



SAFETY DATA SHEET

1. Identification of product and company.

Product name: GS-4
Usage: Cleaning agent for horticultural greenhouses.
Manufacturer: Mardenkro B.V., Geerstraat 8, Postbus 280,
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2. Composition of and information on the ingredients.

This product is to be considered as a substance according to EU-legislation.

Chemical description: Ammonium hydrogendifluoride solution in water.

Information on the ingredients:

	Weight percentage	CAS-number
Ammonium hydrogendifluoride	15%	1341-49-7

I-number: 009-009-00-4.

Symbol: toxic and corrosive.

R-phrases: 25 and 34.

3. Identification of hazards.

The product has an etching effect on the skin and respiratory organs. The vapour and fumes of the product have an etching effect on the eyes, the respiratory organs and the skin. Swallowing of the product may cause kidney damage and palpitations.

4. First Aid Measures.

Symptoms and effects: Burning skin, causes burns, danger of severe eye-damage

First Aid Measures:

In general: In all cases of doubt, or when symptoms remain, call a doctor.

Inhalation: Move victim into fresh air and loosen tight clothing.

In case of apnoea, use artificial respiration or a respirator.

Skin contact:	Immediately remove all contaminated clothing and rinse the skin with generous amounts of water and soap. Dab with polyethylene glycol 400.
Eye contact:	Immediately rinse with generous amounts of water for 10-15 minutes, while stretching the eyelids by using your thumb and index finger; the eye should make a rolling movement. Always call a doctor, preferably an eye doctor.
Ingestion:	Rinse mouth well. Immediately give large quantities of water to drink, do not induce vomiting, and call a doctor.
Advice to a physician:	Check the etching effect.

5. Fire-fighting measures.

Suitable fire extinguishers:	The product itself is not flammable. Spray vapour and fumes with water. In case of fire, keep the containers with the product cool with water.
Unfitted extinguishers:	Not applicable.
Exposure risk:	If exposed to intense heat, the dissolved ammonium hydrogen-bifluoride may transform into etching hydrofluoric gas. If exposed to considerable heat, the resulting vapour will be heavier than air.
Hazardous combustion products:	Fluoric acid
Special protective equipment for fire fighters:	In case of fire, use compressed-air masks and wear protective clothing.

6. Precautions in the event of an unexpected release of the product.

Personal precautions:	Avoid contact with the product.
For personal protection:	Section 8.
Environmental precautions:	Discharge waste into the sewage system or environment only after very extensive dilution.
Cleaning methods:	The product if spilled should be neutralized and stored in suitable containers. Residue should be washed down with generous amounts of water.

7. Handling and storage.

Handling:	Avoid contact with the eyes and the skin. Avoid inhalation of the vapour.
Storage:	Do not store in the vicinity of strong acids or bases.
Specific precautions:	No specific technical safety precautions are required.
Other information:	Packaging material is polythene. Store in a frost-resistant location.

8. Precautions to control exposure/personal protection.

Exposure limits: MAC value 25 mg/m³, calculated on the fluoride content.

Precautions to control exposure:

Wear protective clothing, gloves and safety goggles.
Keep working clothes separate.
Do not eat, drink, or smoke during work.

Personal protection:

- Hands: Rubber or synthetic gloves.
- Eyes: Safety goggles with side flaps.
- Skin and body: Protective clothing and shoes made of Neoprene.
- Inhalation: Avoid inhalation of vapour and fumes. In case of insufficient ventilation use a dust/mist respirator.

9. Physical and chemical properties.

General information: Liquid, orange.
Odour: Acid, almost odourless.
pH: 3-4 (weak acid).
Boiling-point: 100°C
Melting point: -6°C
Relative density: 1.07 (water=1).
Flash point: Not applicable.
Ignition temperature: Not applicable.
Decomposition temperature: 230°C.
Explosive characteristics: None.
Oxidizing characteristics: None.
Viscosity: 1mPas 20°C
Vapour pressure: 23hPa 20°C
Water solubility: Soluble.
Solubility in other solvents: Insoluble.

10. Stability and reactivity.

Stability: Stable.
Conditions to avoid: High temperatures.
Substances to avoid: Strong acids, bases and metals.
The product attacks glass.
Hazardous products of decomposition: Hydrogen fluoride in contact with acid and at high temperatures.

11. Toxicological information.

There are no data available on the preparation itself.

Specific toxicological information:

Acute toxicity: Oral, LD-50 (rat) 867 mg/kg for Ammonium hydrogendifluoride

Skin: Etching effect.

Eyes: Etching effect.
Inhalation: Difficulty in breathing, headache.
Sensibility: Unknown.
Genotoxicity: Unknown.
Other toxicological information: Unknown.

12. Ecological information.

Ecological toxicity effects: Quantitative data on the ecological toxicity effects are not available.

Further ecological information:

For inorganic fluorides:

Biological effects: Fish: Lidus LC50: 660 mg/l.
General: Sc. quadricauda 249 mg/l.

For Ammonia: Toxic for fish from 0,3 mg/l.

13. Instructions for disposal.

Product: Dispose of as chemical waste in compliance with local and regional regulations.

Packaging: Clean packaging with generous amounts of water and dispose of as waste packaging in accordance with the local Directives.

14. Transport information.

Land transport RID/ADR

Class: 8
Packaging Group: II
Number: 86
Label: 8 + 6.1
UN-Nr. : 2817 Ammonium hydrogendifluoride solution.
Transport Card: CEFIC TEC(R)
TREM-card-number: 880
Classification code: CT1

Sea-transport IDMG extra information:

Marine Pollutant: No.
Emergency Schedule (EMS): 806
Medical First Aid Guide (MFAG): 750

Air-transport ICAO/IATA extra information: not available

15. Regulatory information.

Chemical identity: GS-4

I-number: 009-009-00-4

Labelling according to EC Directives.

Symbol/Symbols: Toxic and corrosive.

Special hazards: R 25 Toxic if swallowed.

R 34 Causes burns.

Safety recommendations: S 22 Do not breath substance.

S 26 In case of contact with eyes, immediately rinse with plenty of water and seek expert medical advice.

S 37 Wear suitable gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16. Other information.

Legislation: This safety information sheet meets the EC directives (91/155/EG) version 2001/58/EG.

Warning: The data above have been collected from existing literature with utmost care. Mardenkro B.V. will not accept any liability for damage, whatever its nature or volume, resulting from the use of these data.

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