Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/08/2009 Reviewed on 06/08/2009

1 Identification of substance:

Product details:

Product name: Tin (II) tetrafluoroborate, 50% w/w Aqueous Solution

Stock number: 89669

Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department
Emergency information:
During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:
Description: (CAS#)
Tin (II) tetrafluoroborate (CAS# 13814-97-6); 50%
Water (CAS# 7732-18-5); 50%
Identification number(s):
EINECS Number: 237-487-6

3 Hazards identification

Hazard description:

C Corrosive

Information pertaining to particular dangers for man and environment
R 34 Causes burns.
Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

HEALTH	2
FIRE	0
REACTIVITY	1

Health (acute effects) = 2
Flammability = 0
Reactivity = 1

GHS label elements

Danger

3.2/1B - Causes severe skin burns and eye damage.
Prevention:
Do not breathe dust/fume/gas/mist/vapours/spray.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Response:
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
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 or doctor/physician.
Specific treatment (see label).
Wash contaminated clothing before reuse.
Storage:
Store locked up.
Disposal:
Dispose of contents/container in accordance with local/regional/national/international regulations.

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4 First aid measures

General information Immediately remove any clothing soiled by the product.
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
After skin contact
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
Rub in calcium gluconate solution or calcium gluconate gel immediately.
After eye contact
Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Seek immediate medical advice.

5 Fire fighting measures

Suitable extinguishing agents
Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Special hazards caused by the material, its products of combustion or resulting gases:
In case of fire, the following can be released:
Hydrogen fluoride (HF)
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Person-related safety precautions:
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Measures for environmental protection:
Do not allow material to be released to the environment without proper governmental permits.
Measures for cleaning/collecting:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Additional information:
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling
Information for safe handling:
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Information about protection against explosions and fires: No information known.

Storage
Requirements to be met by storerooms and receptacles:
Unsuitable material for container: ceramic, glass
Information about storage in one common storage facility:
Do not store together with acids.
Store away from oxidizing agents.
Store away from strong bases.
Protect from heat.
Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.
Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

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Components with limit values that require monitoring at the workplace:

Fluorides (as F)

	mg/m3
ACGIH TLV	2.5
Austria MAK	2.5
Belgium TWA	2.5
Finland TWA	2.5
France TWA	2.5
Germany MAK	2.5
Hungary TWA	1; 2-STEL
Netherlands MAC-K	3.5
Norway TWA	0.6
Poland TWA	1; 3-STEL
Sweden NGV	2
Switzerland MAK-W	1.5; 3-KZG-W
United Kingdom TWA	2.5
Russia TWA	2
Denmark TWA	2.5
USA PEL	2.5

Tin metal, tin oxide and inorganic tin compounds, except tin hydride, as Sn

	mg/m3
ACGIH TLV	2
Austria MAK	2
Belgium TWA	2
Denmark TWA	2
Finland TWA	2
Germany MAK	2
Hungary TWA	1; 2-STEL (skin)
Netherlands MAC-TGG	2
Norway TWA	1
Poland TWA	2
Switzerland MAK-W	2; 4-KZG-W
United Kingdom TWA	2; 4-STEL
USA PEL	2

Additional information: No data

Personal protective equipment
General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Breathing equipment: Use suitable respirator when high concentrations are present.
Protection of hands: Impervious gloves
Eye protection:
Safety glasses
Tightly sealed goggles
Full face protection
Body protection: Protective work clothing.

9 Physical and chemical properties:

General Information	
Form:	Liquid
Color:	Colorless
Odor:	Odorless
Change in condition	
Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Flash point:	Not determined
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Danger of explosion:	Product does not present an explosion hazard.

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Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density at 20°C (68°F):	1.67 g/cm³
Solubility in / Miscibility with	
Water:	Fully miscible

10 Stability and reactivity

Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Materials to be avoided:
Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.
Acids
Oxidizing agents
Bases
Heat
Dangerous reactions
Reacts with alkali metals.
Reacts with alkaline earth metals.
Contact with acids releases toxic gases
Dangerous products of decomposition: Hydrogen fluoride

11 Toxicological information

Acute toxicity:
Primary irritant effect:
on the skin:
Corrosive effect on skin and mucous membranes.
Irritant to skin and mucous membranes.
on the eye:
Strong corrosive effect.
Irritating effect.
Sensitization: No sensitizing effects known.
Subacute to chronic toxicity:
Boron affects the central nervous system. Boron poisoning causes depression of the circulation, persistant vomiting and diarrhea, followed by profound shock and coma. The temperature may become subnormal and a scarletina form rash may cover the entire body. Fluorides may cause salivation, nausea, vomiting, diarrhea and abdominal pain, followed by weakness, tremors, shallow respiration, convulsions and coma. May cause brain and kidney damage. Chronic fluoride poisoning can cause severe bone changes, loss of weight, anorexia, anemia and dental defects.
Metallic tin and inorganic tin compounds may cause nausea, vomiting, diarrhea, irritation and pneumoconiosis.
Subacute to chronic toxicity:
Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.
Additional toxicological information:
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information:

General notes:
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Do not allow material to be released to the environment without proper governmental permits.

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13 Disposal considerations

Product:
Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.
Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

DOT regulations:

Hazard class:	8
Identification number:	UN3264
Packing group:	III
Proper shipping name (technical name):	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (tin tetrafluoroborate solution)
Label	8

Land transport ADR/RID (cross-border)

ADR/RID class:	8 (C1) Corrosive substances
Danger code (Kemler):	80
UN-Number:	3264
Packaging group:	III
Description of goods:	3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (tin tetrafluoroborate solution)

Maritime transport IMDG:

IMDG Class:	8
UN Number:	3264
Label	8
Packaging group:	III
Proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (tin tetrafluoroborate solution)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class:	8
UN/ID Number:	3264
Label	8
Packaging group:	III
Proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (tin tetrafluoroborate solution)

UN "Model Regulation": UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., 8, III

15 Regulations

Product related hazard informations:

Hazard symbols:
C Corrosive

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Risk phrases:
34 Causes burns.

Safety phrases:
20 When using do not eat or drink.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately.
60 This material and its container must be disposed of as hazardous waste.

National regulations
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

Information about limitation of use: For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.
Contact: Zachariah Holt
Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)