

1. Product and company identification

Product identifier

Trade name: 637F1 - Fluxing Agent

This safety data sheet pertains to the following products:

637F1=0.100 = Flussmittel

637F1=0.500 = Flussmittel

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

General use: Flux agent for soldering, for orthopedic procedures.
Reserved for industrial and professional use.

Details of the supplier of the safety data sheet

Company name: Otto Bock Health Care
Street/POB-No.: 3820 W. Great Lakes Drive
Postal Code, city: Salt Lake City, UT 84120
USA

WWW: www.ottobockus.com

Telephone: +1 (801) 956-2400

Telefax: +1 (801) 956-2401

Department responsible for information:
Quality Department,
Telephone: +1 (801) 954-2304 (7 AM – 3 PM, Mountain Time),
Email: USRegulatory@ottobock.com

Additional information: Corporate headquarters:
Ottobock SE & Co. KGaA
Max-Näder-Straße 15
Duderstadt
Germany

Emergency phone number

CHEMTREC, Telephone: +1 (800) 424-9300

Transport:

CONSULTANK Lutz Harder GmbH (Contract QUALI003)

Telephone: +49 (0)178-4337434 (from USA: 01149 178 4337434)

2. Hazards identification

Emergency overview

Appearance: Form: solid, pasty

Color: white

Odor: characteristic

Classification: Acute Toxicity - oral - Category 4. Acute Toxicity - dermal - Category 4.
Acute Toxicity - inhalative - Category 4. Skin Irritation - Category 2. Eye Irritation -
Category 2A. Specific Target Organ Toxicity (Single Exposure) - Category 3.

Hazard symbols:



Signal word:

Warning

Hazard statements:

Harmful if swallowed.
Harmful in contact with skin.
Causes skin irritation.
Causes serious eye irritation.
Harmful if inhaled.
May cause respiratory irritation.

Precautionary statements:

Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.
IF ON SKIN: Wash with plenty of water/soap.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
Store in a well-ventilated place. Keep container tightly closed.

Regulatory status

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

Hazards not otherwise classified

Danger of cutaneous absorption.
On heating or in case of fire toxic gases may form.
see section 11: Toxicological information

3. Composition / Information on ingredients

Chemical characterization: Paste, contains water (35%).

Relevant ingredients:

CAS No.	Designation	Concentration	Classification
CAS 14075-53-7	Potassium tetrafluoroborate	< 50 %	Skin Irritation - Category 2. Eye Irritation - Category 2A. Specific Target Organ Toxicity (Single Exposure) - Category 3.
CAS 7789-23-3	Potassium fluoride	< 10 %	Acute Toxicity - oral - Category 3. Acute Toxicity - dermal - Category 3. Acute Toxicity - inhalative - Category 3.

4. First aid measures

General information:

First aider: Pay attention to self-protection!
In case of accident or if you feel unwell, seek medical advice immediately.

In case of inhalation:	Provide fresh air. Move victim to fresh air; if necessary, provide artificial respiration or oxygen. Seek medical attention. If victim is at risk of losing consciousness, position and transport on their side.
Following skin contact:	Immediately clean with water and soap followed by thorough rinsing. Take off immediately all contaminated clothing. Seek medical attention.
After eye contact:	Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Subsequently consult an ophthalmologist.
After swallowing:	Rinse mouth and drink large quantities of water. Immediately get medical attention. Put victim at rest and keep warm.

Most important symptoms/effects, acute and delayed

Harmful. Irritant.
After contact with skin: Danger of cutaneous absorption.
After eye contact: Risk of corneal clouding.

Information to physician

It is recommended to consult a doctor experienced in the treatment of lesions caused by hydrofluoric acid.
Symptoms of poisoning may develop several hours following exposure. Victim should be under medical observation for at least 48 hours after exposure.

5. Fire fighting measures

Flash point/flash point range:

No data available

Auto-ignition temperature: not self-igniting

Suitable extinguishing media:

Co-ordinate fire-fighting measures to the fire surroundings.

Specific hazards arising from the chemical

On heating or in case of fire toxic gases may form.
In case of fire may be liberated: Hydrogen fluoride, Boron trifluoride, Diboron trioxide.

Protective equipment and precautions for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information:

Do not allow fire water to penetrate into surface or ground water.
Use water spray jet to knock down vapors.
Do not inhale explosion and combustion gases.

6. Accidental release measures

Personal precautions:

Wear appropriate protective equipment. Keep unprotected people away.
Provide fresh air. Avoid contact with skin and eyes.

Environmental precautions:

Do not allow to penetrate into soil, waterbodies or drains.

Methods for clean-up:

Collect dry and place in appropriate containers for disposal. Subsequent cleaning.

Additional information:

Forms slippery surfaces with water.

7. Handling and storage

Handling

Advices on safe handling: Provide adequate ventilation, and local exhaust as needed.
Wear appropriate protective equipment.
Use local exhaust in the field of the processing equipment.
In case of heating: Withdraw by suction.
Do not allow to dry.

Specific use(s) Flux agent for soldering, for orthopedic procedures.

Storage

Requirements for storerooms and containers:

Keep container tightly closed and dry.
Provide adequate ventilation. Keep in a cool place.
Protect from heat and direct sunlight.

Hints on joint storage: Do not store together with acids, alkalis or oxidizing agents.
Keep away from food, drink and animal feedingstuffs.

Further details: Keep locked up. Only trained personnel may be allowed to enter storage area.

8. Exposure controls / personal protection

Exposure guidelines

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
14075-53-7	Potassium tetrafluoroborate	USA: ACGIH: TWA	2.5 mg/m ³
			(Fluorides, calculated as F)
		USA: IDLH: TWA	250 F/m ³
		USA: NIOSH: TWA	2.5 mg/m ³ (calculated as F)
7789-23-3	Potassium fluoride	USA: OSHA: TWA	2.5 mg/m ³ (calculated as F)
		USA: ACGIH: TWA	2.5 mg/m ³
			(Fluorides, calculated as F)
		USA: IDLH: TWA	250 F/m ³
		USA: NIOSH: TWA	2.5 mg/m ³ (calculated as F)
		USA: OSHA: TWA	2.5 mg/m ³ (calculated as F)

Biological limit values:

CAS No.	Designation	Type	Limit value	Parameter	Sampling
14075-53-7	Potassium tetrafluoroborate	USA: ACGIH-BEI, blood	3 mg/L	Fluorides	end of exposure or end of shift
		USA: ACGIH-BEI, urine	2 mg/L	Fluorides	Prior to shift
7789-23-3	Potassium fluoride	USA: ACGIH-BEI, blood	3 mg/L	Fluorides	end of exposure or end of shift
		USA: ACGIH-BEI, urine	2 mg/L	Fluorides	Prior to shift

Engineering controls

Provide adequate ventilation, and local exhaust as needed.

See also information in chapter 7, section storage.

Personal protection equipment (PPE)

Eye/face protection: OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2003. Tightly sealed goggles according to OSHA Standard - 29 CFR: 1910.133 or ANSI Z87.1-2010.

Skin protection: Wear suitable protective clothing.

Protective gloves according to OSHA Standard - 29 CFR: 1910.138.

Glove material: Nitrile rubber-Layer thickness $\geq 0,4$ mm

Breakthrough time: > 480 min.

Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Respiratory protection: Respiratory protection must be worn whenever the TLV (WEL) levels have been exceeded. According to OSHA Standard - 29 CFR: 1910.134 or ANSI Z88.2

General hygiene considerations:

Avoid contact with skin and eyes.

Take off immediately all contaminated clothing.

When using do not eat or drink.

Keep away from food, drink and animal feedingstuffs.

Wash hands before breaks and after work.

Have eye wash bottle or eye rinse ready at work place.

Environmental exposure controls

Refer to 6.: Section "Environmental precautions".

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance:	Form: solid, pasty Color: white
Odor:	characteristic
Odor threshold:	No data available
pH:	9
Melting point/freezing point:	approx. 932 °F
Initial boiling point and boiling range:	212 °F
Flash point/flash point range:	No data available
Evaporation rate:	No data available
Flammability:	No data available
Explosion limits:	No data available
Vapor pressure:	at 68 °F: 23 hPa
Vapor density:	No data available
Density:	at 68 °F: 1.35 g/cm ³
Water solubility:	easily soluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	not self-igniting
Thermal decomposition:	>500 °C
Explosive properties:	not explosive

Solid content: 65.1 %

10. Stability and reactivity

Reactivity: refer to 10.3

Chemical stability: Product is stable under normal storage conditions.

Possibility of hazardous reactions:
No hazardous reactions known.

Conditions to avoid: Protect from heat and direct sunlight.
Do not allow to dry.

Incompatible materials: Oxidizing agents, acids, alkalis

Hazardous decomposition products:
Hydrogen fluoride, Boron trifluoride, Diboron trioxide
On heating or in case of fire toxic gases may form.

Thermal decomposition: >500 °C

11. Toxicological information

Toxicological tests

Toxicological effects: Acute toxicity (oral): Acute Toxicity - oral - Category 4 = Harmful if swallowed.
Acute toxicity (dermal): Acute Toxicity - dermal - Category 4 = Harmful in contact with skin.
Acute toxicity (inhalative): Acute Toxicity - inhalative - Category 4 = Harmful if inhaled.
Skin corrosion/irritation: Skin Irritation - Category 2 = Causes skin irritation.
Serious eye damage/irritation: Eye Irritation - Category 2A = Causes serious eye irritation.
Sensitisation to the respiratory tract: Lack of data.
Skin sensitisation: Lack of data.
Germ cell mutagenicity/Genotoxicity: Lack of data.
Carcinogenicity: Lack of data.
Reproductive toxicity: Lack of data.
Effects on or via lactation: Lack of data.
Specific target organ toxicity (single exposure): Specific Target Organ Toxicity (Single Exposure) - Category 3 = May cause respiratory irritation.
Specific target organ toxicity (repeated exposure): Lack of data.
Aspiration hazard: Lack of data.

Other information: Not known to cause sensitization.
Following information applies to the component Potassium fluoride:
LD50 Rat, oral: 245 mg/kg.
Warning - substance not yet tested completely.
After resorption: decrease of the blood calcium concentration, unconsciousness, cardiac arrhythmias, apnea, shock, spasms, agitation, cardiovascular disorders, CNS disorders.
At long term exposure: bone marrow damage.

Symptoms

Harmful. Irritant.

After contact with skin: Danger of cutaneous absorption.

After eye contact: Risk of corneal clouding.

12. Ecological information

Ecotoxicity

Further details: Danger to drinking water when soaking into the soil or waters.

Mobility in soil

PBT/vPvB: not applicable

Persistence and degradability

 Further details: Potassium fluoride and Potassium tetrafluoroborate:
Methods for the determination of biodegradability are not applicable to inorganic substances.

Additional ecological information

Volatile organic compounds (VOC):

0 % by weight / 0 g/L

General information: Do not allow to penetrate into soil, waterbodies or drains.

13. Disposal considerations

Product

Recommendation: Special waste. Dispose of waste according to applicable legislation.

Package

 Recommendation: Dispose of waste according to applicable legislation.
Non-contaminated packages may be recycled.

14. Transport information

UN number

ADR/RID, IMDG, IATA-DGR:

not applicable

UN proper shipping name

ADR/RID, IMDG, IATA-DGR:

Not restricted

Transport hazard class(es)

ADR/RID, IMDG, IATA-DGR:

not applicable

Packing group

ADR/RID, IMDG, IATA-DGR:

not applicable

Environmental hazards

Marine pollutant:

no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No data available

USA: Department of Transportation (DOT)

Proper shipping name:

Not restricted

Sea transport (IMDG)

Proper shipping name::

Not restricted

Marine pollutant:

no

Air transport (IATA)

Proper shipping name::

Not restricted

Further information

No dangerous good in sense of these transport regulations.

15. Regulatory information

National regulations - U.S. Federal Regulations

Potassium tetrafluoroborate: TSCA Inventory: listed

National regulations - U.S. State Regulations

No data available

National regulations - Canada

Potassium tetrafluoroborate: DSL: listed

Potassium fluoride: DSL: listed

National regulations - Great Britain

Hazchem-Code:

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16. Other information

Text for labeling:

Contains < 50 % Potassium tetrafluoroborate, < 10 % Potassium fluoride. Safety data sheet available on request.

Contains Potassium fluoride and Potassium tetrafluoroborate.

Hazard rating systems:



NFPA Hazard Rating:

Health: 2 (Moderate)

Fire: 0 (Minimal)

Reactivity: 0 (Minimal)

HMIS Version III Rating:

Health: 2 (Moderate)

Flammability: 0 (Minimal)

Physical Hazard: 0 (Minimal)

Personal Protection: X = Consult your supervisor

HEALTH	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
	X

Abbreviations and acronyms:

Acute Toxicity: Acute toxicity
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
 AS/NZS: Australian Standards/New Zealand Standards
 CAS: Chemical Abstracts Service
 CFR: Code of Federal Regulations
 CLP: Classification, Labelling and Packaging
 CNS: Central Nervous System
 DMEL: Derived minimal effect level
 DNEL: Derived no-effect level
 EC: European Community
 EmS: Emergency Response Procedures for Ships Carrying Dangerous Goods
 EN: European Standard
 EQ: Excepted quantities
 Eye Irritation: Eye irritation
 IATA: International Air Transport Association
 IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
 IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
 IMDG Code: International Maritime Dangerous Goods Code
 IMO: International Maritime Organization
 LD50: Lethal dose 50%
 MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
 OEL: Occupational Exposure Limit Value
 OSHA: Occupational Safety and Health Administration
 PBT: Persistent, bioaccumulative and toxic
 PNEC: Predicted no-effect concentration
 RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
 Skin Irritation: Skin irritation
 STOT SE: Specific target organ toxicity - single exposure
 TLV: Threshold Limit Value
 TRGS: Technical Rules for Hazardous Substances
 vPvB: Very persistent and very bioaccumulative
 WEL: Workplace Exposure Limit

Literature:

- M005 Fluorwasserstoff, Flusssäure u. anorganische Fluoride
 - M050 Tätigkeiten mit Gefahrstoffen

Reason of change:

Changes in section 1.3: Corporate headquarters

Date of first version:

9/26/2008

Department issuing data sheet

Contact person:

see section 1: Department responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.