Magnesium hexafluorosilicates: Human health tier II assessment

29 June 2018

Chemicals in this assessment

Chemical Name in the Inventory	CAS Number
Silicate(2-), hexafluoro-, magnesium (1:1)	16949-65-8
Silicate(2-), hexafluoro-, magnesium (1:1), hexahydrate	18972-56-0

Preface

This assessment was carried out by staff of the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) using the Inventory Multi-tiered Assessment and Prioritisation (IMAP) framework.

The IMAP framework addresses the human health and environmental impacts of previously unassessed industrial chemicals listed on the Australian Inventory of Chemical Substances (the Inventory).

The framework was developed with significant input from stakeholders and provides a more rapid, flexible and transparent approach for the assessment of chemicals listed on the Inventory.

Stage One of the implementation of this framework, which lasted four years from 1 July 2012, examined 3000 chemicals meeting characteristics identified by stakeholders as needing priority assessment. This included chemicals for which NICNAS already held exposure information, chemicals identified as a concern or for which regulatory action had been taken overseas, and chemicals detected in international studies analysing chemicals present in babies' umbilical cord blood.

Stage Two of IMAP began in July 2016. We are continuing to assess chemicals on the Inventory, including chemicals identified as a concern for which action has been taken overseas and chemicals that can be rapidly identified and assessed by using Stage One information. We are also continuing to publish information for chemicals on the Inventory that pose a low risk to

human health or the environment or both. This work provides efficiencies and enables us to identify higher risk chemicals requiring assessment.

The IMAP framework is a science and risk-based model designed to align the assessment effort with the human health and environmental impacts of chemicals. It has three tiers of assessment, with the assessment effort increasing with each tier. The Tier I assessment is a high throughput approach using tabulated electronic data. The Tier II assessment is an evaluation of risk on a substance-by-substance or chemical category-by-category basis. Tier III assessments are conducted to address specific concerns that could not be resolved during the Tier II assessment.

These assessments are carried out by staff employed by the Australian Government Department of Health and the Australian Government Department of the Environment and Energy. The human health and environment risk assessments are conducted and published separately, using information available at the time, and may be undertaken at different tiers.

This chemical or group of chemicals are being assessed at Tier II because the Tier I assessment indicated that it needed further investigation.

For more detail on this program please visit:**www.nicnas.gov.au**

Disclaimer

ACRONYMS & ABBREVIATIONS

Grouping Rationale

Entries for anhydrous chemicals on the Australian Inventory of Chemical Substances (AICS) also cover their hydrated forms, although one hydrate of magnesium hexafluorosilicate (magnesium hexafluorosilicate hexahydrate, CAS No. 18972-56-0) is independently listed on the Inventory.

Aqueous formulations containing magnesium hexafluorosilicate can be considered to contain the hydrated forms rather than the anhydrous chemical. Toxicological differences between the anhydrous and hydrated forms of a chemical commonly relate to the reaction of the anhydrous form with water. When in aqueous solution, magnesium hexafluorosilicate and its hexahydrate are chemically and toxicologically indistinguishable.

Import, Manufacture and Use

Australian

No specific Australian industrial use, import, or manufacturing information has been identified for either of the chemicals.

The anhydrous form of the chemical (CAS No. 16949-65-8) has been identified as having non-industrial use as a parasiticide (in sheep dip products to control lice and flystrike) by the Australian Pesticides and Veterinary Medicines Authority (APVMA).

International

The following international uses have been identified through the European Union (EU) Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) dossiers; Galleria Chemica; Substances and Preparations in Nordic countries (SPIN)

database; the European Commission Cosmetic Ingredients and Substances (CosIng) database; and the United States (US) Personal Care Products Council International Nomenclature of Cosmetic Ingredients (INCI) Dictionary.

Magnesium hexafluorosilicate (with CAS No. 16949-65-8) is listed in United States (US) Personal Care Products Council International Nomenclature of Cosmetic Ingredients (INCI) Dictionary with the reported function of oral-care agent.

The hexahydrated form (CAS No. 18972-56-0) has reported historical use in domestic products including home maintenance products such as marble polish spray pumps up to a concentration of 35 % (Household Products Database, US Department of Health and Human Services).

The chemicals have reported commercial uses, including in one or more of the following:

- manufacturing ceramics;
- producing concrete hardeners;
- water-proofing and moth-proofing agents;
- laundry compounds; and
- electroplating and magnesium casting.

Restrictions

Australian

The chemicals are covered under the listing for 'silicofluorides' in the Poisons Standard—the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) in Schedules 5 and 6 (SUSMP, 2018).

Schedule 6:

SILICOFLUORIDES except:

a) when included in Schedule 5; or

b) in preparations containing 15 mg/kg or less of fluoride ion.

Schedule 6 chemicals are described as 'Substances with a moderate potential for causing harm, the extent of which can be reduced through the use of distinctive packaging with strong warnings and safety directions on the label'. Schedule 6 chemicals are labelled with 'Poison' (SUSMP, 2018).

Schedule 5:

SILICOFLUORIDES in preparations containing 3 per cent or less of fluoride ion except:

a) barium silicofluoride when separately specified in this Schedule; or

b) in preparations containing 15 mg/kg or less of fluoride ion.

Schedule 5 chemicals are described as 'Substances with a low potential for causing harm, the extent of which can be reduced through the use of appropriate packaging with simple warnings and safety directions on the label.' Schedule 5 chemicals are labelled with 'Caution' (SUSMP, 2018).

International

The anhydrous chemical form (CAS No. 16949-65-8) has the following international listings:

- EU Cosmetics Regulation 344/2013 (as an amendment to the listing under Annex III of Regulation 1223/2009)—'List of substances which cosmetic products must not contain except subject to the restrictions laid down': the chemical may be used at maximum concentrations of 0.15 % (calculated as fluorine) in oral care products. Additionally, when mixed with other fluorine (F) compounds permitted under this Annex, total F concentration must not exceed 0.15 % (CosIng).

- New Zealand Cosmetic Products Group Standard (Schedule 5, Table 1)—'Components cosmetic products must not contain except subject to restrictions and conditions laid down': the chemical may be used at maximum concentrations of 0.15 % (calculated as F) in oral hygiene products (NZ EPA, 2017).

- Association of South East Asian Nations (ASEAN) Cosmetic Directive Annex III Part 1—'List of substances which cosmetic products must not contain except subject to restrictions and conditions laid down': the chemical may be used at maximum concentrations of 0.15 % (calculated as F) in oral hygiene products. Thailand, however, has a specific maximum use concentration of 0.11% under this directive for this same use (ASEAN, 2009).

The listing for fluoride-containing substances in the Health Canada List of prohibited and restricted cosmetic ingredients (The Cosmetic Ingredient 'Hotlist'), stating that fluoride-containing substances are not permitted in oral products (Health Canada, 2010), is considered to apply to both forms of the chemical. The following clarification is also provided regarding the listing:

'Fluoride in oral care products has no cosmetic purpose to cleanse, improve or alter the appearance of the body. Its purpose is to prevent dental caries (a disease state), which is therapeutic in nature. It is subsequently classified as a drug (in this case, a natural health product) ingredient. Therefore, fluoride is inappropriate in cosmetic oral care products, and is indicated as such on the Hotlist' (Health Canada, 2010).

Existing Worker Health and Safety Controls

Hazard Classification

Magnesium hexafluorosilicate (CAS No. 16949-65-8) is specifically listed in the Hazardous Chemical Information System (HCIS) (Safe Work Australia), and classified as hazardous, with the following hazard category and hazard statement for human health.

Acute toxicity – category 3; H301 (Toxic if swallowed).

Exposure Standards

Australian

No specific exposure standards are available for the chemicals. However, fluorides (as F) have an exposure standard of 2.5 mg/m^3 time-weighted average (TWA) (Safe Work Australia).

International

While no specific exposure standards are available for the chemicals, the following exposure standards are identified for fluorides (Galleria Chemica):

An exposure limit of 2.5 mg/m^3 TWA for fluorides (as F) in different countries such as the USA, Canada, Norway, Switzerland, New Zealand, China, UK and the EU.

Health Hazard Information

The chemicals are both hexafluorosilicate magnesium salts. Both readily dissociate into the hexafluorosilicate anion and the magnesium cation in water. Further dissociation of the hexafluorosilicate ion to fluoride ions and hydrated silica occurs, with this

being essentially complete in dilute solutions at the pH of drinking water (6.5–8.5 pH) (NICNASa). As both the magnesium cation and hydrated silica are considered to have low toxicity (NICNASb), the toxicity of the chemicals in this assessment is considered to be driven by the effects of the fluoride ions. Where no toxicity data are available for the chemicals, relevant data for sodium fluoride (CAS No. 7681-49-4) and other hexafluorosilicate salts are provided.

Toxicokinetics

Soluble fluoride salts are readily absorbed, resulting in increased fluoride serum levels. Fluoride is then readily excreted in urine (NICNASa).

In an in vivo absorption study, male Holtzman rats (10 animals/group) were administered either sodium hexafluorosilicate (CAS No. 16893-85-9) or sodium fluoride (CAS No. 7681-49-4), as a single oral 0.2 mL dose (by gavage) equivalent to 200 µg of fluoride. By the end of the 30 min study period, approximately 50 % of the administered fluoride from the fluoride salts was reported to be absorbed through the gastrointestinal tract (NICNASa).

Acute Toxicity

Oral

Magnesium hexafluorosilicate (CAS No. 16949-65-8) is classified as hazardous, with the hazard category ‘Acute Toxicity – Category 3’ and hazard statement ‘Toxic if swallowed’ (H301), in the HCIS (Safe Work Australia). This classification should also apply to the hexahydrated form (CAS No. 18972-56-0) of the chemical.

The available data support this classification. In an acute oral toxicity study conducted similar to OECD Test Guideline (TG) 401, the hexahydrate was reported to have a median lethal dose (LD50) of 291 mg/kg bw in Sprague Dawley (SD) rats. Reported signs of toxicity included trembling, shaggy fur, diarrhoea, ataxia and convulsions (REACH).

Dermal

No data are available for either of the chemicals in this assessment. While limited data are available for other hexafluorosilicate salts, the related chemical sodium hexafluorosilicate has a lowest lethal dose (LDLo) of 70 mg/kg bw/day indicating that the chemicals may have high acute toxicity following dermal exposure (NICNASa).

Inhalation

Based on the available data, the chemicals are considered to have moderate acute inhalation toxicity, warranting hazard classification (see **Recommendation** section).

In an acute inhalation toxicity study conducted similar to OECD TG 403, the hexahydrate (CAS No. 18972-56-0) was administered to SD rats (10 animals/sex/dose) as nose (head) only aerosol inhalation exposure, for four hours, at nominal dose concentrations ranging from 1.18–9.92 mg/L in air (measured dose concentrations reported to range from 1.07–6.06 mg/L). The four-hour median lethal concentration (LC50) was reported to be 3.6 mg/L of air, while a one-hour LC50 of 14.4 mg/L was reported (REACH). Reported signs of toxicity included shortness of breath, tremors, staggering gait, apathy and shaggy fur.

Corrosion / Irritation

Skin Irritation

No reliable data are available for the chemicals in this assessment. However, based on the available data for the related chemical sodium hexafluorosilicate, these chemicals are not expected to be skin irritants (NICNASa).

Eye Irritation

Based on the available data, the chemicals are considered to be severely irritating to the eye, warranting hazard classification (see **Recommendation** section).

The hexahydrated form of the chemical (CAS No. 18972-56-0) was reported to cause severe irritation in a Bovine Corneal Opacity and Permeability (BCOP) assay, conducted according to OECD TG 437 (REACH). The substance was suspended in physiological saline at 20 % (w/v) and applied to the epithelial surface of three bovine corneas, for an exposure period of 4 hours (as according to the test guideline for application of a non-surfactant solid test chemical). The chemical was reported to induce changes in corneal opacity, but not in cornea permeability, with a calculated in vitro irritancy score (IVIS) of 109.3. According to the OECD TG 437, an IVIS score >55 is considered to be indicative of a test chemical causing serious eye damage (OECDa).

The related chemical, sodium hexafluorosilicate was reported to severely irritate the eyes of male New Zealand White rabbits (OECD TG 405) (NICNASa).

Sensitisation

Skin Sensitisation

The limited skin sensitisation data available for the chemicals are not sufficient to form a definitive conclusion.

In an in vivo skin sensitisation test (mouse local lymph node assay—LLNA) conducted according to OECD TG 442B, the hexahydrate was reported to give a negative result (maximum Stimulation Index—SI—of 1.68) following administration to female mice at concentrations of 2.5, 5, 10, 25 or 50 % w/w (six animals per dose group). Individual SI values were not available. An EC3 value could not be determined (OECDb; REACH).

Repeated Dose Toxicity

Oral

Based on the available data the chemicals are considered to cause serious damage to health from repeated oral exposure, warranting hazard classification (see **Recommendation** section).

In a short-term (28-day) in vivo oral repeat dose toxicity study, conducted similar to OECD TG 407, the hexahydrate (CAS No. 18972-56-0) was administered to SD rats (10 animals/sex/dose group) at 300, 900 or 3000 ppm (equivalent to approximately 36, 108 and 360 mg/kg bw, respectively) in diet for 28 days. A no observed adverse effect level (NOAEL) of 300 ppm was reported for this study, with effects relating to fluorosis (fast-growing front teeth and bone, and pronounced impairment of enamel and dentin of the incisors) observed at higher concentrations (REACH).

Hexafluorosilicate salts are reported to be absorbed from the gastrointestinal tract as fluoride (see **Toxicokinetics** section), resulting in increased fluoride serum levels. The lowest observed adverse effect level (LOAEL) available from two-year rat studies with sodium fluoride (CAS No. 7681-49-4) is 4 mg/kg bw/day. Effects observed at the highest concentration (25 mg/kg bw/day) included fluoride-related toxicity changes to the teeth, bones and stomach (also seen at 10 mg/kg bw/day), decreased blood glucose, total protein and globulin levels, decreased body weight gain (30 % less compared with controls) and weight changes in the stomach and femur. Changes to the skull bones were also observed at 10 and 25 mg/kg bw/day (NICNASa).

Dermal

No data are available for the chemicals.

Inhalation

No data are available for the chemicals.

Genotoxicity

While no data are available for these specific chemicals, based on the available in vitro and in vivo genotoxicity studies with sodium hexafluorosilicate (CAS No. 16893-85-9), the chemicals are not considered to be genotoxic.

In vitro

Sodium hexafluorosilicate gave negative results in all available in vitro tests for gene mutation and clastogenicity (NICNASa). Negative results were reported in bacterial reverse mutation assays (Ames test; OECD TG 471) using:

- *Salmonella typhimurium* strains TA98, TA100, TA1535, TA1537 and TA1538 with or without metabolic activation at up to 3600 µg/plate; and
- *Bacillus subtilis* M45 Rec- and H17 Rec+ at up to 10 M.

In vivo

Sodium hexafluorosilicate gave negative results in in vivo gene mutation and clastogenicity tests (micronucleus assay; OECD TG 474), in mice and rats (NICNASa). No increases in occurrence of micronucleated polychromatic erythrocytes in bone marrow of animals were observed following intraperitoneal administration of the chemical at up to 37.2 mg/kg bw.

Sodium fluoride (CAS No. 7681-49-4) also gave negative results in an in vitro Ames test in *S. typhimurium* and in an in vivo bone marrow micronucleus assay in the mouse and rat (NICNASa).

Carcinogenicity

No data are available for the chemicals. Based on the lack of genotoxicity for sodium hexafluorosilicate and sodium fluoride and the limited available animal data for sodium fluoride, the magnesium hexafluorosilicates in this assessment are not considered to be carcinogenic.

The American Conference of Governmental Industrial Hygienists (ACGIH) has listed fluorides as 'A4 not classifiable as a human carcinogen' and the International Agency for Research on Cancer (IARC) has concluded that 'there is inadequate evidence for carcinogenicity to humans and to animals for inorganic fluorides used in drinking water' (NTP, 2001; Galleria Chemica).

In a two-year combined repeated dose and carcinogenicity oral feed study in SD rats (n=70/sex/dose), sodium fluoride at doses of 0, 4, 10 or 25 mg/kg/day was added to a low-fluoride diet, a NOAEL of 25 mg/kg bw/day was reported. No neoplastic changes were observed (NICNASa).

In a two-year, non-guideline repeated dose study in Fischer 344 rats (n=70–100/group/sex), sodium fluoride was administered in the drinking water at concentrations of 0, 25, 100 or 175 ppm (equivalent to 0, 11, 45 and 79 ppm fluoride). Osteosarcoma was observed in four rats (one at 100 ppm, 3/80 at 175 ppm). The incidence of osteosarcoma at the highest dose (3.75 %), while greater than the historical control incidence (10/2106, 0.5 %), was discounted on the basis of one set of historical controls which had a 6 % incidence (NICNASa).

Reproductive and Developmental Toxicity

No data are available for the chemicals in this group. Based on the information available for sodium fluoride, the chemicals are not expected to have specific reproductive or developmental toxicity.

Several reproductive toxicity studies have been conducted with sodium fluoride in rats and rabbits. The no observed adverse effects concentrations (NOAECs) for developmental toxicity are greater than 400 ppm (rabbit) and 175 ppm (equivalent to 26.25 mg/kg bw/day) (rat).

In a three-generation reproductive toxicity study, rats (strain CD-CRL:CD-BR) were treated with sodium fluoride at doses of 25, 100, 175 or 250 ppm (equivalent to 3.75, 15, 26.25 and 37.5 mg/kg bw/day) in drinking water for 10 weeks before mating (n=48 and n=36 for the P and F1 generations, respectively). A no observed effect level (NOEL) of 37.5 mg/kg bw/day (250 ppm) was established for reproduction. Clinical signs observed in the parents included decreased water consumption and decreased body weight gain (P males at 250 ppm). Offspring showed an increase in the development of prominent growth lines in teeth at 250 ppm (NICNASa).

In a prenatal developmental toxicity study (equivalent to EPA OPPTS 870.3700) SD rats were exposed to sodium fluoride in drinking water at doses of 50, 150 or 300 ppm (equivalent to 7.5, 22.5 or 45 mg/kg bw/day) during gestation days (GD) 6–15. No developmental effects were observed and a lowest observed adverse effect concentration (LOAEC) of 300 ppm was established based on decreased body weight during GD 6–8 at 300 ppm. The NOAEL is therefore considered to be 22.5 mg/kg bw/day in this study (NICNASa).

In a developmental toxicity study, New Zealand White rabbits (n=26/dose) were exposed to sodium fluoride in drinking water at doses of 100, 200 or 400 ppm during GD 6–19. No developmental toxicity was observed and a LOAEC of 400 ppm was established based on decreased body weight gain (NICNASa).

In a three-generation, non-guideline, developmental toxicity study, rats (strain CD-CRL:CD-BR) were treated with sodium fluoride at doses of 25, 100, 175 and 250 ppm (equivalent to 3.75, 15, 26.25 and 37.5 mg/kg bw/day) in drinking water for 10 weeks before mating and during gestation (females). A lowest observed effect concentration (LOEC) of 250 ppm was established for developmental toxicity based on a decreased ossification of the hyoid bone in F2 foetuses at 250 ppm. Therefore, the NOAEL is considered to be 22.5 mg/kg bw/day in this study. No maternal toxicity effects were observed (NICNASa).

In a non-guideline study, rats (strain CD-CRL:CD-BR, VAR+) (n=33–35/dose) were treated with sodium fluoride in drinking water at doses of 10, 25, 100, 175 or 250 ppm (equivalent to 1.5, 3.75, 15, 26.25 and 37.5 mg/kg bw/day) during GD 0–20. A NOEL of 26.25 mg/kg bw/day (175 ppm) was established for maternal toxicity based on decreased body weight gain at 250 ppm. A significant increase in the average number of foetuses with three or more skeletal variations and the number of litters with foetuses with three or more skeletal variations was increased in the 250 ppm group. However, there were no dose-related increases in the incidence of soft tissue variations, external anomalies, or effects on the development of specific bones, including sternebrae (NICNASa).

Risk Characterisation

Critical Health Effects

The critical health effects for risk characterisation include systemic acute effects (acute toxicity from the oral and inhalation routes of exposure) and local effects (eye irritation). The chemicals can also cause harmful effects following repeated oral exposure.

Public Risk Characterisation

These chemicals are covered under the listing for 'Silicofluorides' in Schedules 5 and 6 of the SUSMP. Preparations containing 3 % or less fluoride ion are in Schedule 5, and preparations containing more than 3 % fluoride ion are in Schedule 6 of the SUSMP. Preparations containing 15 mg/kg or less fluoride ion (i.e. 0.15 % or less fluoride ion) are exempted from scheduling according to the Poisons Standards.

At concentrations greater than 0.15 % in cosmetics or domestic products, a number of warning statements, first aid instructions and safety directions apply.

The current controls are considered adequate to minimise the risk to public health posed by domestic and cosmetic products containing the chemicals; therefore, the chemicals are not considered to pose an unreasonable risk to public health.

Occupational Risk Characterisation

During product formulation, oral, ocular and inhalation exposure might occur, particularly where manual or open processes are used. These could include transfer and blending activities, quality control analysis, and cleaning and maintaining equipment. Worker exposure to the chemicals at lower concentrations could also occur while using formulated products containing the chemicals. The level and route of exposure will vary depending on the method of application and work practices employed. Oral exposure is also possible but can be prevented by good hygiene practices.

Given the critical health effects, the chemicals could pose an unreasonable risk to workers unless adequate control measures to minimise dermal, ocular and inhalation exposure are implemented. The chemicals should be appropriately classified and labelled to ensure that a person conducting a business or undertaking (PCBU) at a workplace (such as an employer) has adequate information to determine the appropriate controls.

The data available support an amendment to the hazard classification in the HCIS (Safe Work Australia) (see **Recommendation** section).

NICNAS Recommendation

Assessment of these chemical is considered to be sufficient, provided that the recommended amendment to the classification is adopted, and labelling and all other requirements are met under workplace health and safety and poisons legislation as adopted by the relevant state or territory.

Regulatory Control

Public Health

Products containing the chemicals should be labelled in accordance with state and territory legislation (SUSMP, 2018).

Work Health and Safety

The chemicals are recommended for classification and labelling aligned with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) as below. This does not consider classification of physical hazards and environmental hazards.

From 1 January 2017, under the model Work Health and Safety Regulations, chemicals are no longer to be classified under the Approved Criteria for Classifying Hazardous Substances system.

Hazard	Approved Criteria (HSIS)[a]	GHS Classification (HCIS)[b]
Acute Toxicity	Not Applicable	Toxic if swallowed - Cat. 3 (H301) Harmful if inhaled - Cat. 4 (H332)
Irritation / Corrosivity	Not Applicable	Causes serious eye damage - Cat. 1 (H318)

Hazard	Approved Criteria (HSIS)[a]	GHS Classification (HCIS)[b]
Repeat Dose Toxicity	Not Applicable	Causes damage to organs through prolonged or repeated exposure - Cat. 1 (H372)

[a] Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)].

[b] Globally Harmonized System of Classification and Labelling of Chemicals (GHS) United Nations, 2009. Third Edition.

[*] Existing Hazard Classification. No change recommended to this classification

Advice for consumers

Products containing the chemicals should be used according to the instructions on the label.

Advice for industry

Control measures

Control measures to minimise the risk from oral, dermal, ocular and inhalation exposure to the chemicals should be implemented in accordance with the hierarchy of controls. Approaches to minimise risk include substitution, isolation and engineering controls. Measures required to eliminate, or minimise risk arising from storing, handling and using a hazardous chemical depend on the physical form and the manner in which the chemicals are used. Examples of control measures that could minimise the risk include, but are not limited to:

- using closed systems or isolating operations;
- using local exhaust ventilation to prevent the chemicals from entering the breathing zone of any worker;
- minimising manual processes and work tasks through automating processes;
- work procedures that minimise splashes and spills;
- regularly cleaning equipment and work areas; and
- using protective equipment that is designed, constructed, and operated to ensure that the worker does not come into contact with the chemicals.

Guidance on managing risks from hazardous chemicals are provided in the *Managing risks of hazardous chemicals in the workplace—Code of practice* available on the Safe Work Australia website.

Personal protective equipment should not solely be relied upon to control risk and should only be used when all other reasonably practicable control measures do not eliminate or sufficiently minimise risk. Guidance in selecting personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.

Obligations under workplace health and safety legislation

Information in this report should be taken into account to help meet obligations under workplace health and safety legislation as adopted by the relevant state or territory. This includes, but is not limited to:

- ensuring that hazardous chemicals are correctly classified and labelled;
- ensuring that (material) safety data sheets ((M)SDS) containing accurate information about the hazards (relating to both health hazards and physicochemical (physical) hazards) of the chemicals are prepared; and
- managing risks arising from storing, handling and using a hazardous chemical.

Your work health and safety regulator should be contacted for information on the work health and safety laws in your jurisdiction.

Information on how to prepare an (M)SDS and how to label containers of hazardous chemicals are provided in relevant codes of practice such as the *Preparation of safety data sheets for hazardous chemicals—Code of practice* and *Labelling of workplace hazardous chemicals—Code of practice*, respectively. These codes of practice are available from the Safe Work Australia website.

A review of the physical hazards of these chemicals has not been undertaken as part of this assessment.

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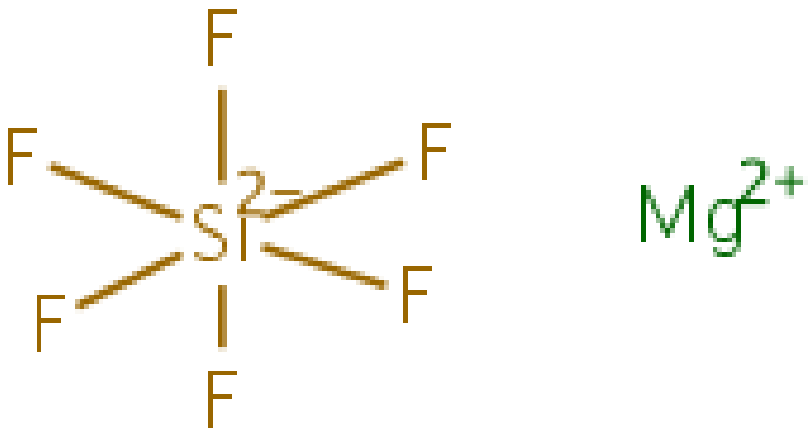
Last Update 29 June 2018

Chemical Identities

Chemical Name in the Inventory and Synonyms	**Silicate(2-), hexafluoro-, magnesium (1:1)** magnesium hexafluorosilicate magnesium fluorosilicate magnesium silicofluoride fluosilicic acid magnesium salt silicate, hexafluoro-, magnesium
CAS Number	16949-65-8
Structural Formula	
Molecular Formula	F6Si.Mg
Molecular Weight	166.38

Chemical Name in the Inventory and Synonyms	**Silicate(2-), hexafluoro-, magnesium (1:1), hexahydrate** magnesium hexafluorosilicate(2-), hexahydrate magnesium hexafluorosilicate hexahydrate magnesium fluorosilicate (MgSiF6), hexahydrate
CAS Number	18972-56-0
Structural Formula	
Molecular Formula	F6Si.6H2O.Mg
Molecular Weight	274.47

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