

1 Identification

- **Product identifier**
- **Trade name:** Potassium Fluoride solution 33 % pure
- **Article number:** 147058
- **Application of the substance / the mixture** Laboratory chemical
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 AppliChem GmbH
 Ottoweg 4
 D-64291 Darmstadt
- **Information department:** Dept. Compliance
- **Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)

Tel.: +49 (0)6151 93570
 Fax.: +49 (0)6151 935711
 msds@applichem.com

2 Hazard(s) identification

- **Classification of the substance or mixture**
 Acute Tox. 4 H302 Harmful if swallowed.
 Acute Tox. 4 H332 Harmful if inhaled.
 Eye Dam. 1 H318 Causes serious eye damage.
- **Label elements**
- **GHS label elements**
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**
 potassium fluoride
- **Hazard statements**
 H302+H332 Harmful if swallowed or if inhaled.
 H318 Causes serious eye damage.
- **Precautionary statements**
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 3
 Fire = 0
 Reactivity = 0

Trade name: Potassium Fluoride solution 33 % pure

(Contd. of page 1)

• **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = *3
FIRE	0	Fire = 0
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

• **Dangerous components:**

7789-23-3	potassium fluoride	>30-≤40%
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4 First-aid measures

- **Description of first aid measures**
- **General information:**
Personal protection for the First Aider.
Immediately remove any clothing soiled by the product.
Remove breathing apparatus only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
Involve doctor immediately.
- **After inhalation:**
Supply fresh air.
Call a doctor immediately.
- **After skin contact:**
Call a doctor immediately.
Rub in Ca-gluconate solution or Ca-gluconate gel immediately.
Immediately rinse with water.
Immediately remove any clothing soiled by the product.
- **After eye contact:**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
Protect unharmed eye.
- **After swallowing:**
make victim drink water (maximum of 2 drinking glasses)
Call a doctor immediately.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**
Non-combustible.
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:

(Contd. on page 3)

Trade name: Potassium Fluoride solution 33 % pure

(Contd. of page 2)

Hydrogen fluoride (HF)

• **Advice for firefighters**

• **Protective equipment:** Wear self-contained respiratory protective device.

• **Additional information**

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Contain escaping vapours with water.

Cool endangered receptacles with water spray.

6 Accidental release measures

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

Do not inhale steams/aerosols.

Avoid substance contact.

Ensure adequate ventilation

• **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

• **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Clean up affected area.

• **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

• **Protective Action Criteria for Chemicals**

• **PAC-1:**

7789-23-3	potassium fluoride	23 mg/m ³
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• **PAC-2:**

7789-23-3	potassium fluoride	250 mg/m ³
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• **PAC-3:**

7789-23-3	potassium fluoride	1,500 mg/m ³
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7 Handling and storage

• **Handling:**

• **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

• **Information about protection against explosions and fires:**

The product is not flammable.

Keep respiratory protective device available.

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

• **Storage:**

• **Requirements to be met by storerooms and receptacles:** No special requirements.

• **Information about storage in one common storage facility:** Not required.

• **Further information about storage conditions:**

Keep receptacle tightly sealed.

Open receptacle only under localized extractor facilities.

Store receptacle in a well ventilated area.

Store under lock and key and with access restricted to technical experts or their assistants only.

• **Recommended storage temperature:** +15 - +25°C

• **Storage class:** 6.1 D

(Contd. on page 4)

Trade name: Potassium Fluoride solution 33 % pure

(Contd. of page 3)

- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
Respiratory protection required when vapours/aerosols are generated.
Filter B
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **For the permanent contact gloves made of the following materials are suitable:**
Recommended thickness of the material: ≥ 0.6 mm
Natural rubber, NR
Value for the permeation: Level ≥ 480 min
- **Eye protection:** Gauze goggles
- **Body protection:**
Use protective suit.
Full head, face and neck protection
Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**
- **General Information**
- **Appearance:**
Form: Fluid

(Contd. on page 5)

Trade name: Potassium Fluoride solution 33 % pure

(Contd. of page 4)

Color:	Colorless
· Odor:	Odorless
· Odor threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Decomposition temperature:	Not determined.
· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure:	Not determined.
· Density:	Not determined.
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Water:	67.0 %
VOC content:	0.00 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No dangerous reactions known.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** Strong heating
- **Possibility of hazardous reactions**
Risk of ignition of inflammable gases or vapors with:
acids
strong oxidants
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** strong acids
- **Hazardous decomposition products:** In the event of fire: See chapter 5

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(Contd. on page 6)

Trade name: Potassium Fluoride solution 33 % pure

(Contd. of page 5)

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
- LD/LC50 values that are relevant for classification:

Components	Type	Value	Species
7789-23-3 potassium fluoride			
Oral	LD50	223 mg/kg (rat)	
Dermal	LD50	>2,000 mg/kg (rat)	
Inhalative	LC50	>2.3 mg/l (fish)	
	LC50/4 h	1 mg/l (rat)	

- **Primary irritant effect:**
- **on the skin:** resorption
- **on the eye:** Risk of corneal clouding.
- **Sensitization:** No sensitizing effects known.
- **Other information (about experimental toxicology):**

After absorption:
convulsions
Cardiac irregularities
dyspnoea
unconsciousness

- **Subacute to chronic toxicity:**

7789-23-3 potassium fluoride			
Oral	NOAEL	25 mg/kg (rat)	

- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic

- **Carcinogenic categories**

IARC (International Agency for Research on Cancer)			
7789-23-3	potassium fluoride		3

- **NTP (National Toxicology Program)**

None of the ingredients is listed.			
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- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.			
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12 Ecological information

- Toxicity
- Aquatic toxicity:

Type of test	Effective concentration	Method	Assessment
7789-23-3 potassium fluoride			
EC50	270 mg/l (daphnia magna)		
EC50/96 h	43 mg/l (Algae)		
	26 mg/l (fish)		
LC50/96 h	1.08 mg/l (fish)		
NOEC (21 d)	4 mg/l (fish)		

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.

(Contd. on page 7)

Trade name: Potassium Fluoride solution 33 % pure




(Contd. of page 6)

- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow to enter waters, waste water, or soil.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Chemicals must be disposed of in compliance with the respective national regulations.
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**
Disposal must be made according to official regulations.
Packagings that cannot be cleansed are to be disposed of in the same manner as the product.

14 Transport information

- | | |
|---|-----------------------------|
| • UN-Number | UN3422 |
| • DOT, ADR, IMDG, IATA | |
| • UN proper shipping name | Potassium fluoride solution |
| • DOT, ADR | POTASSIUM FLUORIDE SOLUTION |
| • IMDG, IATA | |
| • Transport hazard class(es) | |
| • DOT | |
|  | |
| • Class | 6.1 Toxic substances |
| • Label | 6.1 |
| • ADR | |
|  | |
| • Class | 6.1 (T4) Toxic substances |
| • Label | 6.1 |
| • IMDG, IATA | |
|  | |
| • Class | 6.1 Toxic substances |
| • Label | 6.1 |

(Contd. on page 8)

Trade name: Potassium Fluoride solution 33 % pure

(Contd. of page 7)

• Packing group	III
• DOT, ADR, IMDG, IATA	
• Environmental hazards:	
• Marine pollutant:	No
• Special precautions for user	Warning: Toxic substances
• Danger code (Kemler):	60
• EMS Number:	F-A,S-B
• Stowage Category	A
• Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
• Transport/Additional information:	
• ADR	
• Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
• IMDG	
• Limited quantities (LQ)	5L
• Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
• UN "Model Regulation":	UN 3422 POTASSIUM FLUORIDE SOLUTION, 6.1, III

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

• **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

• **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

• **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

• **Proposition 65**

• **Chemicals known to cause cancer:**

None of the ingredients is listed.

• **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

• **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

• **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

• **Carcinogen categories**

• **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

• **TLV (Threshold Limit Value established by ACGIH)**

7789-23-3 | potassium fluoride

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(Contd. on page 9)

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Trade name: Potassium Fluoride solution 33 % pure

(Contd. of page 8)

• **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

• **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

• **Hazard pictograms**



GHS05 GHS07

• **Signal word** Danger

• **Hazard-determining components of labeling:**

potassium fluoride

• **Hazard statements**

H302+H332 Harmful if swallowed or if inhaled.

H318 Causes serious eye damage.

• **Precautionary statements**

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

• **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

• **Department issuing SDS:** Dept. Compliance

• **Date of preparation / last revision** 04/14/2018 / 4

• **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Acute Tox. 4: Acute toxicity – Category 4

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

• *** Data compared to the previous version altered.**