

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product identifier:

Product name: HYDRAZINE HYDRATE 55%

REACH registration number: 01-2119492624-31-XXXX (FOR HYDRAZINE)

REACH registration notes: REACH registration only covers products which OQEMA have imported into Europe or sourced within Europe. If the product is sold directly outside Europe this is not covered under the registration. It is the responsibility of the subsequent importer into Europe to ensure their volume of product is covered under the REACH regulations. This product is REACH compliant either through pre-registration or registration subject to volume threshold deadline. However please note we may have dual sources for some products. As a result the product you have purchased may not be covered by the registration number listed above. Please contact the email address in section 1.3 for specific information on your purchase.

CAS number: 10217-52-4

EC number: 206-114-9

Relevant identified uses of the substance or mixture and uses advised against:

Identified uses: Hydrazine. Use as corrosion inhibitor in steam generating and heating systems. (Industrial/ Professional) Use as intermediate in closed systems. Use as monomer in closed systems. (Industrial) Hydrazine. Use as laboratory chemical. (Industrial/Professional) Use as monomer in closed industrial systems under controlled conditions. Use as reducing agent in closed industrial systems under controlled conditions. Hydrazine. Use as reducing agent to remove nitrosyl cations contained in sulphuric acid. (Industrial) Hydrazine. Distribution, formulation and (re)packing of substances and mixtures (Industrial) Hydrazine. Use as reducing agent for metal-based chemicals in closed industrial systems under controlled conditions (Industrial) Hydrazine. Use as stabilising reagent in aromatic amines to be further used in synthesis of dyestuffs. (Industrial).

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Classification:

Physical hazards: Not Classified.

Health hazards: Acute Tox. 3 - H301 Acute Tox. 3 - H311 Acute Tox. 3 - H331 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Carc. 1B - H350.

Environmental hazards: Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410.

Label elements:

EC number: 206-114-9

Pictogram:



Signal word: Danger

Hazard statements: 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: 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.
P308+P313 IF exposed or concerned: Get medical advice/ attention.
P311 Call a POISON CENTER/ doctor.

Contains: Hydrazine

Supplementary precautionary statements: P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe vapour/ spray.
P261 Avoid breathing vapour/ spray.
P264 Wash contaminated skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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P302+P352 IF ON SKIN: Wash with plenty of water.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.
Rinse skin with water or shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTRE/doctor if you feel unwell.
P321 Specific treatment (see medical advice on this label).
P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P362+P364 Take off contaminated clothing and wash it before reuse.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/ container in accordance with national regulations.

Other hazards:

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures:

Hydrazine	35.2% w/w
CAS number: 302-01-2	EC number: 206-114-9
M factor (Acute) = 10	M factor (Chronic) = 10

Classification:

Flam. Liq. 3 - H226
Acute Tox. 3 - H301
Acute Tox. 3 - H311
Acute Tox. 2 - H330
Skin Corr. 1B - H314
Eye Dam. 1 - H317
Skin Sens. 1 - H317
Carc. 1B - H350
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

The full text for all hazard statements is displayed in Section 16.

Composition comments: THIS PRODUCT IS A SUBSTANCE OF VERY HIGH CONCERN (SVHC) ACCORDING TO REACH LEGISLATION, M FACTOR: 10.

Ingredient notes: Hydrazine Hydrate is also known as CAS 7803-57-8

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4. FIRST AID MEASURES

Description of first aid measures:

- General information:** Use emergency shower Get medical attention immediately.
- Inhalation:** Move affected person to fresh air at once. If breathing stops, provide artificial respiration. For breathing difficulties, oxygen may be necessary. Get medical attention.
- Ingestion:** Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention. Show this Safety Data Sheet to the medical personnel.
- Skin contact:** Immediately remove contaminated clothing. Rinse immediately with plenty of water. Get medical attention immediately.
- Eye contact:** Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention.

Most important symptoms and effects, both acute and delayed:

- General information:** No data available.

Indication of any immediate medical attention and special treatment needed:

5. FIRE-FIGHTING MEASURES

- Extinguishing media:** Extinguish with foam, carbon dioxide, dry powder or water fog.
- Unsuitable extinguishing media:** Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture:

- Specific hazards:** May explode when heated or when exposed to flames or sparks. Thermal decomposition or combustion products may include the following substances: Very toxic or corrosive gases or vapours. May form explosive or toxic mixtures with air. May explode when heated or when exposed to flames or sparks. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Vapour explosion and poison hazard indoors, outdoors and in sewers.

Advice for firefighters:

- Protective actions during fire-fighting:** Use water spray to reduce vapours. Do not scatter spilled material with more water than needed to fight the fire. Move containers from fire area if it can be done without risk. Evacuate area Cool containers exposed to flames with water until well after the fire is out.

- Special protective equipment for fire-fighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

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6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personal precautions: Avoid inhalation of vapours and contact with skin and eyes. No smoking, sparks, flames or other sources of ignition near spillage. Wear protective clothing as described in Section 8 of this safety data sheet.

Environmental precautions: Avoid or minimise the creation of any environmental contamination. Do not discharge into drains or watercourses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

Methods and material for containment and cleaning up:

Methods for cleaning up: Ventilate well, stop flow of gas or liquid if possible. Remove ignition sources. Do not allow chemical to enter confined spaces such as sewers due to explosion risk. Sewers designed to preclude formation of explosive concentrations of vapour may be permitted. Stop leak if possible without risk. DO NOT touch spilled material! Small Spillages: Absorb with paper towels as found in a specialist spill kit Place in suitable containers for disposal, labelled appropriately. Hold for waste disposal for waste disposal, see Section 13. Large Spillages: Dilute Hydrazine Hydrate with water so the concentration of Hydrazine is less than 5% w/w. Neutralise using either <5% calcium hypochlorite or <5% sodium hypochlorite by a ratio of 1:1 Collect and place in suitable waste disposal containers and seal securely. Dispose of via licensed hazardous waste contractor

Reference to other sections: Wear protective clothing as described in Section 8 of this safety data sheet. See Section 11 for additional information on health hazards. Collect and dispose of spillage as indicated in Section 13.

7. HANDLING AND STORAGE

Precautions for safe handling:

Usage precautions: Keep away from heat, sparks and open flame. Avoid spilling. Avoid contact with skin and eyes. Provide adequate ventilation. Avoid inhalation of vapours. Use approved respirator if air contamination is above an acceptable level. Wear suitable protective equipment for prolonged exposure and/or high concentrations of vapours, spray or mist. Please refer to section 8 for protective equipment. Use explosion proof electric equipment. Do not eat, drink or smoke when using the product. Avoid contact with skin and eyes.

Avoid contact with the following materials: Acids. Moisture.

Conditions for safe storage, including any incompatibilities:

Storage precautions: Keep away from oxidising materials, heat and flames. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Protect from light.

Specific end use(s): The identified uses for this product are detailed in Section 1.2.

[cont...]

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Control parameters:****Occupational exposure limits:****Hydrazine:**

Hydrazine, monohydrate

Long-term exposure limit (8-hour TWA): WEL 0.02 ppm 0.03 mg/m³

Hydrazine, monohydrate

Short-term exposure limit (15-minute): WEL 0.1 ppm 0.13 mg/m³

hydrazine

Long-term exposure limit (8-hour TWA): WEL 0.02 ppm 0.03 mg/m³

hydrazine

Short-term exposure limit (15-minute): WEL 0.1 ppm 0.13 mg/m³

WEL = Workplace Exposure Limit

Ingredient comments:

WEL = Workplace Exposure Limits

DNEL:Industry - Inhalation; Short term systemic effects: 0.1332 mg/m³ for HydrazineIndustry - Inhalation; Long term systemic effects: 0.013 mg/m³

Industry - Dermal; Long term systemic effects: 6.4 µg/kg, bw/day

Industry - Inhalation; Long term local effects: 0.013 mg/m³Industry - Inhalation; Short term local effects: 0.1332 mg/m³**PNEC:**

Water; 0.0006 mg/l for Hydrazine

Marine water; 0.00006 mg/l

STP; 0.055 mg/l

Exposure controls:**Protective equipment:****Appropriate engineering controls:** Provide adequate general and local exhaust ventilation.**Eye/face protection:**

Safety glasses with side shields conforming to EN166 the following protection should be worn: Chemical splash goggles. The following protection should be worn: Full face visor or shield.

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- Hand protection:** Wear protective gloves made of the following material: Neoprene. Nitrile rubber. Butyl rubber. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Obtain the appropriate professional advice taking into account of the conditions under which the glove is used. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use of the user. It must not be construed as offering an approval for any specific use scenario. The gloves must satisfy the specifications of EU directive 89/686/EEC and the standard EN 374 derived from it.
- Other skin and body protection:** Provide eyewash station and safety shower. Wear appropriate clothing to prevent any possibility of skin contact. Wear chemical protective suit.
- Hygiene measures:** Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. Promptly remove any clothing that becomes wet or contaminated.
- Respiratory protection:** Wear self-contained breathing apparatus. Wear a respirator fitted with the following cartridge: Gas filter, type K.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

- Appearance:** Liquid.
- Colour:** Colourless.
- Odour:** Ammonia. Penetrating.
- Odour threshold:** No specific test data are available.
- pH (diluted solution):** 10.6 - 10.7 1%
- Melting point:** -31 to -62°C
- Initial boiling point and range:** 110 - 120°C @ 760 mm Hg
- Flash point:** 73 - 91°C OC (Open cup).
- Evaporation rate:** Not available.
- Evaporation factor:** No specific test data are available.
- Flammability (solid, gas):** No specific test data are available.
- Upper/lower flammability or explosive limits:** Upper flammable/explosive limit: 100
Lower flammable/explosive limit: 4.70
- Other flammability:** No specific test data are available.
- Vapour pressure:** 15-20 mbar @ °C
- Vapour density:** Not available.
- Relative density:** 1010 - 1020kg/m³ @ 20°C
- Bulk density:** No specific test data are available.
- Solubility:** Completely soluble in water. Soluble in the following materials: Ethanol.
- Partition coefficient:** (Hydrazine) log Kow = -0.16 OECD guideline 107

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Auto-ignition temperature:	290 °C
Decomposition temperature:	No specific test data are available.
Viscosity:	Not available.
Explosive properties:	Not explosive (A14 method)
Oxidising properties:	Not relevant.
Volatility:	100

10. STABILITY AND REACTIVITY

Reactivity: Stable under normal conditions.

Chemical stability:

Stability: Stable at normal ambient temperatures and when used as recommended.

Possibility of hazardous reactions: Not available.

Conditions to avoid: Avoid heat, flames and other sources of ignition.

Incompatible materials:

Materials to avoid: Nitrites, nitrate and heavy metal salts. Metal oxides. Oxidising agents. Powdered metal. Massive, sold metal.

Hazardous decomposition products:

Oxides of the following substances: Nitrogen. Hydrogen.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Toxicological effects: All data in this section refers to testing for Hydrazine (CAS302-01-2)

Other health effects: IARC Int. Agency for Cancer Research. Carcinogen Category 2.

Acute toxicity - oral

ATE oral (mg/kg): 284.09

Acute toxicity - dermal

ATE dermal (mg/kg): 852.27

Acute toxicity – inhalation

ATE inhalation (vapours mg/l): 2.16

Serious eye damage/irritation: Hydrazine: Causes serious eye damage. In animals - vapour at high concentrations and direct contact with liquid; risk of serious damage to eyes. Severely irritating or even corrosive to eyes.

Skin sensitisation: Sensitising. Eczema-like dermatitis possible, possible cross sensitization with hydrazine derivatives.

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Carcinogenicity: NOAEL (1.3mg/m³) 0.3mg/m³, Rat LOAEL (0.3 mg/m³) 1.3mg/m³, Possible cancer hazard Exposure to vapours. Nasal tumours only observed at high concentrations in association with permanent irritating lesions of the epithelium in the upper respiratory tract induced by the exposure. Absence of casual relationship between the incidence of cancer and exposure to product in epidemiological studies. Slight carcinogenic effects in animals.

Reproductive toxicity – fertility: According to available experimental data; absence of toxic effects on fertility.

Reproductive toxicity – development: Absence of congenital malformations and embryo toxic effects in rodents at non-toxic doses for the mothers.

Specific target organ toxicity - single exposure:

Target organs: Respiratory system, lungs.

Specific target organ toxicity - repeated exposure:

STOT - repeated exposure: LOAEL 0.066mg/m³, Inhalation, Rat NOAEL = 1.92mg/kg (rat, subacute)

Target organs: Liver Kidneys Central nervous system.

Aspiration hazard: Not available.

Inhalation: Toxic by inhalation.

Ingestion: Toxic if swallowed.

Skin contact: Toxic in contact with skin.

Eye contact: Risk of serious damage to eyes.

Acute and chronic health hazards: Repeated exposure may cause chronic eye irritation. Repeated exposure may cause chronic upper respiratory irritation. Burning pain and severe corrosive skin damage. Acute eczematous dermatitis, contact type erythema, oedema, papules, vesicles, bullae, crusts, desquamation. Swallowing concentrated chemical may cause severe internal injury. Liver and/or kidney damage. Methaemoglobin formation.

Route of entry: Inhalation Ingestion. Skin and/or eye contact.

Target organs: Blood Central nervous system Eyes Kidneys Liver Respiratory system, lungs, skin.

Medical symptoms: Severe irritation, burning and tearing. Rhinitis (inflammation of the nasal mucous membranes). Upper respiratory irritation. General respiratory distress, unproductive cough. Severe skin irritation. Nausea, vomiting. Irritability, hyperactivity, convulsions. Behavioural changes. Unconsciousness, possibly death.

Medical considerations: Skin disorders and allergies. Liver and/or kidney damage. Convulsions. Central nervous system depression.

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12. ECOLOGICAL INFORMATION

- Toxicity:** All data in this section refers to testing for Hydrazine (CAS302-01-2) LETHAL concentration to Rainbow Trout is reported to be 146 mg/l after 1 hour of exposure.
- Acute toxicity – fish:** LC50, 96 hours, 96 hours: 0.61 mg/l
toxic to fish
klimisch rating 2
1977
Lebistes reticulatus.
- Acute toxicity – aquatic invertebrates:** EC₅₀, 48 hours, 48 hours: 0.16 mg/l, Daphnia magna
Very toxic to daphnia.
- Acute toxicity - aquatic plants:** 72 hours, 72 hours: 0.017 mg/l,
IC50, Pseudokirchneriella subcapitata. Method OECD Test guideline 201. NOEC = 0.006mg/l.
- Acute toxicity – microorganisms:** EC5, 16HRS, (PSUEDOMONAS PUTIDA); 0.019mg/l.
- Chronic toxicity – aquatic invertebrates:** NOEC, 21 days, 21 days: 0.01 mg/l, Daphnia magna.
OECD Guideline 211, reproduction inhibition, Test substance: Active ingredient.
NOEC: 0.123 mg/l
Immobilization.
- Persistence and degradability:** The product is readily biodegradable.
- Photo transformation:** Water - Half-life: 6.3 hours
For Hydrazine (CAS302-01-2).
- Biodegradation:** Water - Degradation (%) 100: 1 days.
Zahn-Wellens test OECD Guideline 302B
for Hydrazine (CAS302-01-2).
- Bioaccumulative potential:** The product is not bioaccumulating.
- Partition coefficient:** (HYDRAZINE) log Kow = -0.16 OECD guideline 107.
- Mobility in soil:**
- Mobility:** The product is non-volatile.
960 Pa m³/mol @ °C for Hydrazine (CAS302-01-2).
- Results of PBT and vPvB assessment:** This substance is not classified as PBT or vPvB according to current EU criteria.
- Other adverse effects:** Not available.

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13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Disposal methods:

Dilute Hydrazine hydrate with water until the concentration of Hydrazine is less than 5% w/w/ neutralise with either sodium hypochlorite <5% w/w or calcium hypochlorite < 5% w/w. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Dispose of waste via a licensed waste disposal contractor.

14. TRANSPORT INFORMATION

UN number:

UN No. (ADR/RID): 3293

UN No. (IMDG): 3293

UN No. (ICAO): 3293

UN proper shipping name (ADR/RID): HYDRAZINE AQUEOUS SOLUTION with not more than 37% hydrazine, by mass.

Proper shipping name (IMDG): HYDRAZINE AQUEOUS SOLUTION with not more than 37% hydrazine, by mass.

Proper shipping name (ICAO): HYDRAZINE AQUEOUS SOLUTION with not more than 37% hydrazine, by mass.

Proper shipping name (ADN): HYDRAZINE AQUEOUS SOLUTION with not more than 37% hydrazine, by mass.

Transport hazard class (es):

ENVIRONMENTALLY HAZARDOUS SYMBOL:

ADR/RID: Class 6.1.

ADR/RID: Label ENVIRONMENTALLY HAZARDOUS SYMBOL.

IMDG: Class 6.1.

ICAO: Class/division 6.1.

Transport labels:



Packing group:

ADR/RID packing group: III

IMDG packing group: III

ICAO packing group: III

Environmental hazards:

Environmentally hazardous substance/marine pollutant:



[cont...]

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Special precautions for user:

Emergency action code: 2X

Tunnel restriction code: (E)

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:

15. REGULATORY INFORMATION

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

EU legislation Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

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 (as amended).

Chemical safety assessment: A chemical safety assessment has been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Legal disclaimer: The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.