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

1.1 Product identifier

- Trade name NATFSI

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

Uses of the Substance / Mixture

- Scientific research and development
- Manufacture of computer, electronic and optical products, electrical equipment
- Antistatic agents

Uses advised against

- FOR RESEARCH AND DEVELOPMENT USE ONLY. This is an experimental material which should be handled or used by, or directly under the supervision of, a technically qualified individual. Its toxicological, physical and chemical properties have not been completely investigated.

1.3 Details of the supplier of the safety data sheet

Company

Solvay USA Inc.,
504 CARNEGIE CENTER
PRINCETON NJ 08540, USA
Tel. : +1 609 860 4000
Fax : +1 609 860 2241

1.4 Emergency telephone

FOR EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CONTACT CHEMTREC (24-Hour Number): 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)

Combustible dust	May form combustible dust concentrations in air.
Acute toxicity, Category 3	H301: Toxic if swallowed.
Skin corrosion, Category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.

2.2 Label elements

HCS 2012 (29 CFR 1910.1200)

Pictogram

Signal Word

- Danger

Hazard Statements

- May form combustible dust concentrations in air.
- H301 Toxic if swallowed.
- H314 Causes severe skin burns and eye damage.

Precautionary Statements

Prevention

- P260 Do not breathe dusts or mists.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

- P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
- P363 Wash contaminated clothing before reuse.

Storage

- P405 Store locked up.

Disposal

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

2.3 Other hazards which do not result in classification

- H402: Harmful to aquatic life.
- H412: Harmful to aquatic life with long lasting effects.

SECTION 3: Composition/information on ingredients

3.1 Substance

Hazardous Ingredients and Impurities

Chemical name	Identification number CAS-No.	Concentration [%]
Sodium bis(trifluoromethane)sulfonimide	91742-21-1	>= 99 - <= 100

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

General advice

- Show this material safety data sheet to the doctor in attendance.
- First responder needs to protect himself.
- Place affected apparel in a sealed bag for subsequent decontamination.

In case of inhalation

- Move to fresh air.
- Keep at rest.
- If breathing is difficult, give oxygen.
- Consult a physician.

In case of skin contact

- Take off contaminated clothing and shoes immediately.
- Wash immediately and thoroughly for a prolonged period (at least 15 minutes).
- Consult a physician.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- Get immediate medical advice/ attention.

- If it is necessary to transport the patient to a physician and the eye needs to be bandaged, use a dry sterile cloth pad and cover both eyes.

In case of ingestion

- Do NOT induce vomiting.
- Do not give anything to drink.
- Get immediate medical advice/ attention.

4.2 Most important symptoms and effects, both acute and delayed

Effects

- Skin contact may aggravate existing skin disease
- Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

- Treat symptomatically.
- There is no specific antidote available.

SECTION 5: Firefighting measures

Flash point	Not applicable, solid for which the melting point is > 100 °C / 212°F
Autoignition temperature	No data available
Flammability / Explosive limit	No data available

5.1 Extinguishing media

Suitable extinguishing media

- Foam
- powder
- Carbon dioxide (CO2)

5.2 Special hazards arising from the substance or mixture

- Risk of dust explosion.
- On combustion, toxic gases are released.

5.3 Advice for firefighters

Special protective equipment for fire-fighters

- Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

Specific fire fighting methods

- Evacuate personnel to safe areas.
- Stay upwind.
- Do not inhale fumes.
- Cool containers/tanks with water spray.
- Use appropriate means for fighting adjacent fires.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Remove all sources of ignition.
- Avoid dust formation.
- Avoid contact with eyes, skin, and respiratory system.
- Use personal protective equipment.
- For personal protection see section 8.
- Mark the contaminated area with signs and prevent access to unauthorized personnel.
- Ventilate the area.

6.2 Environmental precautions

- Do not allow uncontrolled discharge of product into the environment.

- Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies

6.3 Methods and materials for containment and cleaning up

Recovery

- Shovel or sweep up.
- Avoid dust formation.
- Non-sparking tools should be used.
- Pick up and transfer to properly labeled containers.
- Keep in suitable, closed containers for disposal.

Neutralization
- Cover with dry sodium carbonate.
- Calcium hydroxide

Decontamination / cleaning
- Wash nonrecoverable remainder with large amounts of water.
- Recover the cleaning water for subsequent disposal.
- Ventilate the area.

Disposal
- Treat recovered material as described in the section "Disposal considerations".

6.4 Reference to other sections

- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 13. DISPOSAL CONSIDERATIONS

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Keep away from fire, sparks and heated surfaces.
- Potential dust explosion hazard.
- Avoid dust formation.
- Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations.
- It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment.
- Non-sparking tools should be used.
- Blanket with inert gas.
- Ground/bond container and receiving equipment.
- Avoid any direct contact with the product.
- Use only with adequate ventilation/personal protection.
- For personal protection see section 8.
- The product must only be handled by specifically trained employees.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Use clean, well maintained personal protection equipment.
- Contaminated work clothing should not be allowed out of the workplace.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

- Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.

- Keep in a cool, well-ventilated place.
- Keep away from open flames, hot surfaces and sources of ignition.
- Keep container tightly closed.

- Keep away from: Strong oxidizing agents

Packaging material

Suitable material
- Polyethylene
- Double Polyethylene bags inside Aluminum thermosealed bags

Unsuitable material
- Certain plastic materials.

7.3 Specific end use(s)

- no data available

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

Contains no substances with occupational exposure limit values.

Components with workplace occupational exposure limits

Components	Value type	Value	Basis
Particulates not otherwise regulated	PEL	15 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
	Form of exposure : Total dust		
Particulates not otherwise regulated	PEL	5 mg/m3	Occupational Safety and Health Administration - Table Z-1 Limits for Air Contaminants
	Form of exposure : Respirable fraction		

8.2 Exposure controls

Control measures

Engineering measures

- Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures :

- Facilities and equipment easily cleanable.
- Effective exhaust ventilation system

- Avoid dust formation.
- Provide appropriate exhaust ventilation at places where dust is formed.
- It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment.
- Maintain air concentrations below occupational exposure standards.

Individual protection measures

Respiratory protection

- When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations.
- General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
- Use a respirator with an approved filter if a risk assessment indicates this is necessary.

Hand protection

- Where there is a risk of contact with hands, use appropriate gloves
- Gloves must be inspected prior to use.
- Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Suitable material

- PVC

Eye protection

- Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.
- Eye contact should be prevented through the use of:

- Safety goggles

Skin and body protection

- Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Wear as appropriate:
- Long sleeved clothing
- Dust impervious protective suit
- disposable one-piece overall with integral hood
- Remove and wash contaminated apparel.

Hygiene measures

- Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this materials:
- 1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this

material is stored.
- 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
- 3) Wash exposed skin promptly to remove accidental splashes or contact with material.

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Use clean, well maintained personal protection equipment.
- Contaminated work clothing should not be allowed out of the workplace.

Protective measures
- Selection of appropriate personal protective equipment should be based on an evaluation of the performance characteristics of the protective equipment relative to the task(s) to be performed, conditions present, duration of use, and the potential hazards, and/or risks that may occur during use.
- The protective equipment must be selected in accordance with current local standards and in cooperation with the supplier of the protective equipment.

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:	powder
	Physical state:	solid
	Color:	white
Odor	odorless	
Odor Threshold	No data available	
Molecular weight	303.14 g/mol	
pH	5.0 - 9.0 (10 g/l)	
Melting point/freezing point	496 - 500 °F (258 - 260 °C)	
Initial boiling point and boiling range	No data available	
Flash point	Not applicable, solid for which the melting point is > 100 °C / 212°F	
Evaporation rate (Butylacetate = 1)	No data available	
Flammability (solid, gas)	May form combustible dust concentrations in air.	
Flammability / Explosive limit	No data available	
Autoignition temperature	No data available	
Vapor pressure	No data available	
Vapor density	No data available	
Density	No data available	
Relative density	No data available	

Solubility	Water solubility: completely soluble
Partition coefficient: n-octanol/water	No data available
Decomposition temperature	> 572 °F (> 300 °C)
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	The substance or mixture is not classified as oxidizing. Method: EU Test Guideline A17 Structure-activity relationship (SAR)

9.2 Other information

Hygroscopicity	strongly hygroscopic

SECTION 10: Stability and reactivity

10.1 Reactivity

- Not classified as a reactivity hazard.

10.2 Chemical stability

- Stable at room temperature.
- Stable under normal conditions.

10.3 Possibility of hazardous reactions

- Hazardous polymerization does not occur.

10.4 Conditions to avoid

- Avoid dust formation.
- Risk of dust explosion.
- Keep away from flames and sparks.

10.5 Incompatible materials

- Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products

- On thermal decomposition (pyrolysis) releases:
- Toxic Gas
- hydrofluoric acid
- Nitrogen oxides (NOx)
- Sulfur oxides
- (Carbon oxides (CO + CO2)).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity	By analogy Toxic if swallowed.
Acute inhalation toxicity	May cause mechanical irritation to the respiratory tract
Acute dermal toxicity	By analogy Toxic in contact with skin.
Acute toxicity (other routes of administration)	No data available
Skin corrosion/irritation	Causes burns. By analogy
Serious eye damage/eye irritation	Not applicable Corrosive
Respiratory or skin sensitization	Magnusson and Kligman method - Guinea pig By analogy Not classified as sensitizing by skin contact Unpublished internal reports

Mutagenicity

Genotoxicity in vitro	By analogy Test results are based on the dry product. Product is not considered to be genotoxic internal evaluation
Genotoxicity in vivo	No data available
Carcinogenicity	No data available

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

NTP
IARC
OSHA

Toxicity for reproduction and development

Toxicity to reproduction / fertility	No data available
Developmental Toxicity/Teratogenicity	No data available

STOT

STOT-single exposure	No data available
STOT-repeated exposure	No data available
Experience with human exposure	No data available
Aspiration toxicity	No data available

SECTION 12: Ecological information

12.1 Toxicity

Aquatic Compartment

Acute toxicity to fish	LC50 - 96 h : 88.4 mg/l - Oncorhynchus mykiss (rainbow trout) By analogy Unpublished internal reports
Acute toxicity to daphnia and other aquatic invertebrates	EC50 - 48 h : > 100 mg/l - Daphnia magna (Water flea) By analogy Unpublished internal reports
Toxicity to aquatic plants	EC50 - 72 h : 178 mg/l - Scenedesmus subspicatus The product itself has not been tested. Unpublished internal reports
Toxicity to microorganisms	EC50 - 3 h : > 1,000 mg/l - activated sludge The product itself has not been tested. Unpublished internal reports
Chronic toxicity to fish	No data available
Chronic toxicity to daphnia and other aquatic invertebrates	No data available

12.2 Persistence and degradability

Abiotic degradation	No data available
Physical- and photo-chemical elimination	No data available

Biodegradation

Biodegradability	Ultimate aerobic biodegradability Not biodegradable. Unpublished internal reports

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water	Not potentially bioaccumulable
Bioconcentration factor (BCF)	No data available

12.4 Mobility in soil

Adsorption potential (Koc)	No data available
Known distribution to environmental compartments	Ultimate destination of the product: Water

12.5 Results of PBT and vPvB assessment No data available

12.6 Other adverse effects

Ecotoxicity assessment

Short-term (acute) aquatic hazard	By analogy Harmful to aquatic organisms.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product Disposal

- Chemical additions, processing or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

- Incinerate directly or in combination with a flammable solvent.
- Dispose of wastes in an approved waste disposal facility.

Prohibition

- Do not dispose of with domestic refuse.
- Should not be released into the environment.

Waste Code

- RCRA Hazardous Waste (40 CFR 302)
- Hazardous Waste – NO

Advice on cleaning and disposal of packaging

- Dispose of in accordance with local 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 2923
14.2 Proper shipping name	CORROSIVE SOLIDS, TOXIC, N.O.S. (Sodium bis(trifluoromethane)sulfonimide)
14.3 Transport hazard class	8
Subsidiary hazard class	6.1
Label(s)	8 (6.1)
14.4 Packing group	
Packing group	II
ERG No	154
14.5 Environmental hazards	NO
Marine pollutant	

TDG

14.1 UN number	UN 2923
14.2 Proper shipping name	CORROSIVE SOLID, TOXIC, N.O.S. (Sodium

	bis(trifluoromethane)sulfonimide)
14.3 Transport hazard class	8
Subsidiary hazard class	6.1
Label(s)	8 (6.1)
14.4 Packing group	
Packing group	II
ERG No	154
14.5 Environmental hazards	NO
Marine pollutant	

NOM

No data available

IMDG

14.1 UN number	UN 2923
14.2 Proper shipping name	CORROSIVE SOLID, TOXIC, N.O.S. (Sodium bis(trifluoromethane)sulfonimide)
IMDG Code segregation group	Acids (SGG1)
14.3 Transport hazard class	8
Subsidiary hazard class	6.1
Label(s)	8 (6.1)
14.4 Packing group	
Packing group	II
14.5 Environmental hazards	NO
Marine pollutant	
14.6 Special precautions for user	
EmS	F-A , S-B

For personal protection see section 8.

14.7 Transport in bulk vessels according to IMO instruments

No data available

IATA

14.1 UN number	UN 2923
14.2 Proper shipping name	CORROSIVE SOLID, TOXIC, N.O.S. (Sodium bis(trifluoromethane)sulfonimide)
14.3 Transport hazard class	8
Subsidiary hazard class:	6.1
Label(s):	8 (6.1)
14.4 Packing group	
Packing group	II
Packing instruction (cargo aircraft)	863
Max net qty / pkg	50.00 kg
Packing instruction (passenger aircraft)	859
Max net qty / pkg	15.00 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

- no data available

15.2 Federal Regulations

US. EPA EPCRA SARA Title III

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

Combustible dust	Yes
Acute toxicity (any route of exposure)	Yes
Skin corrosion or irritation	Yes
Serious eye damage or eye irritation	Yes

The categories not mentioned are not relevant for the product.

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)
This material does not contain any components with a section 302 EHS TPQ.

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

Date Prepared: 08/12/2020

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

- PEL: Permissible exposure limit (PEL)
- TWA: 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
- ADR: European Agreement on International Carriage of Dangerous Goods by Road.
- ADN: European Agreement on the International Carriage of Dangerous Goods by Inland Waterways.
- RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
- IATA: International Air Transport Association.
- ICAO-TI: Technical Specification for Safe Transport of Dangerous Goods by Air.
- IMDG: International Maritime Dangerous Goods.
- TWA: Time weighted average
- ATE: Estimated value of acute toxicity
- EC: European Community number
- CAS: Chemical Abstracts Service.
- LD50: Substance that causes 50% (half) death in the test animals group (Median Fatal Dose).
- LC50: Substance concentration causing 50% (half) death in the test animals group.
- EC50: Effective Concentration of the substance causing the maximum of 50%.
- PBT: Persistent, Bioaccumulative and Toxic substance.
- vPvB: Very Persistent and Very Bioaccumulative.
- SEA: Classification, labeling, packaging regulation
- DNEL: Derived No Effect Level
- PNEC: Predicted No Effect Concentration
- BHOT: Specific Target Organ Toxicity

Not all acronyms listed above are referenced in this SDS.

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.