

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier:

CRYOLITE SYNTHETIC
Trisodium hexafluoroaluminate

Chemical name: Trisodium hexafluoroaluminate
CAS number: 13775-53-6
EC number: 237-410-6
Index number: 009-016-00-2
Registration number: 01-2119511565-43-0002

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

Synthetic cryolite, for industrial use.
Manufacturing of cryolite: PROC 2, PROC 3, PROC 8b, PROC 9
Production and use of cryolite in the aluminium industry: PROC 8a, PROC 22, PROC 26, PROC 0
Formulation & (re)packing of substances and mixtures containing cryolite: PROC 5, PROC 8a, PROC 8b, PROC 9
Production of articles containing cryolite: PROC 3, PROC 5, PROC 6, PROC 7, PROC 8a, PROC 10, PROC 13, PROC 14, PROC 21, PROC 22
End use of articles in industry containing cryolite: PROC 2, PROC 21, PROC 24, PROC 25
Use as flux: PROC 22, PROC 23
End use of articles containing cryolite by professionals: PROC 15, PROC 21, PROC 23, PROC 24, PROC 25
End use of articles containing cryolite by consumers: PROC 11, PROC 38.

1.3. Details of the supplier of the safety data sheet:

Information about the manufacturer:

Bigé Holding Kft.
5007 Szolnok, Tószegi út 51.
Hungary
Tel: +36 56 505 800

1.3.1. Responsible person: -
E-mail: titkarsag@bigeholdingkft.hu

1.4. Emergency telephone number: *Please fill in*

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture:

Classification according to Regulation (EC) No 1272/2008 (CLP):
Acute toxicity (inhalation), Hazard Category 4 – H332
Reproductive toxicity, Additional category, Effects on or via lactation – H362
Specific target organ toxicity – Repeated exposure, Hazard Category 1 – H372
Hazardous to the aquatic environment – Chronic Hazard, Category 2 – H411

Hazard statements:

H332 – Harmful if inhaled.
H362 – May cause harm to breast-fed children.
H372 – Causes damage to organs through prolonged or repeated exposure.
H411 – Toxic to aquatic life with long lasting effects.

2.2. Label elements:

Chemical name: Trisodium hexafluoroaluminate
CAS number: 13775-53-6
EC number: 237-410-6



Hazard statements:

H332 – Harmful if inhaled.
H362 – May cause harm to breast-fed children.
H372 – Causes damage to organs through prolonged or repeated exposure.
H411 – Toxic to aquatic life with long lasting effects.

Precautionary statements:

P260 – Do not breathe dust/fume/gas/mist/vapours/spray.
P263 – Avoid contact during pregnancy/while nursing.
P270 – Do not eat, drink or smoke when using this product.
P273 – Avoid release to the environment.
P308 + P313 – IF exposed or concerned: Get medical advice/attention.
P501 – Dispose of contents/container to hazardous or special waste collection point.

2.3. Other hazards:

Its permanent exposure might cause teeth and bone structure deformation.
Results of PBT and vPvB assessment: Not applicable, the product is inorganic.
Endocrine disrupting property: Not an endocrine disruptor.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:

Description: Synthetic cryolite
Chemical name: Trisodium hexafluoroaluminate
Synonym: Sodium aluminium fluoride, sodium hexafluoro aluminate, aluminium sodium hexafluoride
CAS number: 13775-53-6
EC number: 237-410-6
Molecular formula: Na_3AlF_6
Molecular weight: 209.4 g/mol
Purity: Sodium aluminium fluoride min.: 97 %

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

INGESTION:

Measures:

- Obtain immediate medical attention and show him the label!
- Place the victim into comfortable position.
- Do not give the victim anything to eat or drink, and do not induce vomiting if the victim is unconscious.
- Flush the mouth of the victim with clean water and drink calcium gluconate solution.

INHALATION:

Measures:

- Remove to fresh air, keep warm and at rest.
- Remove contaminated clothes.
- If necessary, administer artificial respiration.
- Obtain immediate medical attention and show him the label.

SKIN CONTACT:

Measures:

- Remove contaminated clothes.
- Wash the contaminated area with plenty of flowing water (for 15 minutes).
- In case of symptoms obtain immediate medical attention and show him the label.

EYE CONTACT:

Measures:

- Flush the eyes with water keeping the eyelids away and moving eyeballs at the same time (for at least 15 minutes).
- Obtain immediate medical attention and show him the label.

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

Harmful if inhaled.

May cause harm to breast-fed children.

Causes damage to organs through prolonged or repeated exposure.

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

No special treatment needed; treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media:

5.1.1. Suitable extinguishing media:

Synthetic cryolite is non-combustible. Choose extinguishing media suitable for the surrounding fire.

5.1.2. Unsuitable extinguishing media:

No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture:

In case of fire toxic substances may be formed (aluminium fluoride, sodium fluoride); the inhalation of such combustion products can have serious adverse effects on health.

5.3. Advice for firefighters:

Wear full protective clothing and self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

6.1.1. For non-emergency personnel:

Allow only well-trained experts wearing suitable protective clothing to abide in the field of the accident.

6.1.2. For emergency responders:

Avoid contact with eyes and skin.

Do not breathe dust.

Avoid formation of dust.

6.2. Environmental precautions:

Dispose of the spillage and the resulting waste according to the applicable environmental regulations. Do not allow the product and the resulting waste to enter sewers/soil/surface or ground water. Notify the respective authorities in accordance with local law in the case of environmental pollution immediately.

6.3. Methods and material for containment and cleaning up:

Collect the spilled material mechanically, then place the collected waste into appropriate, labelled, closable hazardous waste container till proper removal/disposal. During the collection, placement, disposal of the waste, wear appropriate individual protective equipment.

Should be neutralised with lime milk.

6.4. Reference to other sections:

For further and detailed information see Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling:**
Observe conventional hygiene precautions.
Avoid the direct contact with the product.
After the work hours wash your hands thoroughly.
Do not eat and smoke in the workplace.
Use adequate dust proof mask.
The wet product should be handled with special care, because it may damage the skin and the mucous membranes.
Keep container closed when not in use.
The emptied containers may contain residues of the product, which can be hazardous.
Technical measures:
Ensure adequate ventilation, in case of formation of dust: appropriate exhaust is required.
Avoid formation of dust.
Precautions against fire and explosion:
No special measures required.
- 7.2. Conditions for safe storage, including any incompatibilities:**
Technical measures and storage condition:
The place of storage has to be properly ventilated and cleanable.
Store in cool and dry place.
Keep away from food, beverages, luxury goods, feed, pharmaceuticals.
Follow all instructions on the label.
Storage: for indefinite time.
Keep the unauthorised people away from the place of the storage. Designate such places with signs and labels.
Incompatible materials: See Section 10.5
Packaging material: In well-closed container.
- 7.3. Specific end use(s):**
No specific instructions available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1. Control parameters:**
- Occupational exposure limit values** (Commission Directive (EC) No 2000/39 of 8 June 2000):
Fluorides, inorganic: 8 hours: 2.5 mg/m³
- DNEL values**
Workers, Inhalation, acute effects, 99.8 mg/m³
Workers, skin contact, chronic, systemic effects, 1020 mg/kg
Workers, inhalation, chronic effects, local effects, 0.1 mg/m³
- PNEC values**
Marine water: 0.00048 mg/l
Fresh water: 0.0048 mg/l
Sewage treatment plant (STP): 8.7 mg/l
Fresh water sediment: 30.5 mg/kg
Marine sediment: 3.05 mg/kg
Soil: 6.02 mg/kg
- 8.2. Exposure controls:**
In case of a hazardous material with no controlled concentration limit it is the employer's duty to keep concentration levels down to a minimum achievable by existing scientific and technological means, where the hazardous substance poses no harm to workers.
- 8.2.1. Appropriate engineering controls:**
In pursuance of work is proper foresight needed to avoid spilling onto clothes and floors and to avoid contact with eyes and skin.
Do not breathe dust.
Avoid contact with eyes and skin.
In the vicinity of the workplace safety shower and eye washing fountain has to be installed.
Do not eat, smoke, store food in the workplace.
Ensure cold-warm water washing facilities.
Observe conventional hygiene precautions. Ensure adequate ventilation.
The ventilation system should be corrosion proof.

8.2.2. **Individual protection measures, such as personal protective equipment:**

1. **Eye/face protection:** Use appropriate protective glasses and face protection (EN ISO 16321-1:2022; EN 166).
2. **Skin protection:**
 - a. **Hand protection:** Use appropriate protective gloves (EN 374).
 - b. **Other:** Use appropriate, closed protective clothing protective boots.
3. **Respiratory protection:** In case of sufficient ventilation, not required.
4. **Thermal hazards:** No thermal hazards known.

8.2.3. **Environmental exposure controls:**

No specific prescription.

The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions, an expert's advice is necessary before deciding upon further protective measures.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Information on basic physical and chemical properties:**

Parameter	Value / Test method / Remarks
1. Physical state	solid powder
2. Colour	white
3. Odour, odour threshold	odourless
4. Melting point/freezing point	1000 °C
5. Boiling point or initial boiling point and boiling range	no data*
6. Flammability	not flammable
7. Lower and upper explosion limit	no data*
8. Flash point	no data*
9. Auto-ignition temperature	no data*
10. Decomposition temperature	no data*
11. pH	6.4 (in 1 % aqueous solution)
12. Kinematic viscosity	no data*
13. Solubility in water in other solvents	in water: 0.4 g/l (20 °C); insoluble in ethanol
14. Partition coefficient n-octanol/water (log value)	no data*
15. Vapour pressure	no data*
16. Density and/or relative density	2.95 g/cm ³
17. Relative vapour density	no data*
18. Particle characteristics	no data*

9.2. **Other information:**

9.2.1. **Information with regard to physical hazard classes:**

No further data available or not applicable for the product.

9.2.2. **Other safety characteristics:**

Bulk density: 700-1600 kg/m³

*: The manufacturer did not carry out any tests on this parameter for the product or the results of the tests are not available at the time of publication of the data sheet, or the property is not applicable for the product.

SECTION 10: STABILITY AND REACTIVITY

10.1. **Reactivity:**

No reactivity known.

10.2. **Chemical stability:**

Stable within normal temperature and under general work conditions.

10.3. **Possibility of hazardous reactions:**

In case of heating (> 1000 °C) it decomposes, and toxic aluminium fluoride and sodium fluoride are formed.

10.4. **Conditions to avoid:**

Avoid heating.

10.5. **Incompatible materials:**

Acids.

- 10.6. **Hazardous decomposition products:**
Aluminium fluoride, sodium fluoride, hydrogen fluoride.

SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1. **Information on hazard classes as defined in Regulation (EC) No 1272/2008:**
Acute toxicity: Harmful if inhaled.
Skin corrosion/irritation: Based on available data, the classification criteria are not met.
Serious eye damage/irritation: Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.
Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: May cause harm to breast-fed children.
STOT-single exposure: Based on available data, the classification criteria are not met.
STOT-repeated exposure: Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard: Based on available data, the classification criteria are not met.
- 11.1.1. **Summaries of the information derived from the test conducted:**
No data available.
- 11.1.2. **Relevant toxicological properties:**
LD₅₀ (oral, rat): > 2000 mg/kg
LD₅₀ (oral, mouse): 1470 mg/kg
LD₅₀ (intraperitoneal, mouse): 115 mg/kg
LC₅₀ (inhalation, rat, after long-term exposure): > 1 mg/m³
- 11.1.3. **Information on likely routes of exposure:**
Ingestion, inhalation, skin contact, eye contact.
- 11.1.4. **Symptoms related to the physical, chemical and toxicological characteristics:**
Its permanent exposure might cause teeth and bone structure deformation.
Due to its poor solubility in water it hardly irritates the mucous membranes, eyes and respiratory organs. Its intoxication is unknown when it is swallowed, due to its faint solubility the material is discharged from the body in time. Although it might cause significant deformation in teeth and bones. Deformation usually begins at hip-bone and lumbar.
In metallurgical processes and in case of contacting the reaction partners, hydrogen fluoride or other soluble, volatile fluorides might be emitted, the toxicity of which is much higher.
May be irritating to skin, may be slightly irritating to the eyes.
- 11.1.5. **Delayed and immediate effects as well as chronic effects from short and long-term exposure:**
Harmful if inhaled.
May cause harm to breast-fed children.
Causes damage to organs through prolonged or repeated exposure.
- 11.1.6. **Interactive effects:**
No data available.
- 11.1.7. **Absence of specific data:**
No information.
- 11.2. **Information on other hazards:**
Endocrine disrupting properties:
Endocrine disrupting property: Not an endocrine disruptor.
Other information:
No data available.

SECTION 12: ECOLOGICAL INFORMATION

- 12.1. **Toxicity:**
Toxic to aquatic life with long lasting effects.
Aquatic toxicity:
LC₅₀ (fish): 47 mg/l/96h
EC₅₀ (crustaceans): 5 mg/l/48h
NOEC (algae): 5000 mg/l/96h
- 12.2. **Persistence and degradability:**
It should not get into waste water or sewer without dilution and neutralisation. Lime is suggested for neutralisation.
- 12.3. **Bioaccumulation potential:**
No data available.
- 12.4. **Mobility in soil:**
It spreads in the form of aerosol. Faint solubility and spreading. Adsorption in deposits or organic sediments.

- 12.5. **Results of PBT and vPvB assessment:**
Not applicable, the product is inorganic.
- 12.6. **Endocrine disrupting properties:**
Endocrine disrupting property: Not an endocrine disruptor.
- 12.7. **Other adverse effects:**
Do not enter into drains, watercourses and soil.
The effects of the product depend on the environmental circumstances, for example: pH, temperature, the composition of organic and inorganic substances.

SECTION 13: DISPOSAL CONSIDERATIONS

- 13.1. **Waste treatment methods:**
Disposal according to the local regulations.
- 13.1.1. **Information regarding the disposal of the product:**
Do not dispose together with household waste.
Do not enter into drains, watercourses and soil.
List of Waste Code:
No waste disposal key according to the List of Waste Code (LoW code) can be determined for this product, as only the purpose of application defined by the user enables an allocation. The LoW code number has to be determined after a discussion with a waste disposal specialist.
- 13.1.2. **Information regarding the disposal of the packaging:**
Dispose according to the relevant regulations.
The contaminated packaging must be fully emptied.
The uncleaned packaging has to be disposed in the same manner as the product.
- 13.1.3. **Physical/chemical properties that may affect waste treatment options shall be specified:**
No data available.
- 13.1.4. **Sewage disposal:**
It should not get into waste water or sewer without dilution and neutralisation. Lime is suggested for neutralisation.
- 13.1.5. **Special precautions for any recommended waste treatment:**
No data available.

SECTION 14: TRANSPORT INFORMATION

- 14.1. **UN number or ID number:**
UN 3077
- 14.2. **UN proper shipping name:**
ADR/RID, IMDG, IATA: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Trisodium hexafluoroaluminate)
- 14.3. **Transport hazard class(es):**
Class: 9
- 14.4. **Packing group:**
III
- 14.5. **Environmental hazards:**
ADR/RID/ADN Environmentally hazardous: Yes
IMDG: Marine pollutant: Yes
- 14.6. **Special precautions for user:**
ADR/RID/ADN Limited quantity: 5 kg
Excepted quantity: E1
Transport category: 3
Tunnel restriction code: (-)
Hazard identification No.: 90
Special provisions: 274, 335, 375, 601
IMDG EmS: F-A, S-F
Stowage and handling: Category A; SW23
Segregation: -
Properties and observations: -
Segregation group: -
- 14.7. **Maritime transport in bulk according to IMO instruments:**
Not applicable.

SECTION 15: REGULATORY INFORMATION

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

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive (EC) No 1999/45 and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive (EEC) No 76/769 and Commission Directives (EEC) No 91/155, (EEC) No 93/67, (EC) No 93/105 and (EC) No 2000/21

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives (EEC) No 67/548 and (EC) No 1999/45, and amending Regulation (EC) No 1907/2006

COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

15.2. Chemical safety assessment: Chemical safety assessment has been carried out for the product.

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet:

The safety data sheet has been revised according to Regulation (EU) 2020/878.

The hazard classification of the substance did not change compared to the previous version.

This safety data sheet supersedes all previous versions according to Annex II of Regulation (EC) No 1907/2006.

Literature references / data sources:

Previous version of the safety data sheet (13. 03. 2020, version 6).

Relevant hazard statements (code and full text) of Sections 2 and 3:

H332 – Harmful if inhaled.

H362 – May cause harm to breast-fed children.

H372 – Causes damage to organs through prolonged or repeated exposure.

H411 – Toxic to aquatic life with long lasting effects.

Training advice: No data available.

Full text of the abbreviations in the safety data sheet:

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

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

ATE: Acute Toxicity Estimate.

AOX: Adsorbable organic halides.

BCF: Bioconcentration factor.

BOD: Biological Oxygen Demand.

CAS number: Chemical Abstract Service number.

CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

CMR effects: Carcinogenic, mutagenic, reprotoxic effects.

COD: Chemical Oxygen Demand.

CSA: Chemical Safety Assessment.

CSR: Chemical Safety Report.

DNEL: Derived-No-Effect-Level.

ECHA: European Chemical Agency.

EC: European Community.

EC number: EINECS and ELINCS numbers (see also EINECS and ELINCS).

EEC: European Economic Community.

EEA: European Economic Area (EU + Iceland, Liechtenstein and Norway).

EINECS: European Inventory of Existing Commercial Chemical Substances.

ELINCS: European List of Notified Chemical Substances.

EN: European Norm.

EU: European Union.

EWC: European Waste Catalogue (replaced by LoW – see below).
GHS: Globally Harmonized System of Classification and Labelling of Chemicals.
IATA: International Air Transport Association.
ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
IMDG: International Maritime Dangerous Goods.
IMO: International Maritime Organization.
IMSBC: International Maritime Solid Bulk Cargoes.
IUCLID: International Uniform Chemical Information Database.
IUPAC: International Union of Pure and Applied Chemistry.
Kow: n-Octanol - Water Partition Coefficient.
LC50: Lethal concentration resulting in 50 % mortality.
LD50: Lethal dose resulting in 50 % mortality (median lethal dose).
LoW: List of Waste.
LOEC: Lowest Observed Effect Concentration.
LOEL: Lowest Observed Effect Level.
NOEC: No Observed Effect Concentration.
NOEL: No Observed Effect Level.
NOAEC: No Observed Adverse Effect Concentration.
NOAEL: No Observed Adverse Effect Level.
OECD: Organization for Economic Cooperation and Development.
OSHA: Occupational Safety and Health Administration.
PBT: Persistent, Bioaccumulative and Toxic.
PNEC: Predicted No Effect Concentration.
QSAR: Quantitative Structure Activity Relationship.
REACH: Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.
SCBA: Self Contained Breathing Apparatus.
SDS: Safety Data Sheet.
STOT: Specific Target Organ Toxicity.
SVHC: Substances of Very High Concern.
UN: United Nations.
UVCB: Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials.
VOC: Volatile Organic Compound.
vPvB: very Persistent and very Bioaccumulative.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier and conform to the relevant regulations.

The information, data and recommendations contained herein are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information.

The SDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required.

Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product.

It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.

Safety data sheet was prepared by:
MSDS-Europe
International branch of ToxInfo Kft.

Professional help regarding the explanation of
the safety data sheet:
+36 70 335 8480; info@msds-europe.com
www.msds-europe.com

