

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

### 1.1 Product identifier

**Product name:** **Ekoflock 50-100**  
**Registration number reach:** 01-2119531563-43  
**Product type REACH:** Substance/UVCB

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

**Relevant identified uses:** Water treatment in industrial and professional use  
Industrial formulation and (re)packing  
For more detailed information regarding the Identified Uses, see Exposure Scenarios

**Uses advised against.** No uses advised against known.

### 1.3 Details of the supplier of the safety data sheet

**Supplier:** Feralco Nordic AB  
Lilleviksvägen  
294 35 Sölvesborg SWEDEN

**Tel:** +46 (0)456-156 16  
**Fax:** +46 (0)456-199 35  
**E-mail:** [info.se@feralco.com](mailto:info.se@feralco.com)

### 1.4 Emergency telephone number

**Emergency telephone number:** 020-996 000 (sweden)  
+46(0) 8 33 70 43 (international)

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended.

**Physical Hazards:** Met. Corr.1 H290 – May be corrosive to metals

**Health Hazards:** Eye Dam.1 H318 – Causes serious eye damage

### 2.2 Label elements

Label according to Regulation (EC) No 1272/2008 as amended.

#### Hazard pictograms



**Signal Word:** **Danger**

#### Hazardous substances which must be listed on the label

| CAS-No    | Substance              |
|-----------|------------------------|
| 1327-41-9 | Polyaluminium chloride |

## Hazard statements

H290 May be corrosive to metals.  
H318 Causes serious eye damage.

## Precautionary statements

P280 Wear eye protection.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER/doctor.  
P406 Store in corrosion-resistant container or in container with a resistant inner liner.

## 2.3 Other hazards

**Other hazardous properties:** May cause lowering of pH in watercourses and can thus be dangerous for aquatic organisms.  
Contact with non-precious metals (e.g iron, zinc and aluminium) and their alloys generates hydrogen gas, which can form an explosive mixture with air.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

| Hazardous substances     | %     | EC-/CAS-No<br>REACH reg.No                 | Classification<br>EU 1272/2008       |
|--------------------------|-------|--|--------------------------------------|
| 1.Polyaluminium chloride | 18-43 | 215-477-2<br>1327-41-9<br>01-2119531563-43 | Met. Corr. 1;H290<br>Eye. Dam.1;H318 |

**Additional information:** See section 16 - OTHER INFORMATION for the text of H-phrases mentioned in this section.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

**Inhalation:** Move the injured to fresh air upon irritation or breathing difficulty.  
Call a physician if symptoms develop or persist.

**Skin contact:** Rinse skin with plenty of water. Get medical attention if irritation persists.

**Eye contact:** Immediately flush eyes with plenty of water for several minutes, keep eyelids wide open. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

**Ingestion:** Rinse mouth with water and then drink much water. If ingestion of a large amount does occur, call a poison control center or a doctor immediately.

**Notes to medical staff:** Treat symptomatically. Show this safety data sheet.

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

**Symptoms:** Corrosive damage to eye tissue which can cause serious eye damage.

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

**Treatment:** Treat symptomatically.

## 5. FIRE FIGHTING MEASURES

**General fire hazards:** Not a fire hazard. Noncombustible substance.

### 5.1 Extinguishing media

**Extinguishing media:** Determined by surrounding material/products present.

**Unsuitable extinguishing media:** Non known

### 5.2 Special hazards arising from the substance or mixture

**Special exposure hazards:** Small amounts of hydrochloric acid fumes may be emitted during thermal decomposition.

### 5.3 Advice for firefighters

**Special protective equipment:** Use self-contained breathing apparatus and protective clothing. Exposure to decomposition products may be harmful.

**Further information:** Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

See reference below 6.4.

If discharged to soil or water contact local authorities/emergency services. Keep unauthorized personnel away. Do not touch spillage of the material and do not walk through it.

### 6.2 Environmental precautions

Prevent further leakage or spillage. Do not flush into surface water or sanitary sewer system. Avoid discharge into drains, watercourses, or on the ground and in the aquatic environment.

### 6.3 Methods and material for containment and cleaning up

Contain and adsorb spillages with materials like vermiculite, sand, earth or other inert material. Place into a container for later disposal. Following product recovery, flush area with water. Never return spills to original containers for re-use.

### 6.4 Reference to other sections

**Personal precautions:** See Section 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

**Waste disposal:** See Section 13 – DISPOSAL CONSIDERATIONS

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

**Handling:** Workplace and working procedures shall be designed to prevent or minimize direct contact with the product. Do not get this material in contact with eyes. Provide adequate ventilation. Avoid spills and prevent the product from reaching drains. For personal protection see Section 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

## 7.2 Conditions for safe storage, including any incompatibilities

**Storage:** Store in original packaging or in a container/tank of plastic (PE, PP, PVC) glass fiber reinforced polyester (FRP) or steel with rubber lining.

**Materials to avoid:** Avoid most metals, especially the non-precious variety. Oxidizing agents, reducing agents.

## 7.3 Specific end use(s)

No information available.

# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## 8.1 Control parameters

**Occupational exposure limits:** SE : NGV 1 mg/m<sup>3</sup> Aluminium, soluble compound (As Al) total dust  
Time-weighted average exposure limit 8 h  
UK: 2 mg/m<sup>3</sup> Aluminium salts, soluble. Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))

DNEL/DMEL - Workers, aluminium chloride basic (CAS 1327-41-9)

| Effect level (DNEL/DMEL) | Type                                  | Value                  |
|--------------------------|---------------------------------------|------------------------|
| DNEL                     | Long-term systemic effects inhalation | 16.4 mg/m <sup>3</sup> |
|                          | Long-term systemic effects dermal     | 4.6 mg/kg bw/day       |

DNEL/DMEL – general population, aluminium chloride , basic (CAS 1327-41-9)

| Effect level | Type                                  | Value               |
|--------------|---------------------------------------|---------------------|
| DNEL         | Long term systemic effects inhalation | 4 mg/m <sup>3</sup> |
| DMEL         | Long term systemic effects dermal     | 2.32 mg/kg bw/day   |
| DNEL         | Long term systemic effects oral       | 2.3 mg/kg bw/day    |

PNEC - aluminium chloride , basic (CAS 1327-41-9)

| Compartments | Value     |
|--------------|-----------|
| Fresh water  | 0,3 µg/l  |
| Marine water | 0,03 µg/l |
| STP          | 20 mg/l   |

## 8.2 Exposure controls

For more detailed information regarding the Identified Uses, see Exposure Scenarios. The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

**Appropriate engineering controls:** Provide adequate ventilation in the work area.

**Eye protection:** Safety goggles with side shields. Eyewash station shall be accessible.

**Hand protection:** Protective gloves against chemicals (EN 374).  
Suitable material: PVC, neoprene rubber, nitrile rubber, butyl rubber.

**Skin protection:** Protective clothing is recommended. Wash contaminated clothing before reuse.

**Respiratory protection:** Not applicable under normal operating conditions. At formation of aerosols or vapour use half face mask respirators with particle filter P2.

**Environmental exposure controls:** Avoid release to the environment. Authorities concerned must be informed of releases.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

|   |  |
|---|--|
| <b>Physical state:</b>  | Liquid   |
| <b>Colour:</b>  | Colourless to yellow   |
| <b>Odour:</b>   | Slight odour   |
| <b>Odour threshold:</b>   | No data available  |
| <b>pH:</b>  | < 2 value using conventional measurement methods<br>(special method is required for the correct value when pH > 2 is obtained see 9.2 other information) |
| <b>Meltingpoint/freezing point:</b>                             | - 18°C - -75°C   |
| <b>Boiling point, initial boiling point, and boiling range:</b> | 105°C - 115°C  |
| <b>Flashpoint:</b>  | Not applicable   |
| <b>Evaporation rate:</b>  | No data available  |
| <b>Flammability (solid, gas):</b>                               | Not combustible  |
| <b>Flammability limit or explosive limit:</b>                   | No data available  |
| <b>Vapour pressure:</b>   | No data available  |
| <b>Vapour density:</b>  | No data available  |
| <b>Relative density:</b>  | 1,2 - 1,4 ; 20°C   |
| <b>Solubility (water):</b>                                      | Miscible   |
| <b>Partition coefficient (n-octanol/water):</b>                 | Not applicable   |
| <b>Auto-ignition temperature:</b>                               | Not applicable   |
| <b>Decomposition temperature:</b>                               | > 200°C  |
| <b>Viscosity:</b>   | 10-50 mPa.s (20 °C)  |

**9.2 Other information**

Because of its high ionic strength and composition, the product cannot be analyzed by standard analytical methods for water. Especially developed and adapted methods are required. When calculating the pH, >2 pH < 4 is obtained. Polyaluminium chloride = aluminium chloride, basic = aluminium hydroxy chloride.

**Density:** 1200 – 1400 kg/m<sup>3</sup>

**10. STABILITY AND REACTIVITY****10.1 Reactivity**

Reacts with most metals, especially base metals and their alloys.

**10.2 Chemical stability**

The product is stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Contact with non-precious metals (e.g. iron, zinc and aluminium) and their alloys generates hydrogen gas, which can form an explosive mixture with air.

**10.4 Conditions to avoid**

None under normal conditions. Do not expose to temperatures above 50°C. Thermal decomposition can take place above 200°C.

**10.5 Incompatible materials**

This product may react with strong reducing agents and strong oxidizers.

**10.6 Hazardous decomposition products**

No dangerous reactions known under condition of normal use. Thermal decomposition can lead to release of irritating gases and vapors. Hydrogen chloride.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Ekoflock 50-100 No test data available,  
aluminium chloride, basic (CAS 1327-41-9)

| Route of exposure    | Parameter | Method   | Value           | Exposure time | Species           | Value determination | Remark           |
|----------------------|-----------|----------|-----------------|---------------|-------------------|---------------------|------------------|
| Oral                 | LD50      | OECD 401 | > 2000 mg/kg bw |               | Rat (male/female) | Experimental value  | Aqueous solution |
| Dermal               | LD50      | OECD 402 | > 2000 mg/kg bw | 24 h          | Rat (male/female) | Experimental value  | Aqueous solution |
| Inhalation (aerosol) | LC50      | OECD 403 | > 5mg/l         | 4 h           | Rat (male/female) | Read-across         | Aqueous solution |

#### Conclusion

Not classified for acute toxicity

#### Corrosion/irritation

Ekoflock 50-100 No test data available,  
aluminium chloride, basic (CAS 1327-41-9)

| Route of exposure | Result             | Method   | Exposure time | Time point       | Species | Value determination | Remark           |
|-------------------|--------------------|----------|---------------|------------------|---------|---------------------|------------------|
| Eye               | Serious eye damage | OECD 405 | 21 days       | 24; 48; 72 hours | Rabbit  | Experimental value  | Aqueous solution |
| Skin              | Not irritating     | OECD 404 | 4 h           | 24; 48; 72 hours | Rabbit  | Experimental value  | Aqueous solution |

#### Conclusion

Causes serious eye damage.

Not classified as irritating to the respiratory system

Not classified as irritating to the skin

#### Respiratory or skin sensitisation

Ekoflock 50-100 No test data available,  
aluminium chloride, basic (CAS 1327-41-9)

| Route of exposure | Result          | Method   | Exposure time | Observation time point | Species             | Value determination | Remark           |
|-------------------|-----------------|----------|---------------|------------------------|---------------------|---------------------|------------------|
| Skin              | Not sensitizing | OECD 406 |               |                        | Guinea pig (female) | Experimental value  | Aqueous solution |

#### Conclusion

Not classified as sensitizing for inhalation

Not classified as sensitizing for skin

#### Specific target organ toxicity

Ekoflock 50-100 No test data available,  
aluminium chloride, basic (CAS 1327-41-9)

| Route of exposure    | Parameter              | Method                 | Value                      | Organ  | Effect                              | Exposure time                  | Species           | Value determination |
|----------------------|------------------------|------------------------|----------------------------|--------|-------------------------------------|--------------------------------|-------------------|---------------------|
| Oral (stomach tube)  | NOAEL systemic effects | OECD 422               | 1000 mg/kg bw/dag          |        | No adverse systemic effects         | 28 days – 53 days              | Rat (male/female) | Experimental value  |
| Dermal               |                        |                        |                            |        |                                     |                                |                   | Data waiving        |
| Inhalation (aerosol) | LOAEC                  | Equivalent to OECD 413 | 15,3 mg/m <sup>3</sup> air | Lungor | Lung tissue affection/ degeneration | 13 weeks(6 h/day, 5 days/week) | Rat (male/female) | Read-across         |

## Conclusion

Not classified for subchronic toxicity

## Mutagenicity (in vitro)

Ekoflock 50-100 No test data available,  
aluminium chloride, basic (CAS 1327-41-9)

| Result  | Method   | Test substrate                | Effect | Value determination | Remark           |
|---|----------|-------------------------------|--------|---------------------|------------------|
| Negative with metabolic activation, negative without metabolic activation | OECD 471 | Bacteria (S. typhimurium)     |        | Experimental value  | Aqueous solution |
| Negative with metabolic activation, negative without metabolic activation | OECD 476 | Mouse (lymphoma L5178Y-cells) |        | Experimental value  | Aqueous solution |

## Mutagenicity (in vivo)

Ekoflock 50-100 No test data available,  
aluminium chloride, basic (CAS 1327-41-9)

| Result                         | Method   | Exposure time            | Test substrate    | Organ | Value determination |
|--------------------------------|----------|--------------------------|-------------------|-------|---------------------|
| Negative (oral (stomach tube)) | OECD 474 | 2 doses/24 hour interval | Rat (male/female) |       | Experimental value  |

## Conclusion

Not classified for mutagenic or genotoxic toxicity

## Carcinogenicity

Ekoflock 50-100 No test data available,  
aluminium chloride, basic (CAS 1327-41-9)

| Route of exposure     | Parameter | Method                      | Value | Exposure time | Species             | Effect                 | Organ | Value determination |
|-----------------------|-----------|-----------------------------|-------|---------------|---------------------|------------------------|-------|---------------------|
| Oral (drinking water) | NOAEL     | Cancerogenic toxicity study | 5 ppm |               | Mouse (male/female) | No carcinogenic effect |       | Read-across         |

## Conclusion

Not classified for carcinogenicity

## Reproductive toxicity

Ekoflock 50-100 No test data available,  
aluminium chloride, basic (CAS 1327-41-9)

|   | Parameter | Metod                  | Värde             | Exponeringstid        | Art               | Effekt    | Organ | Bestämning av värde |
|---|-----------|------------------------|-------------------|-----------------------|-------------------|-----------|-------|---------------------|
| Developmental toxicity (Oral(drinking water)) | NOAEL     | Equivalent to OECD 426 | 3225 mg/kg bw/dag | 1 year                | Rat               | No effect |       | Read-across         |
| Effects on fertiliteten (Oral (stomach tube)) | NOAEL     | OECD 422               | 1000 mg/kg bw/dag | 4 weeks (7 days/week) | Rat (male/female) | No effekt |       | Experimental value  |

## Conclusion

Not classified for reprotoxic or developmental toxicity

## Toxicity other effects

Ekoflock 50-100 No test data available

**Chronic effects from short and long-term exposure**  
Ekoflock 50-100 No effects known

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Ekoflock 50-100 No test data available  
aluminium chloride, basic (CAS 1327-41-9)

|                                      | Parameter | Method           | Value       | Duration | Species            | Test design        | Fresh/salt water | Value determination                          |
|--------------------------------------|-----------|------------------|-------------|----------|--------------------|--------------------|------------------|--|
| Acute toxicity fishes                | LC50      | OECD 203         | 186 mg/l    | 96 h     | Danio rerio        | Static system      | Fresh water      | Experimental value; Nominal concentration    |
| Acute toxicity crustacea             | EC50      | OECD 202         | 98 mg/l     | 48 h     | Daphnia magna      | Semi-static system | Fresh water      | Experimental value; Nominal concentration    |
| Long term toxicity aquatic crustacea | NOEC      | EPA 600/4-89/001 | 3,8 mg/l    | 8 days   | Ceriodaphnia dubia | Semi static system | Fresh water      | Experimental value; Nominal concentration    |
| Toxicity aquatic micro organisms     | EC50      | OECD 209         | > 1000 mg/l | 3 h      | Activated sludge   | Static system      | Fresh water      | Experimental value of a similar product; GLP |

Judgement of the mixture is based on the relevant ingredients

### Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

### 12.2 Persistence and degradability:

The product solely consists of inorganic compounds which are not biodegradable.  
The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.3 Bioaccumulative potential:

Not applicable.

### 12.4 Mobility in soil:

No (test)data on mobility of the substance available

### 12.5 Results of PBT and vPvB assessment:

Not applicable. Inorganic substance.

### 12.6 Other adverse effects:

The pH-lowering capacity can be dangerous and obstructive to aquatic organisms. The amount of algae is significantly reduced at pH <6. In the pH-range of about 5-5,5 aluminium ions can be harmful to the salmonids. Aluminium salts should not enter water in an uncontrolled manner and pH fluctuations around 5-5,5 should be avoided. Around neutral pH, aluminium salts are not harmful to fish.  
Do not discharge into drains, water courses or onto the ground.  
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

## 13. DISPOSAL CONSIDERATIONS



## 13.1 Waste treatment methods

|                                     |  |
|-------------------------------------|--|
| <b>Product waste:</b>               | Classified as hazardous waste. Dispose of in accordance with current regulations (local, regional, national, international). Get advice from local authorities.  |
| <b>Packaging waste:</b>             | Dispose of in accordance with current regulations (local, regional, national, international). Get advice from local authorities. Before leaving plastic packages for recycling its recommended to remove product residues by rinsing the emptied package with water three times. If possible reuse the rinse water in the process where the product is used. Set the package upside down for runoff. Left with cap removed. If package is emptied but not cleaned, warnings according to label must be followed. |
| <b>Disposal methods/information</b> | Do not contaminate soil or water. Do not dispose of product to sewer. Waste code, according to waste regulations, should be assigned by the user based on the application for which the product was used. The waste code should be assigned in discussion between the user, the producer and the waste disposal company.   |

## 14. TRANSPORT INFORMATION

### 14.1 UN number:

UN number 3264

### 14.2 UN Proper shipping name

**Proper shipping name:** CORROSIVE LIQUID, ACIDIC INORGANIC, N.O.S (Polyaluminium chloride solution)

| Regulations      | 14.3 Transport hazard class(es) | 14.4 Packing group | 14.5 Marine pollutant | Tunnel restriction code |
|------------------|---------------------------------|--------------------|-----------------------|-------------------------|
| ADR/RID          | 8; code C1                      | III                | No                    | (E)                     |
| IMDG             | 8; EmS: F-A, S-B                | III                | No                    | -                       |
| IATA/ICAO (Flyg) |                                 | III                | No                    | -                       |
| ADN              | 8                               | III                | No                    | -                       |



ADR

Hazard code  
No 80



RID



ADN



IATA

(ERG code 8L)  
Passenger and  
cargo aircraft:  
Cargo aircraft only:  
Allowed



IMG

Limited quantities: Combination packagings: not more than 5 liters per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

### 14.6 Special precautions for user

No information available

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No information available.

## 15. REGULATORY INFORMATION

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

**Other regulations:** Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work.

#### European drinking water standards (Directive 98/83/EC)

Ekoflock 50-100

| Parameter | Parametervärde | Anmärkning | Referens   |
|-----------|----------------|------------|--|
| Chloride  | 250 mg/l       |            | Listed in Annex I, Part C, of Directive 98/83/EC on the quality of water intended for human consumption. |

Otherwise not included in regulations that have not been previously provided in the safety data sheet.

### 15.2 Chemical safety assessment

**Chemical safety assessment:** A chemical safety assessment has been carried out as a part of the REACH-registration dossier.

#### International Inventories

| Country(s) or region        | Inventory name  | On inventory | (yes/no)* |
|-----------------------------|---|--------------|-----------|
| Australia                   | Australian Inventory of Chemical Substances (AICS)                |              | Yes       |
| Canada                      | Domestic Substances List (DSL)                                    |              | Yes       |
| Canada                      | Non-Domestic Substances List (NDSL)                               |              | No        |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)        |              | Yes       |
| Europe                      | European Inventory of New and Existing Chemicals (EINECS)         |              | Yes       |
| Europe                      | European List of Notified Chemical Substances (ELINCS)            |              | No        |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)          |              | Yes       |
| Korea                       | Existing Chemicals List (ECL)                                     |              | Yes       |
| New Zealand                 | New Zealand Inventory   |              | Yes       |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS) |              | Yes       |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                     |              | Yes       |

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

## 16. OTHER INFORMATION

**Revision information:** The safety data sheet has been revised according to regulation EC No 1907/2006, and regulation EU No 453/2010 (REACH) with classification according to Regulation (EC) No 1272/2008 as amended.

AOEL Acceptable operator exposure level  
CLP (EU-GHS) Classification, labelling and packaging (Globally Harmonised System in Europe)  
DMEL Derived Minimal Effect Level  
DNEL Derived No Effect Level  
EC50 Effect Concentration 50 %  
ErC50 EC50 in terms of reduction of growth rate  
LC50 Lethal Concentration 50 %  
LD50 Lethal Dose 50 %  
NOAEL No Observed Adverse Effect Level  
NOEC No Observed Effect Concentration  
OECD Organisation for Economic Co-operation and Development  
PBT Persistent, Bioaccumulative & Toxic  
PNEC Predicted No Effect Concentration  
STP Sludge Treatment Process  
vPvB very Persistent & very Bioaccumulative

Training requirements:

As with all hazardous chemicals, should all handling be done correctly and with care by trained personnel.

Disclaimer:

The information provided in this safety data sheet relates only to this specific product and may not be valid for the product if used with other materials in any process. The information is, at the time of publication, to the best of the Company's knowledge and belief, accurate and reliable. However, no warranty, guarantee or representation is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability for his own purpose. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question.