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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name CRYOLITE, synth. powder Chemical Name Trisodium hexafluoroaluminate

3NaF.AIF3 Molecular formula

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

Uses of the Substance / Mixture

- Metallurgy.
- Glass industry
- Abrasive
- **Fillers**

1.3 Details of the supplier of the safety data sheet

Company

SOLVAY FLUORIDES, LLC 3333 RICHMOND AVENUE 77098-3099, HOUSTON USA

Tel: +1-800-7658292; +1-713-5256700

Fax: +1-713-5257805

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CONTACT: CHEMTREC 800-424-9300 within the United States and Canada, or 703-527-3887 for international collect calls.

SECTION 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

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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

SECTION 3: Composition/information on ingredients

3.1 Substance

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.				

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) |

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.

SECTION 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.

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- 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.

SECTION 5: Firefighting measures

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<u>Flash point</u> Not applicable, inorganic

<u>Autoignition temperature</u> 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.

SECTION 6: Accidental release measures

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.

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- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and 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

SECTION 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

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			sts, whether mineral, inorganic, not listed specifically in 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	
	All inert or nu by substance	name are covered	her mineral, inorganic, or organic, not listed specifically I by the Particulates Not Otherwise Regulated (PNOR) ert 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	
	All inert or nu by substance	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 expo	sure : Inhalable fra	ction	
Particles not otherwise specified (PNOS)	TWA	3 mg/m3	American Conference of Governmental Industrial Hygienists	
	Form of expo	sure : Respirable f	raction	
Trisodium hexafluoroaluminate	TWA	2.5 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants	
	CAS numbe	r varies with compo	oundExpressed as :Fluorine	
Trisodium hexafluoroaluminate	TWA	2.5 mg/m3	American Conference of Governmental Industrial Hygienists	
	Expressed as	s :Fluorine		
Trisodium hexafluoroaluminate	TWA	1 mg/m3	American Conference of Governmental Industrial Hygienists	
	Form of expo	sure : Respirable f s :Aluminum	raction	
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/m³
Trisodium hexafluoroaluminate	13775-53-6	250 mg/m³

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

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Trisodium hexafluoroaluminate	BEI	3 mg/l Fluoride Urine End of shift (As soon as possible after exposure ceases)	American Conference of Governmental Industrial Hygienists	
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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.

SECTION 9: Physical and 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

<u>Appearance</u> <u>Form</u>: powder, crystalline

Physical state: solid

Color: slightly coloured

slightly coloured

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Particle size 20.97 μm

d 90

9.78 µm d 50

1.73 µm d 10

<u>Odor</u> odorless

Odor Threshold no data available

pH 7.0 (0.42 g/l) (77 °F (25 °C))

Melting point/range 1,848 - 1,854 °F (1,009 - 1,012 °C)

Boiling point/boiling range Not applicable

<u>Flash point</u> Not applicable, inorganic

Evaporation rate (Butylacetate = 1) no data available

Flammability (solid, gas) The product is not flammable.

<u>Flammability / Explosive limit</u> <u>Explosiveness</u>:

Not explosive

<u>Autoignition temperature</u> Not applicable

Vapor pressure Not applicable

Vapor density no data available

<u>Density</u>: 500 - 800 kg/m3 (68 °F (20 °C))

Relative density: 2.97 (68 °F (20 °C))

<u>Solubility</u> <u>Water solubility :</u>

(68 °F (20 °C)) slightly soluble 0.602 g/l 0.217 g/l

<u>Partition coefficient: n-octanol/water</u> Not applicable

Thermal decomposition > 1,832 °F (> 1,000 °C)

<u>Viscosity</u>, <u>dynamic</u>: Not applicable

Explosive properties no data available

Oxidizing properties Not considered as oxidizing.

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9.2 Other information

Molecular weight 210 g/mol

SECTION 10: Stability and 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

SECTION 11: Toxicological information

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

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Mutagenicity

Genotoxicity in vitro In vitro tests did not show mutagenic effects

Genotoxicity in vivo In vivo tests did not show mutagenic effects

<u>Carcinogenicity</u> 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/m3

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

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CMR effects

Reproductive toxicity Effects on or via lactation

Aspiration toxicity no data available

Further information no data available

SECTION 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

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12.4 Mobility in soil

Adsorption potential (Koc) Water

low solubility and mobility

Soil/sediments Log Koc: 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

SECTION 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.

SECTION 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.

<u>DOT</u>

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

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14.5 Environmental hazards

Marine pollutant

YES

9

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)

14.4 Packing group

Packing group Ш ERG No 171

14.5 Environmental hazards YES

Marine pollutant

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)

14.4 Packing group

Ш Packing group ERG No 171

14.5 Environmental hazards YES

Marine pollutant

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 Ш

14.5 Environmental hazards YES

Marine pollutant

14.6 Special precautions for user

F-A, S-F **EmS**

For personal protection see section 8.

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<u>IATA</u>

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

14.6 Special precautions for user

For personal protection see section 8.

14.5 Environmental hazards

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.

YES

SECTION 15: Regulatory information

15.1 Notification status

Inventory Information	Status
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

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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.

SECTION 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.

Date Prepared: 04/23/2015

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

- TWA 8-hour, time-weighted average

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- 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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. Such information is only given as a guidance to help the user handle, use, process, store, transport, dispose, and release the product in satisfactory safety conditions and is not to be considered as a warranty or quality specification. It should be used in conjunction with technical sheets but do not replace them. Thus, the information only relates to the designated specific product and may not be applicable if such product is used in combination with other materials or in any other manufacturing process, unless otherwise specifically indicated. It does not release the user from ensuring he is in conformity with all regulations linked to its activity.

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