



# Material Safety Data Sheet

## Cryolite, Synth. Powder

Edition: 23/04/2015

### 1) Identification of substance/preparation and of the company undertaking

Material Cryolite, synth. powder  
Chemical name: Trisodium hexafluoroaluminate  
Molecular formula:  $3\text{NaF}\cdot\text{AlF}_3$   
Company Inoxia Ltd  
45.7 Dunsfold Park  
Stovolds Hill  
Cranleigh  
Surrey  
GU6 8TB  
Tel: 02032 909990  
safety@inoxia.co.uk  
[www.inoxia.co.uk](http://www.inoxia.co.uk)

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

#### Uses of the Substance / Mixture

- Metallurgy
- Glass industry
- Abrasive
- Fillers

### 2) Hazards identification.

Although OSHA has not adopted the environmental portion of the GHS regulations, this document may include information on environmental effects.

#### 2.1 Classification of the substance or mixture

##### HCS 2012 (29 CFR 1910.1200)

Acute toxicity, Category 4

Effects on or via lactation

Specific target organ systemic toxicity – repeated exposure

Category 1

H332: Harmful if inhaled.

H362: May cause harm to breast-fed children.

H372: Causes damage to organs through prolonged or repeated exposure

#### 2.2 Label elements

##### HCS 2012 (29 CFR 1910.1200)

##### Pictogram



Signal Word - Danger

## Hazard Statements

- H332 Harmful if inhaled
- H362 May cause harm to breast-fed children.
- H372 Causes damage to organs through prolonged or repeated exposure.

## Precautionary Statements

### Prevention

- P201 Obtain special instructions before use.
- P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
- P263 Avoid contact during pregnancy/ while nursing.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.

### Response

- P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
- P308 + P313 IF exposed or concerned: Get medical advice/ attention.

## 2.3 Other hazards which do not result in classification

- H402: Harmful to aquatic life.
- H411: Toxic to aquatic life with long lasting effects.
- Chronic exposure may entail dental or skeletal fluorosis.

## 3) Composition/information on ingredient

### 3.1. Substances

#### Hazardous Ingredients and Impurities

Chemical Name	Identification number CAS-No.	Concentration [%]
Trisodium hexafluoroaluminate	13775-53-6	>= 95

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret

Trisodium hexafluoroaluminate	13775-53-6	95 (95 - 99)
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The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

### 3.2 Mixture

Not applicable, this product is a substance.

## 4) First Aid Measures

### 4.1 Description of first-aid measures

#### In case of inhalation

- Move to fresh air.
- Oxygen or artificial respiration if needed.

- If symptoms persist, call a physician.

#### **In case of skin contact**

- Take off contaminated clothing and wash before reuse.
- Wash off with plenty of water
- If symptoms persist, call a physician.

#### **In case of eye contact**

- Rinse immediately with plenty of water and seek medical advice.

#### **In case of ingestion**

- Immediate medical attention is required.
- Take victim immediately to hospital.
- Rinse mouth with water.
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.

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

#### **In case of inhalation**

##### **Symptoms**

- Cough
- sore throat
- Nose bleeding
- At high concentrations:
- Chemical pneumonitis

##### **Effects**

- Irritating to mucous membranes
- Repeated or prolonged exposure
- chronic bronchitis

#### **In case of skin contact**

##### **Effects**

- slight irritation

#### **In case of eye contact**

##### **Effects**

- slight irritation

#### **In case of ingestion**

##### **Symptoms**

- Nausea
- Vomiting
- Abdominal pain
- Diarrhea

## **Effects**

- risk of hypocalcemia with nervous problems (tetany) and cardiac arrhythmia
- Liver injury may occur.

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

#### **Notes to physician**

- Immediate medical attention is required.
- Medical examination necessary even only on suspicion of intoxication.

## **5) Fire Fighting**

Flash point: Not applicable, inorganic

Autoignition temperature: Not applicable

Flammability / Explosive limit: no data available

### **5.1 Extinguishing media**

#### **Suitable extinguishing media**

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### **Unsuitable extinguishing media**

- None known.

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

#### **Specific hazards during fire fighting**

- Not combustible.
- Hazardous decomposition products formed under fire conditions.
- Not combustible.
- Hazardous decomposition products formed under fire conditions.

#### **Hazardous combustion products:**

- Hydrogen fluoride

### **5.3 Advice for firefighters**

#### **Special protective equipment for fire-fighters**

- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
- Wear chemical resistant oversuit
- Cool containers/tanks with water spray.
- Prevent fire extinguishing water from contaminating surface water or the ground water system.

## **6) Accidental Release**

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

#### **Advice for non-emergency personnel**

- Keep people away from and upwind of spill/leak.
- Avoid dust formation.

#### **Advice for emergency responders**

- Wear self-contained breathing apparatus and protective suit.
- Sweep up to prevent slipping hazard.
- Prevent further leakage or spillage.

## **6.2 Environmental precautions**

- Do not flush into surface water or sanitary sewer system.
- If the product contaminates rivers and lakes or drains inform respective authorities.

## **6.3 Methods and materials for containment and cleaning up**

- Pick up and transfer to properly labeled containers
- Keep in suitable, closed containers for disposal.

## **6.4 Reference to other sections**

- Refer to protective measures listed in sections 7 and 8.

## **7) Handling/Storage**

### **7.1. Precautions for safe handling**

- Use only in well-ventilated areas.
- Keep away from heat and sources of ignition.
- Keep away from incompatible products

### **Hygiene measures**

- Eye wash bottles or eye wash stations in compliance with applicable standards.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.
- Wash hands before breaks and at the end of workday.

### **7.2 Conditions for safe storage, including any incompatibilities**

#### **Technical measures/Storage conditions**

- Store in original container.
- Keep in a dry place.
- Keep in properly labeled containers.
- Keep container closed.
  
- Keep away from:
- Incompatible products

#### **Packaging material**

##### **Suitable material**

- Paper.

##### **Unsuitable material**

- no data available

### **7.3 Specific end use(s)**

- Contact your supplier for additional information

## 8) Exposure Controls/Personal Protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

### 8.1 Control parameters

#### Components with workplace occupational exposure limits

Ingredients	Value type	Value	Basis
Particles not otherwise specified (PNOS)			National Institute for Occupational Safety and Health
			Includes all inert or nuisance dusts, whether mineral, inorganic, not listed specifically in 1910.1000., See Appendix D - Substances with No Established RELs
Particles not otherwise specified (PNOS)	TWA	15 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
			Form of exposure : total dust All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
Particles not otherwise specified (PNOS)	TWA	5 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
			Form of exposure : respirable fraction All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by the Particulates Not Otherwise Regulated (PNOR) limit which is the same as the inert or nuisance dust limit of Table Z-3.
Particles not otherwise specified (PNOS)	TWA	10 mg/m3	American Conference of Governmental Industrial Hygienists
			Form of exposure : Inhalable fraction
Particles not otherwise specified (PNOS)	TWA	3 mg/m3	American Conference of Governmental Industrial Hygienists
			Form of exposure : Respirable fraction
Trisodium hexafluoroaluminate	TWA	2.5 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
			CAS number varies with compound Expressed as :Fluorine
Trisodium hexafluoroaluminate	TWA	2.5 mg/m3	American Conference of Governmental Industrial Hygienists
			Expressed as :Fluorine
Trisodium hexafluoroaluminate	TWA	1 mg/m3	American Conference of Governmental Industrial Hygienists
			Form of exposure : Respirable fraction Expressed as :Aluminum
Trisodium hexafluoroaluminate	TWA	0.1 mg/m3	Solvay Acceptable Exposure Limit

#### NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

Ingredients	CAS-No.	Concentration
Trisodium hexafluoroaluminate	13775-53-6	250 mg/m <sup>3</sup>
Trisodium hexafluoroaluminate	13775-53-6	250 mg/m <sup>3</sup>

## Biological Exposure Indices

Ingredients	Value Type	Value	Basis
Trisodium hexafluoroaluminate	BEI	2 mg/l Fluoride Urine Prior to shift (16 hours after exposure ceases)	American Conference of Governmental Industrial Hygienists
Trisodium hexafluoroaluminate	BEI	3 mg/l Fluoride Urine End of shift (As soon as possible after exposure ceases)	American Conference of Governmental Industrial Hygienists

### 8.2 Exposure controls

#### Control measures

#### Engineering measures

- Provide appropriate exhaust ventilation at places where dust is formed.
- Apply technical measures to comply with the occupational exposure limits.

#### Individual protection measures

##### Respiratory protection

- In case of insufficient ventilation, wear suitable respiratory equipment.
- In case of emissions and dust clouds/fog/fumes, face mask with combined type E-P3 cartridge.
- Use only respiratory protection that conforms to international/ national standards
- Use NIOSH approved respiratory protection.
- Comply with OSHA respiratory protection requirements.

##### Hand protection

- Impervious gloves

##### *Suitable material*

- Neoprene
- Fluoroelastomer

##### Eye protection

- Dust proof goggles obligatory.

##### Skin and body protection

- Dust impervious protective suit

##### Hygiene measures

- Eye wash bottles or eye wash stations in compliance with applicable standards.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.
- Wash hands before breaks and at the end of workday.

## 9) Physical/Chemical Properties

Physical and Chemical properties here represent typical properties of this product. Contact the business area using the Product information phone number in Section 1 for its exact specifications.

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	Form:	powder, crystalline
	Physical state:	solid
	Color:	slightly coloured slightly coloured
<b>Particle Size</b>		20.97 µm d 90  9.78 µm d 50  1.73 µm d 10
<b>Odour</b>		odourless
<b>Odour Threshold</b>		no data available
<b>pH</b>		7.0 ( 0.42 g/l) ( 77 °F (25 °C))
<b>Melting point/range</b>		1,848 - 1,854 °F (1,009 - 1,012 °C)
<b>Boiling point/range</b>		Not applicable
<b>Flash point</b>		Not applicable, inorganic
<b>Evaporation rate (Butylacetate = 1)</b>		no data available
<b>Flammability (solid, gas)</b>		The product is not flammable.
<b>Flammability / Explosive limit</b>		Explosiveness: Not explosive
<b>Autoignition temperature</b>		Not applicable
<b>Vapor pressure</b>		Not applicable
<b>Vapor density</b>		no data available
<b>Density</b>		Bulk density: 500 - 800 kg/m <sup>3</sup> ( 68 °F (20 °C)) Relative density: 2.97 ( 68 °F (20 °C))
<b>Solubility</b>		Water solubility: ( 68 °F (20 °C)) slightly soluble 0.602 g/l 0.217 g/l
<b>Partition coefficient: n-octanol/water</b>		Not applicable
<b>Thermal decomposition</b>		> 1,832 °F (> 1,000 °C)
<b>Viscosity</b>		Viscosity, dynamic : Not applicable
<b>Explosive properties</b>		no data available
<b>Oxidizing properties</b>		Not considered as oxidizing.



## 9.2 Other information

Molecular weight 210 g/mol

### 10) Stability/Reactivity

#### 10.1 Reactivity

- No decomposition if used as directed.

#### 10.2 Chemical stability

- Stable under recommended storage conditions.

#### 10.3 Possibility of hazardous reactions

- no data available

#### 10.4 Conditions to avoid

- none

#### 10.5 Incompatible materials

- Strong acids and strong bases

#### 10.6 Hazardous decomposition products

- Hydrogen fluoride

### 11) Toxicological Info

#### 11.1. Information on toxicological effects

##### Acute toxicity

Acute oral toxicity	LD50 : > 5,000 mg/kg – Rat
Acute inhalation toxicity	LC50 - 4 h 4.47 mg/l – Rat
Acute dermal toxicity	LD50 > 2,100 mg/kg – Rat
Acute toxicity (other routes of administration)	no data available

##### Skin corrosion/irritation

Rabbit  
No skin irritation

##### Serious eye damage/eye irritation

Rabbit  
No eye irritation

##### Respiratory or skin sensitization

Guinea pig  
Did not cause sensitization on laboratory animals.  
  
not sensitizing

##### Mutagenicity

##### Genotoxicity in vitro

In vitro tests did not show mutagenic effects

##### Genotoxicity in vivo

In vivo tests did not show mutagenic effects

##### Carcinogenicity

no data available

This product does not contain any ingredient designated as probable or suspected human carcinogens by:

NTP

IARC

OSHA

ACGIH

### **Toxicity for reproduction and development**

#### **Toxicity to reproduction / fertility**

Rat

Oral

NOAEL parent: 128 mg/kg

Effects on fertility

Developmental Toxicity – Rat

NOAEL parent: 42 mg/kg

#### **Developmental Toxicity/Teratogenicity**

Rat

NOAEL teratogenicity: 42 mg/kg

Developmental Toxicity

### **STOT**

#### **STOT-single exposure**

no data available

#### **STOT-repeated exposure**

The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Inhalation – Rat

210 µg/m<sup>3</sup>

Target Organs: Lungs

observed effect

Oral 14 Weeks – Rat

0.58 mg/kg

Target Organs: Skeleton

observed effect

Oral 180 Days – Mouse

LOAEL: 50 ppm

Target Organs: Skeleton

Subchronic toxicity

Inhalation – Rat

NOAEL: 1 ppm

Target Organs: Respiratory Tract, Bone, Teeth

### **CMR effects**

#### **Reproductive toxicity**

Effects on or via lactation

#### **Aspiration toxicity**

no data available

**Further information**            no data available

## 12) Ecological Information

### 12.1 Toxicity

#### Aquatic Compartment

##### Acute toxicity to fish

LC50 - 96 h : 99 mg/l - Brachydanio rerio (zebrafish)

##### Acute toxicity to daphnia and other aquatic invertebrates.

EC50 - 48 h : 156 mg/l - Daphnia magna (Water flea)

##### Toxicity to aquatic plants

LC50 - 72 h : 8.8 mg/l - Scenedesmus capricornutum (fresh water algae)

NOEC : 1 mg/l - Scenedesmus capricornutum (fresh water algae) Growth rate

### 12.2 Persistence and degradability

#### Abiotic degradation

##### Stability in water

Medium, Water, Soil, acid/base equilibrium as a function of pH

Medium, Water, Soil, complexation/precipitation of inorganic and organic materials

#### Biodegradation

##### Biodegradability

The methods for determining biodegradability are not applicable to inorganic substances.

### 12.3 Bioaccumulative potential

#### Bioconcentration factor (BCF)

non-suspected bioaccumulation

### 12.4 Mobility in soil

#### Adsorption potential (K<sub>oc</sub>)

Water

low solubility and mobility

Soil/sediments Log K<sub>oc</sub>: 3.18

adsorption on mineral and organic soil constituents

Air

mobility as solid aerosols

### 12.5 Results of PBT and vPvB assessment

no data available

### 12.6 Other adverse effects

no data available

## 13) Disposal Considerations

### 13.1 Waste treatment methods

#### Product Disposal

- Where possible recycling is preferred to disposal or incineration.
- In accordance with local and national regulations.

**Waste Code**

- Environmental Protection Agency
- Hazardous Waste – NO

**Advice on cleaning and disposal of packaging**

- Dispose of as unused product.

**14) Transport Information**

Transportation status: IMPORTANT! Statements below provide additional data on listed transport classification. The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

**DOT**

**14.1 UN number** UN 3077

**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID,  
N.O.S. (Trisodium hexafluoroaluminate)

**14.3 Transport hazard class** 9

Label(s) 9

**14.4 Packing group**

Packing group III

ERG No 171

**14.5 Environmental hazards**

**Marine pollutant** YES

**TDG**

**14.1 UN number** UN 3077

**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (Trisodium hexafluoroaluminate)

**14.3 Transport hazard class** 9

Label(s) 9

**14.4 Packing group**

Packing group III

ERG No 171

**14.5 Environmental hazards**

**Marine pollutant** YES

**NOM**

**14.1 UN number** UN 3077

**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (Trisodium hexafluoroaluminate)

**14.3 Transport hazard class 9**

Label(s) 9

**14.4 Packing group**Packing group III  
ERG No 171**14.5 Environmental hazards****Marine pollutant** YES**IMDG****14.1 UN number** UN 3077**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (Trisodium hexafluoroaluminate)**14.3 Transport hazard class 9**

Label(s) 9

**14.4 Packing group**

Packing group III

**14.5 Environmental hazards****Marine pollutant** YES**14.6 Special precautions for user**

EmS F-A , S-F

For personal protection see section 8.

**IATA****14.1 UN number** UN 3077**14.2 Proper shipping name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S. (Trisodium hexafluoroaluminate)**14.3 Transport hazard class 9**

Label(s): 9

**14.4 Packing group**Packing group III  
Packing instruction (cargo aircraft) 956  
Max net qty / pkg 400.00 kg  
Packing instruction (passenger aircraft) 956  
Max net qty / pkg 400.00 kg**14.5 Environmental hazards** YES**14.6 Special precautions for user**

For personal protection see section 8.

Note: The above regulatory prescriptions are those valid on the date of publication of this sheet. Given the possible evolution of transportation regulations for hazardous materials, it would be advisable to check their validity with your sales office.

## **15) Regulatory Information**

### **15.1 Notification status**

<b>Inventory Information</b>	<b>Status</b>
United States TSCA Inventory	Listed on Inventory
Mexico INSQ (INSQ)	One or more components not listed on inventory
Canadian Domestic Substances List (DSL)	Listed on Inventory
New Zealand. Inventory of Chemical Substances	In compliance with the inventory
Australia Inventory of Chemical Substances (AICS)	Listed on Inventory
Japan. CSCL - Inventory of Existing and New Chemical Substances	Listed on Inventory
Korea. Korean Existing Chemicals Inventory (KECI)	Listed on Inventory
China. Inventory of Existing Chemical Substances in China (IECSC)	Listed on Inventory
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed on Inventory

## **15.2 Federal Regulations**

### **US. EPA EPCRA SARA Title III**

#### **SARA HAZARD DESIGNATION SECTIONS 311/312 (40 CFR 370)**

Fire Hazard	no
Reactivity Hazard	no
Sudden Release of Pressure Hazard	no
Acute Health Hazard	no
Chronic Health Hazard	yes

#### **Section 313 Toxic Chemicals (40 CFR 372.65)**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### **Section 302 Emergency Planning Extremely Hazardous Substance Threshold Planning Quantity (40 CFR 355)**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### **Section 302 Emergency Planning Extremely Hazardous Substance Reportable Quantity (40 CFR 355)**

This material does not contain any components with a SARA 302 RQ.

#### **Section 304 Emergency Release Notification Reportable Quantity (40 CFR 355)**

This material does not contain any components with a section 304 EHS RQ.

#### **US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)**

This material does not contain any components with a CERCLA RQ.

## **15.3 State Regulations**

### **US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

## 16) Other Information

### NFPA (National Fire Protection Association) – Classification

Health	0 minimal
Flammability	0 minimal
Instability or Reactivity	0 minimal
Special Notices	None

### HMIS (Hazardous Materials Identification System (Paint & Coating)) – Classification

Health	0 minimal
Flammability	0 minimal
Reactivity	0 minimal
PPE	Determined by User; dependent on local conditions

### Further information

- Product evaluated under the US GHS format.

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

- TWA 8-hour, time-weighted average
- SAEL Solvay Acceptable Exposure Limit
- ACGIH American Conference of Governmental Industrial Hygienists
- OSHA Occupational Safety and Health Administration
- NTP National Toxicology Program
- IARC International Agency for Research on Cancer
- NIOSH National Institute for Occupational Safety and Health

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*

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