



# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/22/2013

Version 1.1

## SECTION 1. Identification

### Product identifier

|                |                                                         |
|----------------|---------------------------------------------------------|
| Product number | 818164                                                  |
| Product name   | Tetra-n-butylammonium fluoride trihydrate for synthesis |

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

|                 |                        |
|-----------------|------------------------|
| Identified uses | Chemical for synthesis |
|-----------------|------------------------|

### Details of the supplier of the safety data sheet

|         |                                                                                                                                                                                                                                   |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Company | EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   SDS Phone Support: +1-978-715-1335   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                     |                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------|
| Emergency telephone | 800-424-9300 CHEMTREC (USA)<br>+1-703-527-3887 CHEMTREC (International)<br>24 Hours/day; 7 Days/week |
|---------------------|------------------------------------------------------------------------------------------------------|

## SECTION 2. Hazards identification

### GHS Classification

Acute toxicity, Category 3, Oral, H301

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*

Danger

*Hazard Statements*

H301 Toxic if swallowed.

*Precautionary Statements*

P260 Do not breathe dust.

P262 Do not get in eyes, on skin, or on clothing.

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

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818164

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Product name

Tetra-n-butylammonium fluoride trihydrate for synthesis

## OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

## Other hazards

Water Reactive

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## SECTION 3. Composition/information on ingredients

|            |                                                                                       |                                                                        |
|------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Formula    | $(\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2)_4\text{NF} \cdot 3\text{H}_2\text{O}$ | $\text{C}_{16}\text{H}_{36}\text{FN} \cdot 3\text{H}_2\text{O}$ (Hill) |
| CAS-No.    | 87749-50-6                                                                            |                                                                        |
| Molar mass | 315.49 g/mol                                                                          |                                                                        |

## Hazardous ingredients

*Chemical Name ( Concentration)*

CAS-No.

*tetrabutylammonium fluoride trihydrate ( >= 90 % - <= 100 % )*

87749-50-6

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## SECTION 4. First aid measures

### Description of first-aid measures

#### *Inhalation*

After inhalation: fresh air.

#### *Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing.

#### *Eye contact*

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.

#### *Ingestion*

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

Never give anything by mouth to an unconscious person.

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

Irritation and corrosion, respiratory arrest, Convulsions, death

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

No information available.

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## SECTION 5. Fire-fighting measures

### Extinguishing media

*Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

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### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

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

Combustible material

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

nitrogen oxides, Hydrogen fluoride

### **Advice for firefighters**

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

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

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

Advice for non-emergency personnel: Avoid substance contact. Avoid inhalation of dusts.

Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### **Environmental precautions**

Do not empty into drains.

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

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

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## **SECTION 7. Handling and storage**

### **Precautions for safe handling**

Observe label precautions.

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

Dry. Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

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### SECTION 8. Exposure controls/personal protection

#### Exposure limit(s)

##### *Ingredients*

| Basis                                                    | Value                        | Threshold limits      | Remarks                 |
|----------------------------------------------------------|------------------------------|-----------------------|-------------------------|
| <i>tetrabutylammonium fluoride trihydrate 87749-50-6</i> |                              |                       |                         |
| ACGIH                                                    | Time Weighted Average (TWA): | 2.5 mg/m <sup>3</sup> | Expressed as: as F      |
| OSHA_TRANS                                               | PEL:                         | 2.5 mg/m <sup>3</sup> | Expressed as: as F      |
| Z1A                                                      | Time Weighted Average (TWA): | 2.5 mg/m <sup>3</sup> | Expressed as: as F      |
| OSHA/Z2                                                  | Time Weighted Average (TWA): | 2.5 mg/m <sup>3</sup> | Form of exposure: Dust. |

#### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

#### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

#### *Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Do not eat, drink or smoke when using this product. Work under hood. Do not inhale substance/mixture.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

#### *Other protective equipment:*

protective clothing

#### *Respiratory protection*

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

### SECTION 9. Physical and chemical properties

|                |           |
|----------------|-----------|
| Physical state | crystals  |
| Color          | colorless |
| Odor           | odorless  |

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|                                        |                              |
|----------------------------------------|------------------------------|
| Odor Threshold                         | No information available.    |
| pH                                     | No information available.    |
| Melting point                          | 62 - 63 °C                   |
| Boiling point                          | No information available.    |
| Flash point                            | No information available.    |
| Evaporation rate                       | No information available.    |
| Flammability (solid, gas)              | No information available.    |
| Lower explosion limit                  | No information available.    |
| Upper explosion limit                  | No information available.    |
| Vapor pressure                         | No information available.    |
| Relative vapor density                 | No information available.    |
| Relative density                       | No information available.    |
| Water solubility                       | at 68 °F ( 20 °C)<br>soluble |
| Partition coefficient: n-octanol/water | No information available.    |
| Autoignition temperature               | No information available.    |
| Decomposition temperature              | No information available.    |
| Viscosity, dynamic                     | No information available.    |
| Explosive properties                   | No information available.    |

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### SECTION 10. Stability and reactivity

#### Reactivity

See below

#### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

#### Possibility of hazardous reactions

Hydrogen fluoride, acids

#### Conditions to avoid

Strong heating (decomposition).

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## Incompatible materials

no information available

## Hazardous decomposition products

in the event of fire: See section 5.

## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Inhalation, Eye contact, Skin contact, Ingestion

#### *Acute oral toxicity*

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach., Pain, Vomiting, Convulsions, shock

#### *Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

#### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

#### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

### Carcinogenicity

|       |                                                                                                                                                          |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| IARC  | No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| OSHA  | No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.             |
| NTP   | No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.                 |
| ACGIH | No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.            |

### Further information

Quantitative data on the toxicity of this product are not available.

Further toxicological data:

Systemic effects:

Cardiac irregularities, respiratory arrest, death

Further data:

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### Ecotoxicity

No information available.

### Persistence and degradability

No information available.

### Bioaccumulative potential

No information available.

### Mobility in soil

No information available.

### *Additional ecological information*

We have no quantitative data concerning the ecological effects of this product.

Further information on ecology

Discharge into the environment must be avoided.

## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

## SECTION 14. Transport information

### Land transport (DOT)

|                           |                                                                           |
|---------------------------|---------------------------------------------------------------------------|
| UN number                 | UN 2811                                                                   |
| Proper shipping name      | TOXIC SOLID, ORGANIC, N.O.S. ( TETRA-N-BUTYLAMMONIUM FLUORIDE TRIHYDRATE) |
| Class                     | 6.1                                                                       |
| Packing group             | II                                                                        |
| Environmentally hazardous | --                                                                        |

### Air transport (IATA)

|                              |                                                                           |
|------------------------------|---------------------------------------------------------------------------|
| UN number                    | UN 2811                                                                   |
| Proper shipping name         | TOXIC SOLID, ORGANIC, N.O.S. ( TETRA-N-BUTYLAMMONIUM FLUORIDE TRIHYDRATE) |
| Class                        | 6.1                                                                       |
| Packing group                | II                                                                        |
| Environmentally hazardous    | --                                                                        |
| Special precautions for user | no                                                                        |

### Sea transport (IMDG)

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|                              |                                                                           |
|------------------------------|---------------------------------------------------------------------------|
| UN number                    | UN 2811                                                                   |
| Proper shipping name         | TOXIC SOLID, ORGANIC, N.O.S. ( TETRA-N-BUTYLAMMONIUM FLUORIDE TRIHYDRATE) |
| Class                        | 6.1                                                                       |
| Packing group                | II                                                                        |
| Environmentally hazardous    | --                                                                        |
| Special precautions for user | yes                                                                       |
| EmS                          | F-A S-A                                                                   |

## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Water Reactive

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

#### SARA 311/312 Hazards

Reactivity Hazard

#### SARA 313

SARA 313: 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.

#### SARA 302

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

#### Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

#### DEA List I

Not listed

#### DEA List II

Not listed

## US State Regulations

### Massachusetts Right To Know

Remarks

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right To Know

*Ingredients*

tetrabutylammonium fluoride trihydrate

### New Jersey Right To Know

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## *Ingredients*

tetrabutylammonium fluoride trihydrate

## **California Prop 65 Components**

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

## **Notification status**

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

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## **SECTION 16. Other information**

### **Training advice**

Provide adequate information, instruction and training for operators.

### **Full text of H-Statements referred to under sections 2 and 3.**

H301 Toxic if swallowed.

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

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 08/22/2013

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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