persist, call a physician.
IF IN CONTACT WITH EYES	·Rinse immediately with plenty of lukewarm water, also under the eyelids, for several minutes. ·Consult a physician.
IF IN CONTACT WITH SKIN	·Wash off with plenty of water and soap. ·Remove and wash contaminated clothing before re-use. ·If symptoms persist, call a physician.
IF INGESTED	·Call a physician immediately. ·DO NOT induce vomiting. ·Rinse mouth with water.

	· Drink 1 or 2 glasses of water or milk. · Never give anything by mouth to an unconscious person.
--	---

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE and DELAYED

IF INHALED	Possible respiratory tract irritation.
IF IN CONTACT WITH EYES	Possible eye irritation.
IF IN CONTACT WITH SKIN	Possible skin irritation.
IF INGESTED	No data available.

Acute effects

Possible eye, skin, and respiratory tract irritation.

Chronic effects

May aggravate existing skin, eye, and lung conditions. Persons with kidney disorders have an increased risk from exposure based on general information found on aluminum salts.

INDICATION OF IMMEDIATE MEDICAL ATTENTION & SPECIAL TREATMENT NEEDED, IF NECESSARY

Note to physicians.

Aluminum soluble salts may cause gastroenteritis if ingested. Treatment includes the use of demulcents.

Note: Consideration should be given to the possibility that over-exposure to materials other than this product may have occurred.

SECTION 5 — FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA	Water fog, carbon dioxide, foam, dry chemical.
EXTINGUISHING MEDIA NOT SUITABLE	No information available.
SPECIFIC HAZARDS ARISING FROM THE CHEMICAL	Hydrogen chloride may be released when heating above the decomposition temperature.
SPECIAL PROTECTIVE ACTIONS FOR FIRE-FIGHTERS incl. PPE	Product is a water solution and non-flammable. In a fire, this product may build up pressure and rupture a sealed container, cool exposed containers with water spray. Use self-contained breathing apparatus in confined areas; avoid breathing mist or spray. Special protective equipment for firefighters In the event of fire, wear self-contained breathing apparatus. Fire fighters must wear fire resistant personnel protective equipment. Explosion data Sensitivity to Mechanical Impact None. Sensitivity to Static Discharge None.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PPE & EMERGENCY PROCEDURES	Refer to protective measures listed in section "Handling and storage". Wear protective suit and boots. If aerosols or mist are formed, use half mask with combination filter B/P2.
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.

	Restrict the spread of the spillage by using inert absorbent material (sand, gravel).
METHODS & MATERIALS FOR CONTAINMENT & CLEANING UP	Methods for containment Prevent further leakage or spillage if safe to do so. Build dikes as necessary to contain flow of large spills. Methods for cleaning up Clear spills immediately. For small spills, use soda ash to neutralize, an inert material to absorb. Place contaminated materials into containers and store in a safe place to await proper disposal. Caution: Use of soda ash may generate carbon dioxide gas. Provide adequate ventilation to spill area.

SECTION 7 — HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING	The workplace 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 fitting safety goggles must be worn. Eye wash bottles or emergency eye-wash fountains in the workplace are recommended.
CONDITIONS FOR SAFE STORAGE	Keep away from incompatible products. Avoid freezing. Avoid high temperatures. Packaging material · Plastic (PE, PP, PVC) · Fiberglass-reinforced polyester · Epoxy-coated concrete · Titanium · Acidproof or rubber-coated steel
INCOMPATIBILITIES	· Non-acid-proof metals (such as aluminium, copper and iron) · Bases · Unalloyed steel · Galvanized surfaces
SANS 10263-0 WAREHOUSING	8.4.3.2 Where flammable or corrosive substances are stored, the floor shall slope away from the storage area (primary collection area) to a secondary catch basin or sump of capacity at least 10 % of the total available storage volume of the fire section concerned. The secondary catch basin shall be within the fire section and shall be such that it can be well ventilated. Care shall be taken in the design of such areas to prevent contamination of the soil or ground water. 1. 9.7.2 Every type of storage area inside a warehouse shall be clearly demarcated, for example separate storage areas for poisons, flammables and corrosives shall display the relevant hazard class diamond (see table 1). The dimensions of the hazard class diamonds shall be at least 250 mm x 250 mm. 12.8.5 Storage of flammable liquids of class 3, toxic substances of division 6.1 and Corrosives of class 8 Nitro-methane class 3, UN No. 1261, shall be separated from substances of class 6.1, and cyanides of division 6.1 shall be separated from acids of class 8. Concentrated acids and bases shall be segregated by at least 1 m.

	Packaged flammable liquids of class 3, toxic substances of division 6.1 and Corrosives of class 8 that are of category 3 can be stored in the same area, provided that, 1. they are kept above floor level, and 2. liquid dangerous goods of one class are not stored above dangerous goods of another class. 12.8.8.3 Toxic and infectious substances (see class 6 in SANS 10228) can contaminate firefighting water in the event of a fire, therefore: a) Toxic and infectious substances shall be separated from other flammable products and aerosols. b) Toxic and infectious substances shall be segregated from oxidizing substances, organic peroxides, and Corrosives. c) Flammable toxic and infectious substances shall be segregated from non-flammable toxic and infectious substances. 12.8.8.4 Corrosives (see class 8 in SANS 10228) that leak or spill from their packaging can cause serious damage to other packages, with potentially hazardous consequences. Corrosives shall be segregated from toxic substances, infectious substances, aerosols, flammables, oxidizing substances, and organic peroxides. The provisions of above apply to the storage of the following quantities of dangerous goods. <table border="1"> <thead> <tr> <th colspan="2">Corrosives (acids and bases) Class 8</th></tr> </thead> <tbody> <tr> <td>Category 1</td><td>> 50 kg</td></tr> <tr> <td>Category 2</td><td>> 200 kg</td></tr> <tr> <td>Category 3</td><td>> 1 000 kg</td></tr> </tbody> </table>	Corrosives (acids and bases) Class 8		Category 1	> 50 kg	Category 2	> 200 kg	Category 3	> 1 000 kg
Corrosives (acids and bases) Class 8									
Category 1	> 50 kg								
Category 2	> 200 kg								
Category 3	> 1 000 kg								

SECTION 8 — EXPOSURE CONTROLS AND PERSONAL PROTECTION

CONTROL PARAMETERS

OCCUPATIONAL EXPOSURE LIMITS (OEL)	SOUTH AFRICA: HCA Regs, 2021: Aluminium metal and insoluble compounds [as Al]: "7429-90-5: (metal)":Al (metal): "OEL eight- hour TWA mg/m3": 2(R)
ADDITIONAL EXPOSURE LIMITS UNDER THE CONDITIONS OF USE	No additional data
DNEL/DMEL AND PNEC-VALUES	No additional data

APPROPRIATE ENGINEERING CONTROLS

Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details. If there are no applicable or established exposure limit requirements or guidelines, general ventilation should be sufficient.

INDIVIDUAL PROTECTION MEASURES

EYE PROTECTION		Wear safety glasses with side shields or safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). Contact lenses should not be worn as they may contribute to severe eye injury.
FACE PROTECTION		Wear face-shield. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). Contact lenses should not be worn as they may contribute to severe eye injury.
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. The selected protective gloves must satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Full contact Material: Nitrile rubber Minimum layer thickness: 0,11 mm Break through time: 480 min 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.
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		Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

NOTE: The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors. Recommendations above 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.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE (PHYSICAL STATE, COLOUR ETC):	Clear yellow liquid
ODOUR:	Odourless
ODOUR THRESHOLD:	No test data available
pH:	2 - 4
MELTING/FREEZING POINT:	No test data available.
INITIAL BOILING POINT AND BOILING RANGE:	No test data available.
FLASH POINT:	Do not flash
EVAPORATION RATE:	No test data available
FLAMMABILITY (SOLID, GAS):	Not flammable

UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS:	Not Explosive
VAPOUR PRESSURE:	No test data available.
VAPOUR DENSITY:	No test data available.
RELATIVE DENSITY:	1.18 – 1.22
SOLUBILITY(IES):	Soluble in water
PARTITION COEFFICIENT: N-OCTANOL/WATER:	No test data available.
AUTO-IGNITION TEMPERATURE:	No test data available.
DECOMPOSITION TEMPERATURE:	No test data available.
VISCOSITY:	No test data available.
OXIDIZING PROPERTIES:	No test data available.

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10 — STABILITY AND REACTIVITY

REACTIVITY	No test data available
CHEMICAL STABILITY	Stable under normal conditions of use.
POSSIBILITY of HAZARDOUS REACTIONS	None under normal processing. No additional test data available.
CONDITIONS TO AVOID	None indicated
INCOMPATIBLE MATERIALS	Alkalis.
HAZARDOUS DECOMPOSITION PRODUCTS	Thermal decomposition may release toxic and/or hazardous gases such as aluminum, Cl ₂ , and HCl.

SECTION 11 — TOXICOLOGICAL INFORMATION

TOXICOLOGICAL (HEALTH) EFFECTS

ACUTE TOXICITY	Inhalator uptake is very unlikely to happen, as the substance will immediately start to irritate when it enters the respiratory tract. However, there is acute inhalation toxicity animal data that as a worst case (relevant amount of small inhalable particles) aerosols of aqueous substance may be inhaled. There are no systemic effects known after inhalation of the substance (solution).
SKIN CORROSION/IRRITATION	Dermal load is unlikely, but if the user will have reacted on the burning/itching skin sensitisation and will automatically start using gloves. Substance (solution) with low pH 2 or less is corrosive to skin and eye. At concentrations lower than those that cause corrosion, the substance will have no effect on systemic toxicity. Dermal exposures should be regulated based on risk to local effects (irritation and case by case corrosion) on the skin. Further tests on this compound are therefore not necessary; this data requirement is not triggered.
SERIOUS EYE DAMAGE/EYE IRRITATION	Causes serious eye damage. Prolonged exposure to Aluminum salts may cause conjunctivitis.
RESPIRATORY OR SKIN SENSITIZATION	Not classified
GERM CELL MUTAGENICITY	Not classified
CARCINOGENICITY	Not classified
REPRODUCTIVE TOXICITY	Not classified
SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE	Not classified
SPECIFIC TARGET ORGAN TOXICITY – REPEATED EXPOSURE	Not classified
ASPIRATION HAZARD	Not classified

LIKELY SOURCES OF EXPOSURE

INHALATION	EYES	SKIN	INGESTION
Unlikely	Unlikely	Unlikely	Rare
Unpacking or mixing of product.	Unpacking or mixing of product.	Unpacking or mixing of product.	Unpacking or mixing of product.

SYMPTOMS RELATED TO PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS

Nausea, vomiting, diarrhoea, and abdominal pain. Irritant to eye, skin, and respiratory tract.

DELAYED/IMMEDIATE/CHRONIC EFFECTS FROM LONG/SHORT TERM EXPOSURE**Skin corrosion/irritation**

No information available.

Serious eye damage/eye irritation

No information available.

Sensitization

No information available. This product does not contain any components classified as Skin / Respiratory Sensitizing hazard.

Germ cell mutagenicity

No information available. This product does not contain any components classified as Germ Cell Mutagenicity hazard.

Carcinogenicity

This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Reproductive toxicity

No information available. This product does not contain any components classified as Reproductive Toxicity hazard.

Specific target organ toxicity - Single exposure

No information available. This product does not contain any components classified as STOT-SE Toxicity hazard.

Specific target organ toxicity - Repeated exposure

No information available. This product does not contain any components classified as STOT-RE Toxicity hazard.

Aspiration hazard

No information available. This product does not contain any components classified as Aspiration hazard

NUMERICAL MEASURES OF TOXICITY (SUCH AS ATE)

TEST	ROUTE	SPECIES	VALUE	EFFECTS
(Calculated according to GHS additivity formula)				
LD50	Oral	Not indicated	> 5 000 mg/kg bw	Refer above section 11.1
LD50	Dermal	Not indicated	> 2 000 mg/kg bw	Refer above section 11.1
	Inhalation		No data available on the registered substances.	

INTERACTIVE EFFECTS

No additional data available.

WHERE SPECIFIC CHEMICAL DATA IS NOT AVAILABLE

No additional data available.

MIXTURES

No additional data available.

MIXTURES VS INGREDIENTS INFORMATION

No additional data available.

OTHER INFORMATION

No additional data available.

SECTION 12 — ECOLOGICAL INFORMATION**TOXICITY**

TEST	SPECIES	VALUE
The product has not been tested. (Calculated according to GHS additivity formula)		
48Hr EC50	Fish	No test data available.
48Hr EC50	Crustacea	No test data available.

For Active Ingredient**Aluminum chloride, basic****EC number: 215-477-2 | CAS number: 1327-41-9**

Available data indicate that aluminum salts are relatively nontoxic in most waters with circumneutral pH and this was sufficient for the EU Classification and Labelling Committee (1999) to determine that there was no need for classification of aluminum chloride. Other aluminum compounds act similarly in water as aluminum chloride and are in many cases less soluble and non-hazardous.

Studies reported in the literature have extensively used test solutions (soluble salts) with aluminum concentrations above that of its solubility limit. Due to physical effects of precipitated material most of these studies are meaningless for the investigation of intrinsic toxicity. Aluminum ions released to surface waters quickly form insoluble aluminum hydroxides in mixing zones. Formation of the complex hydroxide causes the aluminum to drop out of solution very rapidly in neutral and alkaline waters.

The dissolved natural background concentrations of aluminum, in most cases, are at equilibrium therefore an addition of aluminum would lead to the precipitation of aluminum compounds from solution and not result in effects to aquatic life.

PERSISTENCE AND DEGRADABILITY

No test data for mixture.

For Active Ingredient**Aluminum chloride, basic****EC number: 215-477-2 | CAS number: 1327-41-9****Abiotic degradation**

The endpoints "Photo transformation of an element in water, soil or air" are not relevant for substances that are assessed using a read-across approach on an elemental basis, i.e., based on the exposure and effects of aluminium, expressed as elemental Al.

The term "Hydrolysis" refers to the "Decomposition or degradation of a chemical by reaction with water," and this as a function of pH (i.e., abiotic degradation). The need for testing may be waived if "The substance is highly insoluble in water", or if "The substance is readily biodegradable". These column 2 waivers are designed for organic substances and are therefore not relevant in the case of metals. For aluminium salts, hydrolysis is a meaningful endpoint, but hydrolysis does not result in hydrolytic half-lives that can be used to determine the ultimate disappearance of the substance in the environment. Rather under specific environmental conditions an equilibrium between bioavailable and non-bioavailable aluminium will be reached. The specific and relative concentrations of these states in water are influenced by pH, dissolved organic carbon and to some extent, hardness.

The speciation of Aluminium is pH dependent. At low pH values, dissolved aluminum is present mainly in the aquo form (Al^{3+}). Aluminum hydrolyses increasingly with increased pH and is poorly soluble in the neutral pH range between 6.0 and 8.0 due to the formation of less soluble hydroxide complexes (e.g., $\text{Al}(\text{OH})_2^+$, $\text{Al}(\text{OH})_2^+$). Its solubility is at a minimum near pH 6.5 at 20°C and then increases as the anion, $\text{Al}(\text{OH})_4^-$ becomes more abundant. In the presence of complexing ligands and under acidic (pH < 6) and alkaline (pH > 8) conditions, aluminium solubility is enhanced.

At 20°C and pH < 5.7, aluminum is present primarily in the forms Al^{3+} and $\text{Al}(\text{OH})_2^+$. In the pH range 5.7 to 6.7, aluminum hydroxide species dominate, including $\text{Al}(\text{OH})_2^+$ and $\text{Al}(\text{OH})_2^+$, and then $\text{Al}(\text{OH})_3$. At a pH of approximately

6.5, $\text{Al}(\text{OH})_3$ tends to predominate over the other species. In this range, aluminium solubility is low. At $\text{pH} > 6.7$, $\text{Al}(\text{OH})_4^-$ becomes the dominant species.

Due to its size fluoride readily substitutes for OH^- and has a strong affinity for Al under acidic conditions although this is limited by the relative low abundance of fluoride in the environment. Aluminium-hydroxide complexes predominate over aluminium-fluoride complexes under alkaline conditions.

Sulphate also complexes with aluminium under alkaline conditions ($\text{pH} > 6$). Nevertheless aluminium-sulphate complexes were found to represent only 5% of monomeric aluminium in lake studies. While all aluminium species described are present simultaneously at any pH value the relative proportion of these species will depend upon pH in aquatic systems.

Aluminium-organic complexes were a major component of monomeric Al over a wide range of pH from 4.3 to 7.0 and were found to positively correlate with increasing DOC concentrations as pH decreased.

The hydrolytic products of mononuclear aluminum combine to form polynuclear species in solution in aquifers. Aluminum starts to polymerize when the pH of an acidic solution is above 4.5: $2\text{Al}(\text{OH})(\text{H}_2\text{O})_5^{2+} + \text{Al}_2(\text{OH})_2(\text{H}_2\text{O})_8^{4+} + 2\text{H}_2\text{O}$

Polymerization leads to larger structures, and ultimately to the formation of the Al_{13} polycation.

Biotic degradation

For inorganic substance like aluminium salts for which the chemical assessment is based on the elemental concentration (i.e., pooling all inorganic speciation forms together), biotic degradation is an irrelevant process, regardless of the environmental compartment that is under consideration: biotic processes may alter the speciation form of an element, but it will not eliminate the element from the aquatic compartment by degradation or transformation. This elemental-based assessment (pooling all speciation forms together) can be considered as a worst-case assumption for the chemical assessment.

BIOACCUMULATIVE POTENTIAL

No test data for mixture.

For Active Ingredient

Aluminum chloride, basic

EC number: 215-477-2 | CAS number: 1327-41-9

The available evidence shows the absence of aluminium biomagnification across trophic levels both in the aquatic and terrestrial food chains. The existing information suggests not only that aluminium does not bio magnify, but rather that it tends to exhibit bio dilution at higher trophic levels in the food chain.

MOBILITY IN SOIL

No test data for mixture.

For Active Ingredient

Aluminum chloride, basic

EC number: 215-477-2 | CAS number: 1327-41-9

Adsorption/desorption

Due to its dynamic chemistry, the amount of aluminium associated with suspended particles is dependent on the chemical conditions. Factors that are known to affect aluminium speciation, such as pH and DOC, are also known to affect adsorption and desorption from particle surfaces.

To illustrate this further, the amount of aluminium associated with suspended particles was estimated by chemical simulation that included aqueous aluminium speciation (inorganic and organic), aluminium solubility, and complexation by NOM. For these simulations a NOM concentration of 4 mg/L (2 mg/L as DOC) and a total suspended solids (TSS) concentration of 1 mg/L were chosen to represent a reasonable lower bound for the range of values of these substances that would be expected in the environment.

Suspended particles were assumed to be composed primarily of silica (80%) with a small amount of clay (10%) and particulate organic matter (10%). Aluminium concentrations were set to the maximum allowable by solubility with amorphous gibbsite at a temperature of 20°C. Under these conditions, the amount of aluminium bound to particles as a result of surface complexation (i. e. adsorption) was pH dependent but was typically less than 8% of the total aluminium at pH 6, and was further reduced to below 1% at pH values above 7 (Figure 4.2.1. -2A). This distribution was similar in both soft and hard waters. The corresponding Log K_d values for this distribution are between 3 and 5. Very similar results were obtained with higher DOC concentrations of 4 mg/L.

OTHER ADVERSE EFFECTS

No additional data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL RECOMMENDATION

Dispose of waste and container in accordance with local and/or national regulations. Hazardous waste shall not be mixed with other waste. Different types of hazardous waste shall not be mixed if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport, or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove for physico-chemical/biological treatment. **DO NOT** discharge into drains or the environment.

ECOLOGY – WASTE MATERIAL

Avoid release to the environment.

EMPTY CONTAINER

Avoid reuse of container. Consider re-filling. Rinse thoroughly before use, re-filling or discarding in chemical waste or return to supplier. Puncture container before discarding as waste.

SECTION 14 — TRANSPORT INFORMATION

TRANSPORTATION CLASSIFICATION	ADR/RID	ADN(R)	IMDG	ICAO/IATA	
UN NUMBER	3265				
PROPER SHIPPING NAME	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.				
HAZARD CLASS(ES)	8.1 				
PACKING GROUP	III				
MARINE POLLUTANT	No				
EMERGENCY RESPONSE	ERG 2020 153	-	EMS GUIDE F-A; S-A	ERG DRILL GUIDE 8L	
EXEMPT / QUANTITY LIMITATIONS KG	Exempt / Factor	Passenger rail	N/A	Passenger aircraft	Cargo aircraft
	200Kg / 5	5L		5L	60L
P, B, L & O Provisions SANS 10231	None	N/A	N/A	N/A	
Vessel Stowage	10A Location A 10B Other 40				

(10A) Location A Stowage category “A” means the material may be stowed “on deck” or “under deck” on a cargo vessel or on a passenger vessel.

(10B) Other 40 Stow “clear of living quarters”.

DO NOT load with Class 1 or 7.

Keep aluminium gas cylinders apart from caustic bases.

May be loaded with Class 8B if kept at least 1 metre apart.

Can be loaded with all other classes.

Goods of different classes must be segregated by an air space of at least 100mm or by an approved segregation device or non-dangerous goods.

P, B, L and O provisions as per SANS 10231:2006

None.

GUIDE 153: SUBSTANCES - TOXIC AND/OR CORROSIVE (COMBUSTIBLE)

FIRE

Small Fire

- Dry chemical, CO², or water spray.

Large Fire

- Dry chemical, CO², alcohol-resistant foam, or water spray.
- Move containers from fire area if you can do it without risk.
- Dike fire-control water for later disposal; do not scatter the material.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- **DO NOT** get water inside containers.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- **ALWAYS** stay away from tanks engulfed in fire.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area).
- **DO NOT** touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements, or confined areas.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- **DO NOT** GET WATER INSIDE CONTAINERS.

FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **DO NOT** use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin, or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion, or skin contact) to substance may be delayed.

SECTION 15 — REGULATORY INFORMATION

SA NATIONAL LEGISLATION

Hazardous Substances Act 15 of 1973 and Regulations.

Occupational Health and Safety Act 85 of 1993 and Regulations.

SA NATIONAL STANDARDS

SANS 10228: 2006: Identification and Classification of Dangerous Goods for Transport by Road and Rail.

SANS 10231: 2018: Transport of Dangerous Goods - Operational Requirements for Road Vehicles.

SANS 10234: 2008: Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

SANS 11014: 2010: Safety Data Sheets for Chemical Products.

REACH Regulation (EC) No 1907/2006

This product contains only components that have been either pre-registered, registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH). The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

Seveso III: Directive 2012/18/EU

Listed in Regulation: Not applicable

Chemical safety assessment

Not assessed.

SECTION 16 — OTHER INFORMATION

FULL TEXT OF H & P - STATEMENTS REFERRED TO UNDER SECTION 2

HAZARD STATEMENTS	PRECAUTIONARY STATEMENTS
H290: May be corrosive to metals. H318: Causes serious eye damage. H412: Harmful to aquatic life with long lasting effects.	P234: Keep only in original packaging. P280: Wear protective gloves/protective clothing/eye protection/face protection. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310: Immediately call a POISON CENTER/doctor. P390: Absorb spillage to prevent material damage. P406: Store in a corrosion resistant plastic or glass container with a resistant inner liner. P501: Dispose of contents and container in accordance with local, regional, national, international regulations to licenced hazardous waste manager.

LABELLING SANS 10234:2008

SIGNAL WORD: **DANGER**

PICTOGRAMS & PLACARDS

PHYSICAL & HEALTH HAZARD		ENVIRONMENTAL HAZARD		TRANSPORT	
GHS05	Corrosive Substance	N/A	N/A	Class 8.1	Corrosive Acidic
					

LEGEND TO ABBREVIATIONS & ACRONYMS

ABEK: Organic gases and vapours (BP>65°C);
Inorganic gases and vapours; Sulphur dioxide and other acid gases and vapours; Ammonia and organic ammonia derivatives

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

BCF: Bioconcentration Factor

BOD5: Biological Oxygen Demand in 5

CAS: Chemical Abstracts Service

CEN: European Committee for Standardization

COD: Chemical Oxygen Demand

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level
 EC: European Commission
 EC50: Half Maximal Effective Concentration
 EMS: Emergency Medical Services
 ERG: Emergency Response Guidelines
 EU: European Union
 GHS: Globally Harmonized System
 IARC: International Agency for Research on Cancer
 IATA: International Air Transport Association
 ICAO: International Civil Aviation Organization
 ICSC: International Chemical Safety Cards
 IMDG: International Maritime Dangerous Goods
 LC50: Lethal Concentration 50 (concentration in water having 50% chance of causing death to aquatic life)
 LD50: Lethal Dose 50 (median concentration of a toxicant that will kill 50% of the test animals within a designated period)

LOG-KOW: Logarithm - Octanol - Water Partition Coefficient
 NIOSH: National Institute for Occupational Safety and Health (US CDC)
 NTP: National Toxicology Program
 OEL: Occupational Exposure Limit
 OSHA: Occupational Safety and Health Administration
 P, B, L & O: Packaging, Bulk Transport, Loading Operation & Transport Operation
 PBT: Persistent, Bio accumulative, and Toxic
 PNEC: Predicted No-Effect Concentration.
 PPE: Personal Protection Equipment
 RID: European Agreements Concerning the International Carriage of Dangerous Goods by Rail
 RTECS: Registry of Toxic Effects of Chemical Substances
 SANS: South African National Standard
 vPvB: Very Persistent Very Bio accumulative

KEY LITERATURE REFERENCES AND SOURCES

1. <https://echa.europa.eu/registration-dossier/-/registered-dossier/16009/1>

TRAINING ADVICE

Provide adequate information, instruction, and training for operators.

COMPILED BY: Compiled by Aquatrade Water Treatment Chemicals, R. van Rooyen, SHEQ Coordinator

ISSUE DATE	VERSION	REVISION	SUPERSEDE DATE
30 September 2021	1	1	18 September 2020
18 September 2020	1	0	Original

IMPORTANT MANUFACTURER/SUPPLIER DISCLAIMER:

This information is given without a warranty or guarantee. No suggestions for use are intended or shall be construed as a recommendation to infringe any existing patents or violate any national or local laws. Safe handling and use are the responsibility of the customer. Read the label before using this product. This information is true and accurate to the best of our knowledge.