

# Safety Data Sheet



## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product Name:** HYDROFLUOROSILICIC ACID

**Other name(s):** Hydrofluosilicic acid; Hydrosilicofluoric acid; HFA.  
**Recommended Use:** Water fluoridation; sterilising equipment.

**Supplier:** Orica New Zealand Limited  
**Street Address:** Orica Chemnet House  
Level four, 123 Carlton Gore Road  
Newmarket, Auckland  
New Zealand

**Telephone Number:** +64 9 368 2700  
**Facsimile:** +64 9 368 2710  
**Emergency Telephone:** 0 800 734 607 (ALL HOURS)

## 2. HAZARDS IDENTIFICATION

Classified as a Dangerous Good according to NZS 5433:2007 Transport of Dangerous Goods on Land.

Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.



### Subclasses:

Subclass 6.1 Category D - Substances which are acutely toxic.  
Subclass 8.1 Category A - Substances that are corrosive to metals.  
Subclass 8.2 Category C - Substances that are corrosive to dermal tissue.  
Subclass 8.3 Category A - Substances that are corrosive to ocular tissue.

Approval Number: HSR004496

### Hazard and Precautionary Information:

Danger.

May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. Keep out of reach of children. Read label before use. Read Safety Data Sheet before use. Keep only in original container. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands, arms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. If medical advice is needed, have product container or label at hand. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting. IF ON SKIN(or hair): 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 First Aid Measures on this Safety Data Sheet). Wash contaminated clothing before re-use. Absorb spillage to prevent material damage. Store in corrosive resistant container with a resistant inner liner. Store locked up. In case of a substance that is in compliance with a HSNO approval other than a Part 6A (Group Standards) approval, a label must provide a description of one or more appropriate and achievable methods for the disposal of a substance in accordance with the Hazardous Substances (Disposal) Regulations 2001. This may also include any method of disposal that must be avoided.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Product Name: HYDROFLUOROSILICIC ACID  
Substance No: 000000015539

Issued: 01/12/2010  
Version: 3

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Risk Phrases
Fluorosilicic acid	16961-83-4	17.5-22%	R34, R41
Water	7732-18-5	to 100%	-

## 4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor at once.

### Inhalation:

Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

### Skin Contact:

If skin contact occurs, immediately remove contaminated clothing. Flush skin under running water for 15 minutes. Then apply calcium gluconate gel. Contact the Poisons Information Centre. For skin burns, cover with a clean, dry dressing until medical help is available.

### Eye Contact:

Immediately wash in and around the eye area with large amounts of water for at least 15 minutes. Eyelids to be held apart. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport to hospital or medical centre. Continue to wash with large amounts of water until medical help is available.

### Ingestion:

Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Seek immediate medical assistance.

### Medical attention and special treatment:

Treat symptomatically. Material is corrosive. Can cause corneal burns. Can cause pulmonary oedema. Effects may be delayed.

## 5. FIRE FIGHTING MEASURES

### Hazards from combustion products:

Non-combustible material.

### Precautions for fire fighters and special protective equipment:

Decomposes on heating emitting toxic fumes, including those of hydrogen fluoride. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition.

### Suitable Extinguishing Media:

Not combustible, however, if material is involved in a fire use: Fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

Hazchem Code: 2X

## 6. ACCIDENTAL RELEASE MEASURES

### Emergency procedures:

Clear area of all unprotected personnel. Wear protective equipment to prevent skin and eye contact and inhalation of vapours/dusts. If contamination of sewers or waterways has occurred advise local emergency services.

**Methods and materials for containment and clean up:**

Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert material). Neutralise with lime or soda ash. Collect and seal in properly labelled containers or drums for disposal.

## 7. HANDLING AND STORAGE

**Precautions for safe handling:** Avoid skin and eye contact and breathing in vapour, mists and aerosols. Always add the acid to water, never the reverse. Not to be available except to authorised or licensed persons.

**Conditions for safe storage:** Keep locked up. Keep away from children and animals. Store in a cool, dry, well ventilated place and out of direct sunlight. Store away from foodstuffs. Store away from incompatible materials described in Section 10. Keep dry - reacts with water, may lead to drum rupture. Keep containers closed when not in use - check regularly for leaks.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational Exposure Limits:** No value assigned for this specific material by the New Zealand Occupational Safety and Health Service (OSH). However, Workplace Exposure Standard(s) for related component(s):

Fluorides, as F: WES-TWA 2.5 mg/m<sup>3</sup>, bio  
Hydrogen fluoride, as F: Ceiling 3 ppm, 2.6 mg/m<sup>3</sup>

As published by the New Zealand Occupational Safety and Health Service (OSH).

WES - TWA (Workplace Exposure Standard - Time Weighted Average) - The eight-hour, time-weighted average exposure standard is designed to protect the worker from the effects of long-term exposure.

'bio' - Biological Exposure Index.

WES - Ceiling (Workplace Exposure Standard - Ceiling). A concentration that should not be exceeded during any part of the working day.

These Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

**Engineering controls:**

Use in well ventilated areas. Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Exposure Standards. If inhalation risk exists: Use with local exhaust ventilation or while wearing suitable mist respirator. Keep containers closed when not in use.

**Personal Protective Equipment:**

The selection of PPE is dependant on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

Orica Personal Protection Guide No. 1, 1998: D - OVERALLS, RUBBER BOOTS, CHEMICAL GOGGLES, FACE SHIELD, SAFETY SHOES, GLOVES (Long), APRON.

# Safety Data Sheet



Wear overalls, chemical goggles, face shield, elbow-length impervious gloves, splash apron and rubber boots. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

If risk of inhalation exists, wear suitable mist respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b>	Liquid
<b>Colour:</b>	Pale Yellow
<b>Odour:</b>	Characteristic , Pungent , Acidic
<b>Solubility:</b>	Miscible with water.
<b>Specific Gravity:</b>	1.16-1.22 @ 20°C
<b>Relative Vapour Density (air=1):</b>	Not available
<b>Vapour Pressure (20 °C):</b>	18 mmHg
<b>Flash Point (°C):</b>	Not applicable
<b>Flammability Limits (%):</b>	Not applicable
<b>Autoignition Temperature (°C):</b>	Not applicable
<b>Boiling Point/Range (°C):</b>	>100
<b>Decomposition Point (°C):</b>	105
<b>pH:</b>	Not available
<b>Freezing Point/Range (°C):</b>	ca. 0

## 10. STABILITY AND REACTIVITY

<b>Chemical stability:</b>	Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
<b>Conditions to avoid:</b>	Avoid contact with foodstuffs. Avoid contact with metals. Avoid contact with combustible substances. Always add acid to water, never the reverse, due to significant exothermic reaction.
<b>Incompatible materials:</b>	Incompatible with alkalis , organic chemicals , and metals .
<b>Hazardous decomposition products:</b>	Hydrogen fluoride. Hydrogen. Silicon tetrafluoride. Fluorides.
<b>Hazardous reactions:</b>	Reacts exothermically on dilution with water. Corrosive to metals. Can evolve hydrogen on contact with metals. Reacts violently with alkalis and organic chemicals . May corrode glass. Hazardous polymerisation will not occur.

## 11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

# Safety Data Sheet



**Ingestion:** Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract. Swallowing can result in chemical burns to the mouth, throat and abdomen; perforation of the gastrointestinal tract and vomiting of blood and eroded tissue. Collapse and coma may result.

**Eye contact:** A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury. Contact with eyes even for short periods can cause blindness.

**Skin contact:** Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns.

**Inhalation:** Breathing in vapour will produce respiratory irritation. Delayed (up to 48 hours) fluid build up in the lungs may occur.

**Long Term Effects:** Repeated or prolonged exposure may result in bone changes (fluorosis). Repeated exposure may cause respiratory problems.

**Toxicological Data:** No LD50 data available for the product. For the constituent FLUOSILICIC ACID:  
Oral LD50 (rat): 430 mg/kg.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity** Avoid contaminating waterways.

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods:** Refer to Waste Management Authority. Dispose of material through a licensed waste contractor. Decontamination and destruction of containers should be considered.

## 14. TRANSPORT INFORMATION

**Road and Rail Transport**  
Classified as a Dangerous Good according to NZS 5433:2007 Transport of Dangerous Goods on Land.



**UN No:** 1778  
**Class-primary** 8 Corrosive  
**Packing Group:** II  
**Proper Shipping Name:** FLUOROSILICIC ACID  
**Hazchem Code:** 2X

**Marine Transport**  
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

**UN No:** 1778

Product Name: HYDROFLUOROSILICIC ACID  
Substance No: 000000015539

Issued: 01/12/2010  
Version: 3

# Safety Data Sheet



**Class-primary:** 8 Corrosive  
**Packing Group:** II  
**Proper Shipping Name:** FLUOROSILICIC ACID

## Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

**UN No:** 1778  
**Class-primary:** 8 Corrosive  
**Packing Group:** II  
**Proper Shipping Name:** FLUOROSILICIC ACID

## 15. REGULATORY INFORMATION

### Classification:

Classified as hazardous according to criteria in the HS (Minimum Degrees of Hazard) Regulations 2001.

### Subclasses:

Subclass 6.1 Category D - Substances which are acutely toxic.  
Subclass 8.1 Category A - Substances that are corrosive to metals.  
Subclass 8.2 Category C - Substances that are corrosive to dermal tissue.  
Subclass 8.3 Category A - Substances that are corrosive to ocular tissue.

Approval Number: HSR004496

## 16. OTHER INFORMATION

'Registry of Toxic Effects of Chemical Substances'. Ed. D. Sweet, US Dept. of Health & Human Services: Cincinnati, 04/2010.

This safety data sheet has been prepared by SH&E Shared Services, Orica.

### Reason(s) for Issue:

5 Yearly Revised Primary SDS

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Orica Limited cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Orica representative or Orica Limited at the contact details on page 1.

Orica Limited's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.