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

1.1 Product identifier

- Trade name SODIUM FLUORIDE Powder

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

Uses of the Substance / Mixture

- Welding and soldering agents
- Metallurgy.
- Glass industry
- Dental application

- Water treatment

1.3 Details of the supplier of the safety data sheet

Company

SOLVAY FLUORIDES, LLC
3737 Buffalo Speedway,
Suite 800,
Houston, TX 77098
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 3 H301: Toxic if swallowed.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Pictogram

Signal Word

- Danger

Hazard Statements

- H301 Toxic if swallowed.

Precautionary Statements

Prevention

- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.

Response

- P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.

Storage

- P405 Store locked up.

Disposal

- P501 Dispose of contents/ container to an approved waste disposal plant.

Additional Labeling

- The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 100 %

2.3 Other hazards which do not result in classification

- Toxic if swallowed.
- Irritating to eyes and skin.
- Hazardous decomposition products formed under fire conditions.
- Contact with acids liberates very toxic gas.

SECTION 3: Composition/information on ingredients

3.1 Substance

Hazardous Ingredients and Impurities

Chemical Name	Identification number CAS-No.	Concentration [%]
sodium fluoride	7681-49-4	>= 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

- Remove the subject from dusty environment and let him blow his nose.
- 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 immediately with soap and plenty of water.
- If symptoms persist, call a physician.

In case of eye contact

- Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- Consult a physician.

In case of ingestion

- Immediate medical attention is required.
- Take victim immediately to hospital.

- If victim is conscious:
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.

- If victim is unconscious:
- Artificial respiration and/or oxygen may be necessary.

4.2 Most important symptoms and effects, both acute and delayed

In case of inhalation

Effects
- Irritating to mucous membranes
- At high concentrations:
- risk of hypocalcemia with nervous problems (tetany) and cardiac arrhythmia

Repeated or prolonged exposure
- Risk of sore throat, nose bleeds
- Nose bleeding
- chronic bronchitis

In case of skin contact

Symptoms
- Irritation

Effects

Repeated or prolonged exposure
- Causes burns.

In case of eye contact

Symptoms
- Redness
- Lachrymation

Effects
- Severe eye irritation
- Risk of temporary eye lesions.

In case of ingestion

Symptoms
- Severe irritation
- Salivation
- Nausea
- Vomiting
- Abdominal pain
- Diarrhea

Effects
- risk of hypocalcemia with nervous problems (tetany) and cardiac arrhythmia
- Risk of convulsions, loss of consciousness, deep coma and cardiopulmonary arrest.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

Exposure to decomposition products
- Call a physician immediately.
- Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point	Not applicable
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

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting

- The product is not flammable.
- Not combustible.
- Heating can release hazardous gases.

Hazardous combustion products:
- Hydrogen fluoride
- The release of other hazardous decomposition products is possible.

5.3 Advice for firefighters

Special protective equipment for fire-fighters

- In the event of fire, wear self-contained breathing apparatus.
- Fire fighters must wear fire resistant personnel protective equipment.
- Wear chemical resistant oversuit

Further information

- Control the use of water due to environmental risk (see section 6).

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel

- Avoid dust formation.

Advice for emergency responders

- Sweep up to prevent slipping hazard.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

- Sweep up and shovel into suitable containers for disposal.
- Avoid dust formation.
- Keep in properly labeled containers.
- Keep in suitable, closed containers for disposal.
- Treat recovered material as described in the section "Disposal considerations".

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

- Used in closed system
- Handle small quantities under a lab hood.
- Use only in well-ventilated areas.
- Use only equipment and materials which are compatible with the product.
- Keep away from heat.

Hygiene measures

- Eye wash bottles or eye wash stations in compliance with applicable standards.
- Use only in an area equipped with a safety shower.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Keep in a dry place.
- Store in original container.
- Keep container closed.

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

- Keep away from:
- Incompatible products

Packaging material

Suitable 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
sodium fluoride	TWA	2.5 mg/m3	National Institute for Occupational Safety and Health
	Expressed as :Fluorine		
sodium fluoride	TWA	2.5 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
	CAS number varies with compoundExpressed as :Fluorine		
sodium fluoride	TWA	2.5 mg/m3	American Conference of Governmental Industrial Hygienists
	Expressed as :Fluorine		

NIOSH IDLH (Immediately Dangerous to Life or Health Concentrations)

Ingredients	CAS-No.	Concentration
sodium fluoride	7681-49-4	250 milligram per cubic meter

Biological Exposure Indices

Ingredients	Value type	Value	Basis
sodium fluoride	BEI	2 mg/l Fluoride Urine Prior to shift (16 hours after exposure ceases)	American Conference of Governmental Industrial Hygienists
sodium fluoride	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
- Ensure adequate ventilation.
- Provide appropriate exhaust ventilation at places where dust is formed.
- Refer to protective measures listed in sections 7 and 8.
- Apply technical measures to comply with the occupational exposure limits.

Individual protection measures

Respiratory protection
- In case of insufficient ventilation, wear suitable respiratory equipment.
- When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Self-contained breathing apparatus in confined spaces/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use only respiratory protection that conforms to international/ national standards.
- Use NIOSH approved respiratory protection.

Hand protection
- Protective gloves - impervious chemical resistant:

Suitable material
- PVC
- Neoprene
- Natural Rubber

Eye protection
- Chemical resistant goggles must be worn.
- Dust proof goggles obligatory.

Skin and body protection
- Long sleeved clothing
- Apron/boots in case of dusts.
- Neoprene
- Natural Rubber

Hygiene measures
- Eye wash bottles or eye wash stations in compliance with applicable standards.
- Use only in an area equipped with a safety shower.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

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

Appearance	Form:	crystalline, powder
	Physical state:	solid
	Color:	white
		white
Particle size		> 0.1 mm (90 %)
Odor		odorless
Odor Threshold		no data available

pH	7.4 (68 °F (20 °C)) saturated aqueous solution
Melting point/range	ca. 1818 °F (992 °C)
Boiling point/boiling range	ca. 3,092 °F (1,700 °C)
Flash point	Not applicable
Evaporation rate (Butylacetate = 1)	Not applicable
Flammability (solid, gas)	The product is not flammable.
Flammability / Explosive limit	Explosiveness: Not explosive
Autoignition temperature	Not applicable
Vapor pressure	1.00 mmHg (1.33 hPa) (1,971 °F (1,077 °C))
Vapor density	Not applicable
Density	Bulk density: 1,000 - 1,400 kg/m3
Solubility	Water solubility : 42 g/l (68 °F (20 °C))
Partition coefficient: n-octanol/water	Not applicable
Thermal decomposition	no data available
Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	Not considered as oxidizing.

9.2 Other information

Molecular weight	42 g/mol

SECTION 10: Stability and reactivity

10.1 Reactivity

- Incompatible with acids.

10.2 Chemical stability

- Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

- Contact with acids liberates very toxic gas.

10.4 Conditions to avoid

- Exposure to moisture.
- To avoid thermal decomposition, do not overheat.

10.5 Incompatible materials

- Strong acids
- glass

10.6 Hazardous decomposition products

- Hydrogen fluoride
- The release of other hazardous decomposition products is possible.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity	LD50 : 52 - 250 mg/kg - Rat
Acute inhalation toxicity	no data available
Acute dermal toxicity	LD 10 : ca. 300 mg/kg - Mouse
Acute toxicity (other routes of administration)	no data available

Skin corrosion/irritation

Rat
Skin irritation

Serious eye damage/eye irritation

Rabbit
Eye irritation

Respiratory or skin sensitization

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
NOAEL parent: 10 - 14 mg/kg
Rabbit
NOAEL parent: 14 mg/kg
not significant
Developmental Toxicity

Developmental Toxicity/Teratogenicity no data available

STOT

STOT-single exposure no data available

STOT-repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure according to GHS criteria.
Oral 180 Days - Mouse
LOAEL: 50 ppm
Target Organs: Skeleton
Subchronic toxicity
Inhalation - Rat
NOAEL: 1 ppm
Target Organs: Respiratory Tract, Bone, Teeth

Aspiration toxicity no data available

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish

LC50 - 96 h : 51 mg/l - Fishes, Salmo gairdneri
static test

Fresh water

Acute toxicity to daphnia and other aquatic invertebrates.

EC50 - 48 h : 26 mg/l - Daphnia magna (Water flea)
Fresh water

EC50 - 96 h : 10.5 mg/l - Daphnia magna (Water flea)
salt water

Chronic toxicity to fish

NOEC: 4 mg/l - 21 Days - Oncorhynchus mykiss (rainbow trout)
static test
Fresh water

Chronic toxicity to daphnia and other aquatic invertebrates.

NOEC: 8.9 mg/l - 21 Days - Daphnia magna (Water flea)
static test
Fresh water

12.2 Persistence and degradability

Abiotic degradation

Photodegradation

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)

Not applicable

12.4 Mobility in soil

Adsorption potential (Koc)

Air
mobility as solid aerosols

Water
Solubility(ies)
Mobility

Soil/sediments
adsorption on mineral and organic soil constituents

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

no data available

Ecotoxicity assessment

Acute aquatic toxicity

Harmful to aquatic organisms.

Chronic aquatic toxicity

. low chronic toxicity.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- In accordance with local and national regulations.
- Dilute with plenty of water.

- Can be eliminated from water by precipitation.
- Filtrate the product and send the cake to a landfill for industrial waste.
- Discharge liquid filtrate to a wastewater treatment system

Waste Code

- Environmental Protection Agency
- Hazardous Waste – NO

Advice on cleaning and disposal of packaging

- Empty containers.
- Dispose of as unused product.
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.
- Where possible recycling is preferred to disposal or incineration.
- In accordance with local and national regulations.

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.

DOT

14.1 UN number	UN 1690
14.2 Proper shipping name	SODIUM FLUORIDE, SOLID
14.3 Transport hazard class Label(s)	6.1 6.1
14.4 Packing group Packing group ERG No	 III 154
14.5 Environmental hazards **Marine pollutant**	NO

TDG

14.1 UN number	UN 1690
14.2 Proper shipping name	SODIUM FLUORIDE, SOLID
14.3 Transport hazard class Label(s)	6.1 6.1
14.4 Packing group Packing group ERG No	 III 154
14.5 Environmental hazards **Marine pollutant**	NO

NOM

14.1 UN number	UN 1690
14.2 Proper shipping name	SODIUM FLUORIDE, SOLID
14.3 Transport hazard class Label(s)	6.1 6.1
14.4 Packing group Packing group ERG No	 III 154
14.5 Environmental hazards **Marine pollutant**	NO

IMDG

14.1 UN number	UN 1690
14.2 Proper shipping name	SODIUM FLUORIDE, SOLID
14.3 Transport hazard class Label(s)	6.1 6.1
14.4 Packing group Packing group	 III
14.5 Environmental hazards **Marine pollutant**	NO
14.6 Special precautions for user EmS	 F-A , S-A

For personal protection see section 8.

IATA

14.1 UN number	UN 1690
14.2 Proper shipping name	SODIUM FLUORIDE, SOLID
14.3 Transport hazard class Label(s):	6.1 6.1
14.4 Packing group Packing group	 III
Packing instruction (cargo aircraft) Max net qty / pkg Packing instruction (passenger aircraft) Max net qty / pkg	677 200.00 kg 670 100.00 kg
14.5 Environmental hazards	NO
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.

SECTION 15: Regulatory information

15.1 Notification status

Inventory Information	Status
United States TSCA Inventory	- Listed on Inventory
Mexico INSQ (INSQ)	- In compliance with the 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	yes
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)

Ingredients	CAS-No.	Reportable quantity
sodium fluoride	7681-49-4	1000 lb

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	3 serious
Flammability	0 minimal
Instability or Reactivity	0 minimal
Special Notices	None

HMIS (Hazardous Materials Identification System (Paint & Coating)) - Classification

Health	3 serious
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: 11/05/2015

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

- TWA	8-hour, time-weighted average
- 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.