

MATERIAL SAFETY DATA SHEET (MSDS)

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

1.1. Product identifier

Product form	: Substance
	:
CAS-No.	: 7803-57-8
Product code	: 00166
Formula	: NH ₂ NH ₂ .H ₂ O
Synonyms	: Hydrazinium Hydroxide

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
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1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flammable liquids, Category 3	H226
Acute toxicity (oral), Category 3	H301
Acute toxicity (dermal), Category 3	H311
Acute toxicity (inhal.), Category 3	H331
Skin corrosion/irritation, Category 1B	H314
Skin sensitisation, Category 1	H317
Carcinogenicity, Category 1A	H350
Hazardous to the aquatic environment — Chronic Hazard, Category 1	H410

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Full text of H statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Carc.Cat.1; R45

T; R23/24/25

C; R34

R43

N; R50/53

R10

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

GHS05

GHS06

GHS08

GHS09

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H226 - Flammable liquid and vapour.
H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
H314 - Causes severe skin burns and eye damage.
H317 - May cause an allergic skin reaction.
H350 - May cause cancer.
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) :

P201 - Obtain special instructions before use.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER/doctor
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

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : HYDRAZINE HYDRATE 80% AR

CAS-No. : 7803-57-8

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Full text of R- and H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
First-aid measures after skin contact	: Take off immediately all contaminated clothing. Wash with plenty of water/... Wash contaminated clothing before reuse. Get medical advice/attention.
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/doctor.
First-aid measures after ingestion	: Rinse mouth out with water. Immediately call a POISON CENTER/doctor. Do NOT induce vomiting.

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

Symptoms/effects	: Causes severe skin burns and eye damage.
Symptoms/effects after inhalation	: May cause an allergic skin reaction.
Symptoms/effects after skin contact	: Toxic in contact with skin.
Symptoms/effects after ingestion	: Toxic if swallowed.
Chronic symptoms	: May cause cancer.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: dry chemical powder, alcohol-resistant foam, carbon dioxide (CO ₂).
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Flammable liquid and vapour.
Explosion hazard	: May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Remove ignition sources. Use special care to avoid static electric charges. No open flames. No smoking.
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6.1.1. For non-emergency personnel

Emergency procedures	: Avoid breathing mist, gas, vapours. Do not breathe vapours.
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6.1.2. For emergency responders

Protective equipment	: Use personal protective equipment as required.
Emergency procedures	: Ventilate area.

6.2. Environmental precautions

Very toxic to aquatic life with long lasting effects.

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6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Collect spillage. On land, sweep or shovel into suitable containers. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling : No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Avoid breathing gas, mist, vapours.
Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Comply with applicable regulations.
Storage conditions : Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Incompatible materials : Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Hand protection : protective gloves
Eye protection : Chemical goggles or face shield
Skin and body protection : Wear suitable protective clothing
Respiratory protection : [In case of inadequate ventilation] wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Molecular mass : 50.06 g/mol
Colour : Clear Colorless.
Odour : ammonia like.
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available

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Melting point	: -57 °C
Freezing point	: No data available
Boiling point	: 117 °C
Flash point	: 96 °C
Auto-ignition temperature	: 310 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapour.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: 1.1
Relative density	: No data available
Density	: 1.028 g/cm ³
Solubility	: Water: Miscible with water
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 0.9 cP
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 3.5 - 99.99 vol %

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Open flame. Overheating. Direct sunlight. Heat. Sparks.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

May release flammable gases. Thermal decomposition generates : Corrosive vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Toxic if swallowed. Toxic in contact with skin. Toxic if inhaled.

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Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Serious eye damage, category 1, implicit
Respiratory or skin sensitisation : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Carcinogenicity : May cause cancer.

Reproductive toxicity : Not classified
STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

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Viscosity, kinematic	0.875 mm ² /s
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Potential adverse human health effects and symptoms : Toxic if swallowed. Toxic in contact with skin.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

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Persistence and degradability	May cause long-term adverse effects in the environment.
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12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

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This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII
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12.6. Other adverse effects

No additional information available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
Additional information	: Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials	: Hazardous waste due to toxicity.

SECTION 14: Transport information

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

14.1. UN number

UN-No. (ADR)	: 2030
UN-No. (IMDG)	: 2030
UN-No. (IATA)	: 2030
UN-No. (ADN)	: 2030
UN-No. (RID)	: 2030

14.2. UN proper shipping name

Proper Shipping Name (ADR)	: HYDRAZINE AQUEOUS SOLUTION
Proper Shipping Name (IMDG)	: HYDRAZINE, AQUEOUS SOLUTION
Proper Shipping Name (IATA)	: Hydrazine, aqueous solution
Proper Shipping Name (ADN)	: HYDRAZINE AQUEOUS SOLUTION
Proper Shipping Name (RID)	: HYDRAZINE AQUEOUS SOLUTION
Transport document description (ADR)	: UN 2030 HYDRAZINE AQUEOUS SOLUTION, 8 (6.1), II, (E), ENVIRONMENTALLY HAZARDOUS
Transport document description (IMDG)	: UN 2030 HYDRAZINE, AQUEOUS SOLUTION, 8 (6.1), II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Transport document description (IATA)	: UN 2030 Hydrazine, aqueous solution, 8 (6.1), II, ENVIRONMENTALLY HAZARDOUS
Transport document description (ADN)	: UN 2030 HYDRAZINE AQUEOUS SOLUTION, 8 (6.1), II, ENVIRONMENTALLY HAZARDOUS
Transport document description (RID)	: UN 2030 HYDRAZINE AQUEOUS SOLUTION, 8 (6.1), II, ENVIRONMENTALLY HAZARDOUS

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 (6.1)
Danger labels (IMDG)	: 8, 6.1



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IATA

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

Hazard labels (IATA) : 8, 6.1



ADN

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

Danger labels (ADN) : 8, 6.1



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) : II

Packing group (IATA) : II

Packing group (ADN) : II

Packing group (RID) : II

14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : CT1

Special provisions (ADR) : 530

Limited quantities (ADR) : 1I

Excepted quantities (ADR) : E0

Packing instructions (ADR) : P001, IBC02

Mixed packing provisions (ADR) : MP15

Portable tank and bulk container instructions (ADR) : T7

Portable tank and bulk container special provisions (ADR) : TP2

Tank code (ADR) : L4BN

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Vehicle for tank carriage : AT
Transport category (ADR) : 2
Special provisions for carriage - Loading, unloading and handling (ADR) : CV13, CV28
Hazard identification number (Kemler No.) : 86
Orange plates :



Tunnel restriction code (ADR) : E
EAC code : •2X
APP code : B

- Transport by sea

Packing instructions (IMDG) : P001
IBC packing instructions (IMDG) : IBC02
Tank instructions (IMDG) : T7
Tank special provisions (IMDG) : TP2, TP13
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B
Stowage category (IMDG) : D
Stowage and handling (IMDG) : SW2
Segregation (IMDG) : SG35
Properties and observations (IMDG) : Colourless liquid. Powerful reducing agent, burns readily. Toxic if swallowed, by skin contact or by inhalation. Causes burns to skin, eyes and mucous membranes. Reacts violently with acids.
MFAG-No : 153

- Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : Forbidden
PCA max net quantity (IATA) : Forbidden
CAO packing instructions (IATA) : 855
CAO max net quantity (IATA) : 30L
Special provisions (IATA) : A1, A36, A803
ERG code (IATA) : 8P

- Inland waterway transport

Classification code (ADN) : CT1
Special provisions (ADN) : 530, 802
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E0
Equipment required (ADN) : PP, EP, TOX, A
Ventilation (ADN) : VE02
Number of blue cones/lights (ADN) : 2

- Rail transport

Classification code (RID) : CT1
Special provisions (RID) : 530
Limited quantities (RID) : 1L
Excepted quantities (RID) : E0
Packing instructions (RID) : P001, IBC02
Mixed packing provisions (RID) : MP15

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Portable tank and bulk container instructions (RID)	: T7
Portable tank and bulk container special provisions (RID)	: TP2
Tank codes for RID tanks (RID)	: L4BN
Transport category (RID)	: 2
Special provisions for carriage - Loading, unloading and handling (RID)	: CW13, CW28
Colis express (express parcels) (RID)	: CE6
Hazard identification number (RID)	: 86

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

No REACH Annex XVII restrictions

Hydrazine is on the REACH Candidate List

HYDRAZINE HYDRATE 80% AR is not on the REACH Annex XIV List

15.1.2. National regulations

Germany

Reference to AwSV : Water hazard class (WGK) 3, Highly hazardous to water (Classification according to AwSV; ID No. 130)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Class for fire hazard : Class III-1

Store unit : 50 liter

Classification remarks : Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed

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Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product
Pregnant/breastfeeding women working with the product must not be in direct contact with the product
The requirements from the Danish Working Environment Authorities regarding work with carcinogens must be followed during use and disposal

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of R-, H- and EUH-statements:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Carc. 1A	Carcinogenicity, Category 1A
Flam. Liq. 3	Flammable liquids, Category 3
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Sens. 1	Skin sensitisation, Category 1
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.
R10	Flammable
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed
R34	Causes burns
R43	May cause sensitisation by skin contact
R45	May cause cancer
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
C	Corrosive
N	Dangerous for the environment
T	Toxic

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.