From: [redacted]
To: [redacted]
Subject: Response to request for information re fluoride
Date: Monday, 8 July 2024 4:00:00 pm
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
102 other 102.13 dannevirke water supply fluoridation - moh direction letter tararua(d23 35908).pdf
hfa-safety-data-sheet.pdf

Kia ora

I refer to your official information request dated 7 July 2024 for information relating to the fluoridation of drinking water by the Tararua District Council.

The information you have requested follows.

Is your council adding fluoride to the water supply YES/NO – not currently. However our Council has been directed by the Director General of Health to fluoridate the drinking water supply for the township of Dannevirke. The plant is currently under construction, with finalisation due 30 September 2024.

What is the LEGAL name of the company that makes it? The product will be supplied by Ixom Operations Pty Ltd. We do not have the name of the manufacturer of the product.

What is the specific CHEMICAL name of the product that is added ? HFA (Hydrofluorosilicic Acid)

Please provide an email copy of the MSDS of the product being used. Please see attached Safety Data Sheet.

How many PPM are added to the water and how often are they added? Fluoridation of the Dannevirke drinking water supply has not yet started, however when it does, we have to follow the Water New Zealand Code of Practice for Fluoridation of Drinking Water Supplies in NZ (2014) and the Good Practice Guide for Fluoridation of Drinking Water (2023). This requires HFA to be added to constantly maintain a content of 0.7 to 1.0 mg/L

What is the name of the person in charge of/who signs off the Water treatment in your area? Under section 7(2)(a) of the Local Government Official Information and Meetings Act 1987, we are withholding names of employees (protection of privacy). However, fluoridation of the water supply is undertaken in accordance with the directive received under Sections 116C to 116J of the Health Act 1956, a copy of which is attached.

A picture of the bag would be great too please if possible. We are not able to provide you with a picture of a bag, as we do not hold such information. Therefore we decline this part of your request under section 17(e) of the Local Government Official Information and Meetings Act 1987. Note that when fluoridation of the water supply does start, the product will not be supplied in a bag. The product will be added via an automated containerised dosing unit. Therefore it will not be possible to provide a picture of a bag at a future stage.

You have the right to seek an investigation and review by the Ombudsman of this decision. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Ngā mihi

Allie Dunn | Manager - Democracy Services
Strategy & Community Wellbeing - Democracy Services | Tararua District Council

Phone: +64 6 3744080 | Mobile: +64 27 3331626
Allie.Dunn@Tararuadc.govt.nz
26 Gordon Street, Dannevirke 4930, PO Box 115
www.tararuadc.govt.nz
www.facebook.com/tararuadc

From: Allie Dunn
Sent: Monday, July 8, 2024 8:17 AM
To: [redacted]
Subject: Acknowledgement - request for information re fluoride

Kia ora
This email is to acknowledge receipt of your request for information, regarding fluoride added to water supply.
We will endeavour to respond to your request as soon as possible and in any event no later than 2 August 2024, being 20 working days after the day your request was received. If we are unable to respond to your request by then, we will notify you of an extension of that timeframe.
As part of our commitment to openness and accountability, we are now proactively publishing copies of requests for information and the responses provided to these requests, on our website. In doing so, we will ensure we comply with the provisions of the Privacy Act 2020 and redact any personal / identifying information from any response published.
If you have any questions about this, please don't hesitate to get in contact with me.
Ngā mihi

Allie Dunn | Manager - Democracy Services
Strategy & Community Wellbeing - Democracy Services | Tararua District Council

Phone: +64 6 3744080 | Mobile: +64 27 3331626
Allie.Dunn@Tararuadc.govt.nz
26 Gordon Street, Dannevirke 4930, PO Box 115
www.tararuadc.govt.nz
www.facebook.com/tararuadc

From: [redacted]
Sent: Sunday, July 7, 2024 9:40 PM
To: [redacted]
Subject: OIA request - WATER DEPARTMENT

To whom it may concern,

Please find below - a copy of an email from me to the Dunedin City Council requesting information on the type of fluoride added to our water supply.

I am requesting under the Local Government Official Information and Meetings Act 1987 (LGOIMA) a copy of the same information from your council please.
Is your council adding fluoride to the water supply YES/NO

What is the LEGAL name of the company that makes it?
What is the specific CHEMICAL name of the product that is added ?
Please provide an email copy of the MSDS of the product being used.
How many PPM are added to the water and how often are they added?
What is the name of the person in charge of/who signs off the Water treatment in your area?
AND
A picture of the bag would be great too please if possible.

Thank-You
Kind Regards
[redacted]
Dunedin

From: [redacted]
Sent: Friday, 2 July 2021 8:15 a.m.
To: [redacted]
Subject: LGOIMA requesting the exact fluoride product added to the water supply

Kia ora [redacted]

I am writing in response to your Local Government Official Information and Meetings Act 1987 (LGOIMA) request of 11 June 2021, for ease of reference a copy your request is below.

The exact fluoride product added to the water supply is Sodium Silico Fluoride (scientific name) and the manufacturer is Shimonoseki Mitsui Chemical Inc.

As requested please find attached photos of the front and back of a bag, fluoride is added continuously to the metro water supply via the Mt Grand and Southern Water Treatment Plants at the rate of 0.75 grams per 1000L.

I trust this answers your request.

Kā mihi

[redacted]
GOVERNANCE SUPPORT OFFICER
CIVIC
[redacted] [redacted]
Dunedin City Council, 50 The Octagon, Dunedin
PO Box 5045, Dunedin 9054
New Zealand
www.dunedin.govt.nz

MANATŪ HAUORA
MINISTRY OF HEALTH

133 Molesworth Street
PO Box 5013
Wellington 6140
New Zealand
T+64 4 496 2000

27 July 2022

Bryan Nicholson
Chief Executive
Tararua District Council
Bryan.nicholson@tararuadc.govt.nz

Tēnā koe Mr Nicholson

Decision in relation to fluoridation direction

Thank you for responding to my letter of 3 May 2022. I have considered the information you have provided, alongside further information I am required to consider under section 116E of the Health Act 1956 (the Act). I have also received and considered advice from the Director of Public Health.

Informed by the matters I am required to consider, I have decided to exercise my statutory powers under section 116E of the Act to direct you to fluoridate the Dannevirke drinking water supply in your region.

In accordance with section 116I of the Act, you are required to ensure that by 30 June 2024 you are fluoridating at the optimal levels (between 0.7ppm to 1ppm, parts per million) at the Dannevirke supply. Contravening these requirements, or permitting these requirements to be contravened, constitutes an offence under section 116J of the Act.

Fluoridation of the Dannevirke drinking water supply is an important step in improving the oral health of your community, and it is my intention that Manatū Hauora (the Ministry of Health) will work constructively with you to implement these important changes.

In reaching my decision to issue this direction to you, I considered the scientific evidence on the effectiveness of adding fluoride to drinking water in reducing the prevalence and severity of dental decay. I am satisfied that community water fluoridation is a safe and effective public health measure that significantly reduces the prevalence and severity of dental decay. In reaching this conclusion, I considered: *Water fluoridation to prevent tooth decay* (Cochrane Collaboration 2015), *Health effects of water fluoridation: A review of the scientific evidence* (PMCSA and Royal Society Te Apārangi 2014) and *Fluoridation: An update on evidence* (PMCSA 2021).

In reaching my decision, I also considered whether the benefits of adding fluoride to the drinking water outweigh the financial costs, taking into account: the state or likely state of the oral health of your community served by the Dannevirke supply; the number of people who are reasonably likely to receive drinking water from this supply; and the

likely financial cost and savings of adding fluoride to the drinking water of this supply, including any additional financial costs of ongoing management and monitoring.

I am satisfied that the benefits of introducing community water fluoridation across the Dannevirke drinking water supply outweigh the financial costs of doing so. In reaching this conclusion, I gave weight to the following:

- the Tararua community would receive significant benefit, through improvement to the state of its oral health, because fluoridation of the drinking water supply would significantly reduce the prevalence and severity of dental decay in its community

- approximately 6,000 people are reasonably likely to receive drinking water from the Dannevirke supply

- the likely financial cost and savings of adding fluoride to drinking water for the Dannevirke supply, including any additional financial costs of ongoing management and monitoring.

My decision-making process included inviting written comment from Tararua District Council and having regard to the comments I received. Below I summarise and respond to the comments I received:

- the estimated capital cost of introducing fluoridation for the Dannevirke supply is $318,850. Ongoing management and monitoring costs were not specified at this time.

- the date by which Tararua District Council would be able to comply with a direction for the Dannevirke drinking water supply is 30 June 2024.

As part of considering whether to issue a direction to fluoridate, I considered the cost estimates you provided. I also accept the date you specified by which you could comply with a direction for the Dannevirke drinking water supply. This date is reflected in the compliance date stated earlier in this letter.

Appendix 1 presents a more extensive summary of the information that informed my decision-making, including the advice I received and considered from the Director of Public Health.

Funding

Manatū Hauora is making capital works funding available for local authorities that have been issued a direction to fluoridate, and that begin work to fluoridate drinking water supplies by the end of 2022. It will shortly provide detailed information about the application process for this funding to cover fluoridation-related capital costs.

Communicating this 'direction to fluoridate' decision

Manatū Hauora is responsible for communicating this decision at a national level. Please note too, that as required under section 116E(5) of the Act, all direction letters will be published on the Manatū Hauora website in due course.

Next steps

An official from Manatū Hauora will contact your team in the coming weeks to discuss any needs you might have for further clarity or additional information. Manatū Hauora recognises that this is a busy time for local authorities and wishes to work with you to make the process as straightforward as possible for your team.

Nākū noa, nā

Dr Ashley Bloomfield
Te Tumu Whakarae mō te Hauora
Director-General of Health

Appendix 1:

Tararua District Council: Dannevirke water supply

Analysis	
Criterion	**1. Scientific evidence on the effectiveness of adding fluoride to drinking water in reducing the prevalence and severity of dental decay**
Evidence	The Ministry has considered the following information: • Fluoridation: an evidence update | Office of the Prime Minister's Chief Science Advisor (June 2021) • Health effects of water fluoridation: A review of the scientific evidence (August 2014) Office of the Prime Minister's Chief Science Advisor and Royal Society of New Zealand Te Apārangi • Water fluoridation to prevent tooth decay | Cochrane Collaboration (June 2015) Fluoridation: An update on evidence (PMCSA 2021) examines new evidence on water fluoridation published since the Royal Society Te Apārangi report in 2014. The Cochrane Collaboration's water fluoridation to prevent tooth decay (2015) is a high-quality scientific meta-analysis of a large number of high-quality research studies conducted over a long period worldwide.
Analysis	The sources of evidence referred to above are reviews that examine substantial bodies of research generated over periods of time on the safety of community water fluoridation (CWF) and its effectiveness at reducing dental decay. Considered together, these reports provide an up-to-date and high-quality scientific assessment of the state of the scientific evidence on the health effects of CWF. They find that the provision of CWF at a level of 0.7-1 mg/L is safe and significantly reduces the prevalence and severity of dental decay. The summary analysis of evidence stated above justifies the conclusion that provision of CWF at a level of 0.7-1 mg/L in the Dannevirke water supply would be safe and effective at significantly reducing the prevalence and severity of dental decay in the populations serviced by this water supply.
Director of Public Health advice	Informed by the findings of the reviews noted in 'Criterion 1 Evidence' above on CWF, my assessment is that there is strong evidence that CWF is a safe and effective way to improve oral health outcomes, by reducing and preventing dental decay. I also consider that this strong evidence applies to the communities served by the Dannevirke water supply.
Criterion	**2. whether the benefits of adding fluoride to drinking water outweigh the financial costs, taking into account:**
Criterion	**2a. the state or likely state of the oral health of a population group or community where the local authority supply is situated**
Evidence	The Ministry has considered the following information: • data on Age 5 and Year 8 oral health outcomes from the Community Oral Health Service (Ministry of Health) • data from the New Zealand Health Survey: Oral Health (New Zealand Health Survey | Ministry of Health NZ) • Oral Health Survey Report (Our Oral Health: Key findings of the 2009 New Zealand Oral Health Survey | Ministry of Health NZ) • 2013 New Zealand Index of Deprivation (NZDep) (Socioeconomic deprivation profile | ehinz)

	This is the most relevant up-to-date data available. It should be noted that oral health outcome data can take a long time to change substantially.
Analysis	The Dannevirke water supply is situated within the previous MidCentral District Health Board area. 2020 data for children aged 0-12 in MidCentral District Health Board shows: - overall, 42 percent of children had experienced tooth decay at age five - on average, children at age five have 1.89 decayed, missing or filled primary teeth, and at school year 8 have on average 1.10 decayed, missing or filled adult teeth - Māori and Pacific children have significantly worse outcomes than other children within MidCentral District Health Board. For example, 59 percent of Māori children had experienced decay at age five compared to 37 percent for all other (non-Māori and non-Pacific) children. The 2017-2020 New Zealand Health Survey results for MidCentral District Health Board show: - 7.9 percent of adults (15+) had one or more teeth removed in the past 12 months due to decay, an abscess, infection or gum disease The 2017-2020 New Zealand Health Survey results for Tararua District Council show: - 58.9 percent of adults (15+) had one or more teeth removed in their lifetime due to decay, an abscess, infection or gum disease From the data summarised above, it is reasonable to conclude that there are significant levels of dental decay in the communities serviced by the Dannevirke water supply. There is strong evidence that CWF reduces dental decay. There are therefore also significant opportunities for oral health improvement for the communities served by the Dannevirke water supply. The evidence indicates that fluoridation of the Dannevirke water supply would make significant improvements to oral health outcomes for the communities it serves. Within the Dannevirke area, there are significant levels of deprivation. In the 10-level score in which decile 1 has the lease deprivation, Dannevirke East is a 10, and Dannevirke West is a decile 8. There is a significant body of evidence that levels of tooth decay are highest among the most deprived socioeconomic groups.
Director of Public Health advice	Informed by the evidence and data sources listed above at 'Criterion 1 Evidence' and 'Criterion 2a Evidence', I have reviewed the state of oral health of the populations served by the Dannevirke water supply. In summary, my assessment is as follows. The Dannevirke population presently have significant levels of preventable dental decay. The evidence that CWF improves oral health outcomes by reducing dental decay is applicable to this population. So too is the evidence that these benefits tend to be greater for populations that experience higher levels of tooth decay, such as Māori and Pacific communities. Fluoridation of the water supply that serve these communities would consequently improve oral health outcomes, and is likely also to reduce health inequities.
Criterion	**2b. the number of people who are reasonably likely to receive drinking water from the local authority supply**

<table>
<tr><td>Evidence</td><td>The Ministry has considered the following information:
the Public Register of Drinking Water Suppliers</td></tr>
<tr><td>Analysis</td><td><table><tr><th>Water supply</th><th>Population size</th></tr><tr><td>Dannevirke</td><td>6000</td></tr></table></td></tr>
<tr><td>Criterion</td><td>2c. the likely financial cost and savings of adding fluoride to the drinking water, including any additional financial costs of ongoing management and monitoring</td></tr>
<tr><td>Evidence</td><td>The Ministry has considered the following information:
Review of the Benefits and Costs of Water Fluoridation in New Zealand. Sapere Research Group. May 2015.
Water Fluoridation Engineering Costs. August 2015
Tararua District Council’s estimated costs, including ongoing management and monitoring costs (for more detail on Tararua District Council’s comments see table below).</td></tr>
<tr><td>Analysis</td><td>The 2015 Sapere Report estimated that adding fluoride to New Zealand’s water treatment plants classified as medium sized and above (ie, those supplying populations of over 5000) is cost-saving, and for smaller supplies (ie, those supplying populations of over 500) is likely to be cost-saving. The Sapere report also noted:
an estimated total net discounted saving over 20 years for smaller supplies and above to be $1,401 million, made up of a cost of fluoridation of $177 million and cost offsets of $1,578 million from reduced dental decay
“We estimate the 20-year discounted net saving of water fluoridation to be $334 per person, made up of $42 for the cost of fluoridation and $376 savings in reduced dental care”
The Dannevirke supply fits into the category of supplies servicing over 5000 people (see further detail in Criterion 2b).

The estimated costs provided by Tararua District Council are presented in the table below. These estimates vary from the cost estimates Sapere 2015 used in reaching its conclusion that fluoridation is cost-saving for supplies servicing over 5000 people. For water supplies servicing 5001 - 10,000 people, Sapere 2015 estimated $61,034 for capital costs and $8742 per annum for management and monitoring costs; while for the Dannevirke supply servicing 6000 people, Tararua District Council estimated $318,850. The ongoing management and monitoring costs for the Dannevirke supply have not been specified.<table><tr><th>Water Supply</th><th>Population size</th><th>Tararua District Council estimate of capital cost</th><th>Tararua District Council estimate of management and monitoring costs (per annum)</th></tr><tr><td>Dannevirke</td><td>6000</td><td>$318,850</td><td>N/A</td></tr></table></td></tr>
</table>

	Total	**6000**	$318,850	

Summary of the information received from Tararua District Council
As required by section 116G, Tararua District Council was invited to give written comments on the estimated financial costs of adding fluoride to the drinking water, including any additional costs of ongoing management and monitoring; and the date by which each local authority would be able to comply with a direction. Tararua District Council responded within the required timeframe. A copy of Tararua District Council's formal response is attached to this Report as Appendix One. For Tararua District Council's estimated financial costs of adding fluoride to the drinking water, including any additional costs of ongoing management and monitoring please see Criterion 2c above. **Dannevirke Water Supply** Tararua District Council stated that the date by which it would be able to comply with a direction for the Dannevirke supply is 30 June 2024.

SAFETY DATA SHEET

Revision date: 06-Jun-2023

Revision Number 7

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product identifier

Product Name HYDROFLUOROSILICIC ACID

Product Code(s) 000000015539

Other means of identification

UN number 1778

Synonyms Hydrofluorosilicic acid; Hydrofluosilicic acid; Hydrosilicofluoric acid; Silicate(2-), hexafluoro-, dihydrogen; Fluorosilicic acid; HFA.

Recommended use of the chemical and restrictions on use

Recommended use Fluoridation of water.

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier
Ixom Operations Pty Ltd (Incorporated in Australia)
NZBN: 9429041465226 Address: 166 Totara Street
Mt Maunganui South
New Zealand

Telephone Number: +64 9 368 2700
Facsimile: +64 9 368 2710

For further information, please contact

Contact Point Product Safety Department

Emergency telephone number

Emergency Telephone **0 800 734 607 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

Classified as a Dangerous Good according to NZS 5433 Transport of Dangerous Goods on Land; DANGEROUS GOODS.

Classified as hazardous according to criteria in the Hazardous Substances (Hazard Classification) Notice 2020.

GHS Classification

SIGNAL WORD
Danger

Water Treatment Chemicals (Corrosive) Group Standard 2020
Approval Number: HSR002681

Corrosive to metals	Category 1
Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1 Sub-category C
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 1

Label elements

Hazard statements
H290 - May be corrosive to metals
H302 - Harmful if swallowed
H312 - Harmful in contact with skin
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H332 - Harmful if inhaled
H370 - Causes damage to organs

Precautionary Statements - Prevention
Keep out of reach of children.
Do not breathe dusts or mists
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Wear protective gloves / protective clothing / eye protection / face protection
Precautionary Statements - Response
IF exposed: Call a POISON CENTER or doctor/physician
Specific treatment (see First aid on this SDS)
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
IF ON SKIN: Wash with plenty of soap and water
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Precautionary Statements - Storage
Store locked up
Precautionary Statements - Disposal
Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Other hazards which do not result in classification

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical name	CAS No.	Weight-%
Fluorosilicic acid	16961-83-4	21.0-23.0%

Hydrofluoric acid	7664-39-3	0.1-<1.0%
Water	7732-18-5	to 100%

4. FIRST AID MEASURES

Description of first aid measures

General advice For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor. Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Emergency telephone number Poisons Information Center, New Zealand: 0800 764 766
Poisons Information Center, Australia: 13 11 26

Inhalation Remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, (trained personnel should) give oxygen. If breathing is irregular or stopped, administer artificial respiration. Seek immediate medical attention/advice.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub affected area. Immediate medical attention is required.

Skin contact Wash off immediately with plenty of water for at least 15 minutes. Then apply calcium gluconate gel. Take off contaminated clothing and wash before reuse. Get immediate medical advice/attention.

Ingestion Rinse mouth immediately and drink plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

Most important symptoms and effects, both acute and delayed

Symptoms Irritation/Corrosion. May cause redness and tearing of the eyes. Erythema (skin redness). Burning.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically. Can cause corneal burns. Delayed pulmonary edema may occur. Delayed health effects.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Suitable Extinguishing Media Dry chemical, CO2, water spray or regular foam.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical

Specific hazards arising from the chemical Corrosive hazard. Wear protective gloves/clothing and eye/face protection. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Special protective actions for fire-fighters

Special protective equipment for Firefighters should wear self-contained breathing apparatus and full firefighting turnout

fire-fighters	gear. Use personal protection equipment.
Hazchem code	2X

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Attention! Corrosive material. Avoid contact with skin and eyes. Do not breathe vapor or mist. Ensure adequate ventilation. Evacuate personnel to safe areas. Do not touch or walk through spilled material. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing and eye/face protection. Wash thoroughly after handling.
For emergency responders	Clear area of all unprotected personnel. Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment	Stop leak if you can do it without risk. Do not touch or walk through spilled material. Dike far ahead of spill to collect runoff water. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Keep out of drains, sewers, ditches and waterways.
Methods for cleaning up	Soak up with inert absorbent material. Use personal protective equipment as required. Pick up and transfer to properly labelled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Do not breathe vapor or mist. Avoid contact with skin, eyes, and clothing. Ensure adequate ventilation. Use personal protection equipment. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Always add the acid to water, never the reverse. Keep out of reach of children. Not to be available except to authorised or licensed persons.
General hygiene considerations	Take off contaminated clothing and wash it before reuse. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a cool, well-ventilated place. Store locked up. Store away from foodstuffs. Store away from incompatible materials described in Section 10. Keep container closed when not in use.
Incompatible materials	Alkalis. Organic compounds. Metals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits No value assigned for this specific material by the New Zealand Workplace Health & Safety Authority. However, Workplace Exposure Standard(s) for constituent(s):

Chemical name	New Zealand	ACGIH
Hydrofluoric acid 7664-39-3	2 mg/L urine prior to shift Fluoride 3 mg/L urine end of shift Fluoride	

Fluorides, as F: WES-TWA 2.5 mg/m³, bio
Hydrogen fluoride, as F: Ceiling 3 ppm, 2.6 mg/m³

As published by the New Zealand Workplace Health & Safety Authority.

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.

The Biological Exposure Indices (bio) are not applicable to non-metal fluorides and organic fluoride-containing compounds.

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

These Workplace 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 workplace 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.

Appropriate engineering controls

Engineering controls Apply technical measures to comply with the occupational exposure limits.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as personal protective equipment

The selection of PPE is dependent 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.

OVERALLS, CHEMICAL GOGGLES, FACE SHIELD, GLOVES (Long), APRON, RUBBER BOOTS.

Eye/face protection Tight sealing safety goggles. If splashes are likely to occur:. Face protection shield.

Hand protection Elbow-length impervious gloves.

Skin and body protection Overalls. Boots. Splash apron or equivalent chemical impervious outer garment.

Respiratory protection If determined by a risk assessment an inhalation risk exists, wear a suitable mist respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.

Environmental exposure controls No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Color	Pale Yellow
Odor	Characteristic , Pungent , Acidic
Odor threshold	No information available

Property	**Values**	**Remarks • Method**
pH	No data available	None known
Melting point / freezing point	-15°C to -21°C	None known
Boiling point / boiling range	>100°C	None known
Flash point	Not applicable	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	Not applicable	
Lower flammability or explosive limits	Not applicable	
Vapor pressure	18 mm Hg @20°C	None known
Vapor density	No data available	None known
Relative density	1.16-1.22 @20°C	None known
Water solubility	Miscible in water	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	Not applicable	None known
Decomposition temperature	105°C	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information

10. STABILITY AND REACTIVITY

Reactivity

Reactivity Corrosive to metals. Reacts with alkalis.

Chemical stability

Stability Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions Contact with metals may evolve flammable hydrogen gas. Hydrogen fluoride will react with all silicon containing materials such as glass, concrete, and chemical spill sorbents such as vermiculite. This reaction will cause the generation of the highly toxic gas, silicon tetrafluoride.

Conditions to avoid

Conditions to avoid Contact with foodstuffs.

Incompatible materials

Incompatible materials Alkalis. Organic compounds. Metals.

Hazardous decomposition products

Hazardous decomposition products Hydrogen fluoride. Oxides of silicon. Fluorides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

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

Inhalation May cause irritation. Delayed (up to 48hours) fluid build up in the lungs may occur.

Eye contact Corrosive to the eyes and may cause severe damage including blindness.

Skin contact Contact causes severe skin irritation and possible burns.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Can burn mouth, throat, and stomach.

Symptoms Irritation/Corrosion. May cause redness and tearing of the eyes. Erythema (skin redness). Burning.

Acute toxicity

Numerical measures of toxicity
Refer to component information below.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Fluorosilicic acid	= 430 mg/kg (Rat)	-	= 1.11 mg/L (Rat) 1 h
Hydrofluoric acid	-	-	= 0.79 mg/L (Rat) 1 h

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes burns. Classification is based on mixture calculation methods based on component data.

Serious eye damage/eye irritation Causes serious eye damage. Classification is based on mixture calculation methods based on component data.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity Fluoride ion has been classified by the International Agency for Research on Cancer (IARC) as a Group 3 agent. Group 3 - The agent is not classifiable as to its carcinogenicity to humans. Data available is insufficient for an assessment to be made.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs. Classification is based on mixture calculation methods based on component data.

Aspiration hazard No information available.

Chronic effects: Repeated or prolonged exposure may result in bone changes (fluorosis). Fluorosis in humans can result with the repeated ingestion of >6mg of fluorine per day. The fluoride accumulates in bone and can lead to the development of osteosclerosis and other bone changes. Teeth may also be affected.

Symptoms of fluorosis may include weight loss, brittle bones, anaemia, weakness and stiffness of joints.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity Keep out of waterways. Avoid contaminating waterways.

Terrestrial ecotoxicity There is no data for this product.

Chemical name	Algae/aquatic plants	Fish	Crustacea
Fluorosilicic acid	-	LC50: =65mg/L (96h, Poecilia reticulata) LC50: =28.7mg/L (96h, Pimephales promelas)	-
Hydrofluoric acid	-	LC50: =660mg/L (48h, Leuciscus idus)	EC50: =270mg/L (48h, Daphnia species)

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation No information available.

Mobility

Mobility in soil No information available.

Chemical name	Partition coefficient
Hydrofluoric acid	-1.4

Other adverse effects

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of product in packaging/container in a way that is consistent with the Hazardous Substances (Disposal) Notice 2017 and the Act, and Hazardous Substances (Amendments and Revocations) Notice 2020. Treat the chemical using a method that changes the characteristics or composition of the chemical so that the chemical is no longer a hazardous chemical; or export the chemical from New Zealand as waste. Class 6 and 8 chemicals – may be discharged into the environment if a tolerable exposure limit has been set for the substance (or a component of that chemical); and the discharge does not, after reasonable mixing, result in the concentration of the substance in an environmental medium exceeding the tolerable exposure limit. If there is not tolerable exposure limit for the substance, then it may only be discharged into the environment if the substance is very rapidly converted to substances that are not hazardous substances.

Contaminated packaging For packages that have been in direct contact with hazardous chemicals, the person must ensure that the package is rendered incapable of containing any chemical. It must be disposed of in a manner that is consistent with the requirements for disposal of the chemical that it contained, taking into account the material the package is manufactured from. Packages may only be reused or recycled if the package has been treated to remove any residual contents of the hazardous chemical (class 1, 2, 3, 4, or 5); or the contents of the residue in the package are below the threshold for the chemical to be classified as hazardous (class 6, 8, or 9 chemical).

14. TRANSPORT INFORMATION

ROAD AND RAIL TRANSPORT Classified as a Dangerous Good according to NZS 5433 Transport of Dangerous Goods on Land; DANGEROUS GOODS.

UN number	1778
Proper shipping name	FLUOROSILICIC ACID
Hazard class	8
Packing group	II
Hazchem code	2X

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

UN number	1778
UN proper shipping name	FLUOROSILICIC ACID
Transport hazard class(es)	8
Packing group	II

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

UN number	1778
UN proper shipping name	FLUOROSILICIC ACID
Transport hazard class(es)	8
Packing group	II
IMDG EMS Fire	F-A
IMDG EMS Spill	S-B
Marine pollutant	No

15. REGULATORY INFORMATION

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

New Zealand

National regulations See section 8 for national exposure control parameters

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International Inventories

NZIoC	All the constituents of this material are listed on the New Zealand Inventory of Chemicals.
TSCA	Contact supplier for inventory compliance status.
DSL/NDSL	Contact supplier for inventory compliance status.
EINECS/ELINCS	Contact supplier for inventory compliance status.
ENCS	Contact supplier for inventory compliance status.
IECSC	Contact supplier for inventory compliance status.
KECL	Contact supplier for inventory compliance status.
PICCS	Contact supplier for inventory compliance status.
AIIC	All the constituents of this material are listed on the Australian Inventory of Industrial Chemicals.

Legend:
NZIoC - New Zealand Inventory of Chemicals
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIIC- Australian Inventory of Industrial Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

16. OTHER INFORMATION

Prepared By This Safety Data Sheet has been prepared by Ixom Operations Pty Ltd (Toxicology and SDS Services).

Issuing Date: 06-Jun-2023

Reason(s) For Issue: Change in Physical Properties

Revision Note:
The symbol (*) in the margin of this SDS indicates that this line has been revised.

Key or legend to abbreviations and acronyms used in the safety data sheet
Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
C	Carcinogen		

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australian Industrial Chemicals Introduction Scheme (AICIS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

Disclaimer
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 Ixom Operations Pty Ltd 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 Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

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

End of Safety Data Sheet