

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Name : GS-4
Product group : Mixture

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Industrial/Professional use spec : Industrial
For professional use only
Use of the substance/mixture : Detergent to clean removable greenhouses coatings.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Mardenkro B.V.
Geerstraat 8
5110 AG Baarle-Nassau - Nederland
T +31 (0) 13 507 7069 - F +31 (0) 13 507 7343
Info@mardenkro.com - www.mardenkro.com

1.4. Emergency telephone number

| Country | Organisation/Company | Address | Emergency number |
|----------------|---|---------------------------------|------------------|
| UNITED KINGDOM | Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust | Avonley Road SE14 5ER London | 0870 243 2241 |

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302
Skin Corr. 1B H314
Full text of H-phrases: see section 16

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS05

GHS07

Signal word (CLP) : Danger
Hazardous ingredients : ammonium bifluoride, ammonium hydrogen difluoride
Hazard statements (CLP) : H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
Precautionary statements (CLP) : P260 - Do not breathe spray, vapours
P264 - Wash hands, forearms and face thoroughly after handling
P280 - Wear protective gloves, protective clothing, face protection, eye protection
P301+P312 - IF SWALLOWED: Call a doctor if you feel unwell
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

2.3. Other hazards

No additional information available

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according to Regulation (EC) No. 1907/2006 (REACH)

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---|---|---------|---|
| ammonium bifluoride, ammonium hydrogen difluoride | (CAS No) 1341-49-7 (EC no) 215-676-4 (EC index no) 009-009-00-4 | 10 - 25 | Acute Tox. 3 (Oral), H301 Skin Corr. 1B, H314 |

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|---------------------------------------|--|
| First-aid measures general | : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). |
| First-aid measures after inhalation | : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. |
| First-aid measures after skin contact | : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician. |
| First-aid measures after eye contact | : 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. |
| First-aid measures after ingestion | : Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell. Immediately call a POISON CENTER or doctor/physician. |

4.2. Most important symptoms and effects, both acute and delayed

| | |
|-----------------------------------|--|
| Symptoms/injuries | : Causes severe skin burns and eye damage. |
| Symptoms/injuries after ingestion | : Swallowing a small quantity of this material will result in serious health hazard. |

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

| | |
|--------------------------------|--|
| Suitable extinguishing media | : Foam. Dry powder. Carbon dioxide. Water spray. Sand. |
| Unsuitable extinguishing media | : Do not use a heavy water stream. |

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

| | |
|--------------------------------|---|
| Firefighting instructions | : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. |
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

| | |
|----------------------|-----------------------------------|
| Emergency procedures | : Evacuate unnecessary personnel. |
|----------------------|-----------------------------------|

6.1.2. For emergency responders

| | |
|----------------------|--|
| Protective equipment | : Equip cleanup crew with proper protection. |
| Emergency procedures | : Ventilate area. |

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

| | |
|-------------------------|--|
| Methods for cleaning up | : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials. |
|-------------------------|--|

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Do not breathe mist, vapors.
- Hygiene measures : Do not eat, drink or smoke when using this product. Wash Avoid contact with skin and eyes, Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work thoroughly after handling. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
- Storage conditions : Keep only in the original container in a cool well ventilated place. Keep container closed when not in use. Keep out of frost.
- Incompatible products : Strong bases. Strong acids.
- Incompatible materials : Sources of ignition. Direct sunlight.
- Packaging materials : SUITABLE MATERIAL: polyethylene, polypropylene. Unsuitable materials: metal, glass, polytetrafluoroethylene.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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DNEL/DMEL (Workers)

Long-term - systemic effects, inhalation 2,3 mg/m³ ammonium bifluoride, ammonium hydrogen difluoride

8.2. Exposure controls

- Personal protective equipment : Avoid all unnecessary exposure. Corrosionproof clothing. Gloves. Dust/aerosol mask with filter type P3. Face shield. Safety glasses.
- Hand protection : Chemical resistant gloves (according to European standard NF EN 374 or equivalent). Time of penetration is to be fixed with the producer

| Type | Material | Permeation | Thickness (mm) | Penetration | Standard |
|-------------------|----------------------|-------------------|----------------|-------------|----------|
| Disposable gloves | nitrile rubber (NBR) | 6 (> 480 minutes) | 0.7 | | EN 374 |

Eye protection : Chemical goggles or face shield. DIN EN 166

Skin and body protection : Wear suitable protective clothing. Wear shoes (boots) of Neoprene

Respiratory protection : Wear appropriate mask. Avoid inhalation of vapours



Other information : Do not eat, drink or smoke during use. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Colour : orange.
- Odour : characteristic.
- Odour threshold : No data available
- pH : 3
- Relative evaporation rate (butylacetate=1) : No data available
- Melting point : No data available
- Freezing point : No data available
- Boiling point : No data available
- Flash point : No data available
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available

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| | |
|----------------------------------|---|
| Flammability (solid, gas) | : Non flammable |
| Vapour pressure | : No data available |
| Relative vapour density at 20 °C | : No data available |
| Relative density | : No data available |
| Density | : 1 g/cm ³ |
| Solubility | : Soluble in water. Insoluble in organic solvents. |
| Log Pow | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : 1,5 mPa.s Brookfield LV, ULA adapter, 100 rpm, 20°C |
| Explosive properties | : None. |
| Oxidising properties | : No data available |
| Explosive limits | : No data available |

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Gives off hydrogen by reaction with metals. Reacts with Sillicaat containing materials (glass, cement ..) metals.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Corrosive to metals. Gives off hydrogen by reaction with metals.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases. Reacts with Sillicaat containing materials (glass, cement ..) metals.

10.6. Hazardous decomposition products

Ammonia solution. Nitrogen oxides (NOx). hydrofluoric acid.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

| | |
|----------|----------------------|
| ATE oral | 500 mg/kg bodyweight |
|----------|----------------------|

Skin corrosion/irritation : Causes severe skin burns and eye damage.

pH: 3

Serious eye damage/irritation : Serious eye damage, category 1, implicit

pH: 3

Respiratory or skin sensitisation : Not classified

Based on available data, the classification criteria are not met

Germ cell mutagenicity : Not classified

Based on available data, the classification criteria are not met

Carcinogenicity : Not classified

Based on available data, the classification criteria are not met

Reproductive toxicity : Not classified

Based on available data, the classification criteria are not met

Specific target organ toxicity (single exposure) : Not classified

Based on available data, the classification criteria are not met

Specific target organ toxicity (repeated exposure) : Not classified

Based on available data, the classification criteria are not met

Aspiration hazard : Not classified

Based on available data, the classification criteria are not met

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| | |
|----------------------|-------------------------------|
| Viscosity, kinematic | 1,50000000 mm ² /s |
|----------------------|-------------------------------|

Potential adverse human health effects and symptoms : Harmful if swallowed.

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SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

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| | |
|-------------------------------|--|
| Persistence and degradability | Biodegradation: The methods for determining biodegradability are not applicable to inorganic substances. |
|-------------------------------|--|

12.3. Bioaccumulative potential

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| | |
|---------------------------|----------------------|
| Bioaccumulative potential | not bioaccumulative. |
|---------------------------|----------------------|

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : The product mix with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Lime or calcium hydroxide is preferably used for the fluorine-ion to precipitate the formation of CaF₂. The product filtering and the filter cake to an approved industrial waste control.

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Additional information : Handle contaminated packaging in the same way as the substance itself.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2817
UN-No. (IMDG) : 2817
UN-No.(IATA) : 2817
UN-No.(ADN) : 2817
UN-No. (RID) : 2817

14.2. UN proper shipping name

Proper Shipping Name (ADR) : AMMONIUM HYDROGENDIFLUORIDE SOLUTION
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable
Transport document description (ADR) : UN 2817 AMMONIUM HYDROGENDIFLUORIDE SOLUTION, 8 (6.1), II, (E)
Transport document description (IMDG) : UN 2817, 8

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 8 (6.1)
Danger labels (ADR) : 8, 6.1



IMDG

Transport hazard class(es) (IMDG) : 8

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according to Regulation (EC) No. 1907/2006 (REACH)

IATA

Transport hazard class(es) (IATA) : 8

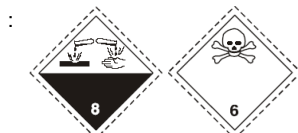
ADN

Transport hazard class(es) (ADN) : 8

RID

Transport hazard class(es) (RID) : 8 (6.1)

Danger labels (RID) : 8, 6.1



14.4. Packing group

Packing group (ADR) : II
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable
Packing group (ADN) : Not applicable
Packing group (RID) : Not applicable

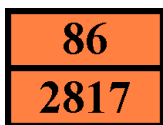
14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : CT1
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E2
Vehicle for tank carriage : AT
Transport category (ADR) : 2
Hazard identification number (Kemler No.) : 86
Orange plates :



Tunnel restriction code (ADR) : E
EAC code : 2X

- Transport by sea

MFAG-No : 154

- Air transport

No data available

- Inland waterway transport

Not subject to ADN : No

- Rail transport

Carriage prohibited (RID) : No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

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according to Regulation (EC) No. 1907/2006 (REACH)

Contains no substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Other information : None.

Full text of H- and EUH-phrases:

| | |
|---------------------|---|
| Acute Tox. 3 (Oral) | Acute toxicity (oral), Category 3 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4 |
| Skin Corr. 1B | Skin corrosion/irritation, Category 1B |
| H301 | Toxic if swallowed |
| H302 | Harmful if swallowed |
| H314 | Causes severe skin burns and eye damage |

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product