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

Product identifier:

Product form:	Mixture
Product name:	HYDRAZINE HYDRATE 55%
EC Index-No.:	007/008/00/3
CAS number:	10217-52-4
EC number:	206-114-9
REACH registration number:	01-2119492624-31-XXXX (FOR HYDRAZINE)
Type of product:	Pure substance
Formula:	N2H4.xH2O
Product group:	Raw material

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

Relevant identified uses:

Main use category:	Industrial use.
Use of the substance/mixture:	Hydrazine. Use as corrosion inhibitor in steam generating and heating systems. (Industrial) Use as intermediate in closed systems. Use as monomer in closed systems. (Industrial) Hydrazine. Use as laboratory chemical. (Industrial) 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 kations 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).

Company name:

Nexchem Ltd
Unit 3 Barshaw Park
Leycroft Road
Leicester
LE4 1ET
Tel: 0116 2311130
24/7 Emergency Tel: 0800 246 1274
Email: sales@nexchem.co.uk

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

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

Acute toxicity (oral), Category 3: H301

Acute toxicity (dermal), Category 3: H311

Acute toxicity (inhal.), Category 3: H331

Skin corrosion/irritation, Category 1, Sub-Category 1B: H314

Serious eye damage/eye irritation, Category 1: H318

Skin sensitisation, Category 1: H317

Carcinogenicity, Category 1B: H350

Hazardous to the aquatic environment – Acute Hazard, Category 1: H400

Hazardous to the aquatic environment – Chronic Hazard, Category 1: H410

Full text of H- and EUH-statements: See section 16.

Adverse physicochemical, human health and environmental effects:

May cause cancer.
Toxic in contact with skin.
Toxic if inhaled.
Toxic if swallowed.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Very toxic to aquatic life with long lasting effects.

Label elements:

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

GHS05 GHS06 GHS08 GHS09

Signal word: Danger

Contains: Hydrazine

Hazard statements (CLP): 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.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or 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. Immediately call a POISON CENTER or doctor.
P308+P313 IF exposed or concerned: Get medical advice/ attention.

Extra phrases: Restricted to professional users.
For professional users only.

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.
Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixtures:

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Hydrazine substance listed on REACH Candidate List substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GI, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, IS, NO, MK, CH); substance with a Community workplace exposure limit	CAS-No.: 302-01-2 EC-No.: 206-114-9 EC Index-No.: 007-008-00-3	32.5	Flam. Liq. 3, H226 Carc. 1B, H350 Acute Tox. 3 (Inhalation), H331 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Oral), H301 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Specific concentration limits:

Name	Product identifier	Specific concentration limits (%)
Hydrazine	CAS-No.: 302-01-2 EC-No.: 206-114-9 EC Index-No.: 007-008-00-3	(3 ≤ C < 10) Skin Irrit. 2; H315 (3 ≤ C < 10) Eye Irrit. 2; H319 (10 ≤ C ≤ 100) Skin Corr. 1B; H314

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

Full text of H- and EUH-statements: See section 16.

[cont…]

4. FIRST AID MEASURES

Description of first aid measures:

First-aid measures general: Keep the victim calm, avoid physical strain. Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation: Remove the victim into fresh air. Immediately consult a doctor/medical service.

First-aid measures after skin contact: Do not apply (chemical) neutralizing agents without medical advice. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply (chemical) neutralizing agents without medical advice.

First-aid measures after ingestion: Rinse mouth with water. Give activated charcoal. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.html). Take the container/vomit to the doctor/hospital. Ingestion of large quantities: immediately to hospital. Doctor: administration of chemical antidote. Doctor: gastric lavage.

Most important symptoms and effects, both acute and delayed:

Symptoms/effects after inhalation: Dry/sore throat. Coughing. Corrosion of the upper respiratory tract. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung oedema. Symptoms similar to those listed under ingestion.

Symptoms/effects after skin contact: Caustic burns/corrosion of the skin. Symptoms similar to those listed under ingestion.

Symptoms/effects after eye contact: Corrosion of the eye tissue.

Symptoms/effects after ingestion: Vomiting. Disturbances of consciousness. Respiratory difficulties. Disturbances of heart rate. Dilated pupils. Change in the haemogramme/blood composition. FOLLOWING SYMPTOMS MAY APPEAR LATER: Impairment of the nervous system. Disturbed tactile sensibility. Movement disturbances. Coordination disorders. Enlargement/affection of the liver. Affection of the renal tissue.

Chronic symptoms: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation. Possible inflammation of the respiratory tract. Feeling of weakness. Body temperature rise. Tremor. Vomiting. Abdominal pain. Diarrhoea. Enlargement/affection of the liver. Affection of the renal tissue. Risk of lung oedema. Risk of pneumonia. Degeneration of heart tissue. Change in the haemogramme/blood composition. Impairment of the nervous system. Impaired memory. Impaired concentration.

Indication of any immediate medical attention and special treatment needed:

Treat symptomatically. Medical considerations: Skin disorders and allergies. Liver damage. Kidney damage. Convulsions. CNS depression.

[cont…]

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Suitable extinguishing media: Quick-acting ABC powder extinguisher. Quick-acting BC powder extinguisher. Quick-acting class B foam extinguisher. Quick-acting CO2 extinguisher. Class B foam (alcohol-resistant). Water spray if puddle cannot expand.

Unsuitable extinguishing media: Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

Special hazards arising from the substance or mixture:

Fire hazard: DIRECT FIRE HAZARD: Material presenting a fire hazard. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard. Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard: INDIRECT EXPLOSION HAZARD: Reactions with explosion hazards: see "Reactivity Hazard".

Reactivity in case of fire: May explode; flames or sparks. Vapour explosion and toxic hazard indoors, outdoors and in sewers.

Hazardous decomposition products in case of fire: Toxic fumes may be released. Corrosive vapours are released.

Advice for firefighters:

Precautionary measures fire: Eliminate all ignition sources if safe to do so. Evacuate the danger area.

Firefighting instructions: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water. Take account of toxic fire-fighting water. Use water moderately and if possible, collect or contain it.

Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

General measures: Avoid inhalation of dust and contact with skin and eyes. No open flames. No smoking. Eliminate every possible source of ignition.

For non-emergency personnel:

Protective equipment: Gas-tight suit (EN 943). Corrosion-proof suit (EN 14605).

Emergency procedures: Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames. Corrosion-proof appliances. Keep containers closed. Wash contaminated clothes.

For emergency responders:

Protective equipment: Self-contained breathing apparatus (EN 136 + EN 137).

Environmental precautions: Prevent soil and water pollution. Prevent spreading in sewers.

[cont…]

Methods and material for containment and cleaning up:

For containment: Contain released product, collect/pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Dilute toxic gases/vapours with water spray. Take account of toxic/corrosive precipitation water. Heating: dilute combustible gas/vapour with water curtain.

Methods for cleaning up: Large spills: 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 a licensed hazardous waste contractor.

Other information: Dispose of materials or solid residues at an authorised site.

Reference to other sections: For further information refer to section 8: "Exposure controls/personal protection". See section 11 for additional information on health hazards. See section 12 for additional information on ecological hazards. For further information refer to section 13.

7. HANDLING AND STORAGE

Precautions for safe handling:

Additional hazards when processed: Avoid any direct contact with the product. Avoid inhalation of vapours.

Precautions for safe handling: Keep away from naked flames/heat. At temperature > flashpoint: use spark-/explosionproof appliances. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Exhaust gas must be neutralised. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosion-proof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep container tightly closed.

Hygiene measures: Observe very strict hygiene – avoid contact.

Conditions for safe storage, including any incompatibilities:

Technical measures: Ground/bond container and receiving equipment.

Storage conditions: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up. Protect from sunlight.

Incompatible products: Nitrates. Nitrites. Oxidising agents. Heavy metals (Salts). Metals. Metal oxides.

Incompatible materials: Heat sources.

Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: Heat sources.

Information on mixed storage: KEEP SUBSTANCE AWAY FROM: Oxidising agents. (strong) Acids. Metals. Metallic salts. Organic materials. Water/moisture.

Storage area: Store in a cool area. Store in a dry area. Ventilation at floor level. Keep locked up. Provide for a tub to collect spills. Unauthorized persons are not admitted. May be stored under inert gas. Meet the legal requirements.

Special rules on packaging: SPECIAL REQUIREMENTS: Closing. Dry. Clean. Correctly labelled. Meet the legal requirements. Secure fragile packaging in solid containers.

Packaging materials: SUITABLE MATERIAL: Stainless steel. Epoxy resin coated steel. Aluminium. Polyethylene. Polypropylene. MATERIAL TO AVOID: Monel steel. Lead. Iron. Copper. Zinc. Nickel. Bronze. Glass.

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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

National occupational exposure and biological limit values:

HYDRAZINE HYDRATE 55% (10217-52-4):

United Kingdom - Occupational Exposure Limits:

WEL TWA (OEL TWA)	0.013 mg/m^3
	0.01 ppm
WEL STEL (OEL STEL)	0.13 mg/m^3
	0.1 ppm

Hydrazine (302-01-2):

EU - Indicative Occupational Exposure Limit (IOEL):

IOEL TWA	0.013 mg/m^3
	0.01 ppm

EU - Binding Occupational Exposure Limit (BOEL):

Local name	Hydrazine
BOEL TWA	0.013 mg/m^3
	0.01 ppm
Notes	Skin (Substantial contribution to the total body burden via dermal exposure possible)
Regulatory reference	DIRECTIVE (EU) 2019/130 (amending Directive 2004/37/EC)

United Kingdom - Occupational Exposure Limits:

Local name	Hydrazine
WEL TWA (OEL TWA)	0.013 mg/m^3
	0.01 ppm
WEL STEL (OEL STEL)	0.13 mg/m^3
	0.1 ppm
Remark	Carc (Capable of causing cancer and/or heritable genetic damage), Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

[cont…]

DNEL and PNEC:

HYDRAZINE HYDRATE 55% (10217-52-4):

DNEL/DMEL (Workers)

Acute - systemic effects, dermal	6.4 µg/kg dw
Acute - systemic effects, inhalation	0.133 mg/m^3
Acute - local effects, inhalation	0.133 mg/m^3
Long-term - systemic effects, dermal	6.1 µg/kg dw
Long-term - systemic effects, inhalation	0.013 mg/m^3
Long-term - local effects, inhalation	0.013 mg/m^3

PNEC (Water):

PNEC aqua (freshwater)	0.6 µg/l
PNEC aqua (marine water)	0.06 µg/l

PNEC (STP):

PNEC sewage treatment plant	0.055 mg/l

Hydrazine (302-01-2):

PNEC (Water):

PNEC aqua (freshwater)	0.6 µg/l
PNEC aqua (marine water)	0.06 µg/l
PNEC aqua (intermittent, freshwater)	0.00017 mg/l

PNEC (STP):

PNEC sewage treatment plant	0.055 mg/l

Exposure controls:

Appropriate engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Observe any occupational exposure limits for the product or ingredients. As this product contains ingredients with exposure limits, process enclosures, local exhaust ventilation or other engineering controls should be used to keep worker exposure below any statutory or recommended limits, if use generates dust, fumes, gas, vapour or mist.

Personal protective equipment: Self-contained breathing apparatus. Wear foot protection. Eyewash station. Wear suitable gloves tested to EN374. Standard EN 166 - Personal eye-protection.

Personal protective equipment symbol(s):

[cont…]

Eye and face protection:

Eye protection: Protective goggles (EN 166).

Skin protection:

Skin and body protection: Head/neck protection. Corrosion-proof clothing (EN 14605).

Hand protection: Protective gloves against chemicals (EN 374). 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.

Hand protection:

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Reusable gloves	Neoprene rubber (HNBR)	6 (>480 mins)			EN ISO 374
Reusable gloves	Nitrile rubber (NBR)	6 (>480 mins)			EN ISO 374
Reusable gloves	Butyl rubber	6 (>480 mins)			EN ISO 374

Other skin protection:

Materials for protective clothing: Good resistance: Butyl rubber. Polyvinylchloride (PVC). Nitrile rubber. neoprene (chloroprene rubber)

Respiratory protection: Full face mask with filter type K at conc. in air > exposure limit. High vapour/gas concentration: self-contained breathing apparatus (EN 136 + EN 137)

Environmental exposure controls: Avoid release to the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Physical state: **Liquid**

Colour: Colourless

Appearance: Liquid

Odour: Ammonia odour. Penetrating.

Odour threshold: Not available.

Melting point: -31 to -62°C

Freezing point: Not available

Boiling point: 110 - 120°C

Flammability: Not applicable

Explosive properties: Not explosive

Oxidising properties: Based on its structural properties the product is not classified as oxidising.

Lower explosion limit: 4.7 vol %

Upper explosion limit: 100 vol %

Flash point: 73 - 91°C OC (Open cup).

Auto-ignition temperature: 290°C for hydrazine

Decomposition temperature: Not available.

[cont…]

pH:	10.6 - 10.7
pH solution concentration:	1%
Viscosity, kinematic:	Not available.
Solubility:	Soluble in water. Soluble in ethanol. Water: miscible

Partition coefficient n-octanol/water (Log Kow): Not available

Partition coefficient n-octanol/water (Log Kow): -0.16 (anhydrous form, Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method)

Vapour pressure:	15-20 mbar
Vapour pressure at 50°C:	Not available
Density:	Not available
Relative density:	Not available
Relative vapour density at 20°C:	1010 - 1020
Particle characteristics:	Not available

Other information:

Other safety characteristics:

VOC content:	Not applicable (inorganic)
Other properties:	Gas/vapour heavier than air at 20°C, clear, hygroscopic, producing fumes/mist, contains volatile component(s), basic reaction.

10. STABILITY AND REACTIVITY

Reactivity: Reacts violently with many compounds e.g.: with (strong) oxidisers and with (some) acids with (increased) risk of fire/explosion.

Chemical stability: Unstable on exposure to heat. Unstable on exposure to moisture.

Possibility of hazardous reactions: No dangerous reactions known under normal conditions of use.

Conditions to avoid: Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

Incompatible materials: Oxidising agent. Metal oxides. Nitrates. Heavy metals (Salts). Metals.

Hazardous decomposition products: Decomposes on exposure to temperature rise: release of toxic/corrosive/combustible gases/vapours (hydrogen, ammonia, nitrous vapours).

11. TOXICOLOGICAL INFORMATION

Information on hazard classes as defined in Regulation (EC) No 1272/2008:

Acute toxicity (oral):	Toxic if swallowed.
Acute toxicity (dermal):	Toxic in contact with skin.
Acute toxicity (inhalation):	Toxic if inhaled.

[cont…]

HYDRAZINE HYDRATE 55% (10217-52-4):

LD50 oral rat:	165 – 262 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LC50 Inhalation – rat:	0.75 mg/l (4 h, Rat, Male, Experimental value, Anhydrous form, Inhalation (vapours), 14 day(s))
ATE CLP (dermal):	300 mg/kg bodyweight
ATE CLP (vapours):	0.75 mg/l/4h
ATE CLP (dust, mist):	0.75 mg/l/4h
Hydrazine (302-01-2):	
LD50 oral rat:	108 – 173 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male/female, Experimental value, Oral, 14 day(s))
LC50 inhalation – rat:	0.759 mg/l (4h, Rat, Male, Experimental value, Inhalation (vapours), 14 day(s))
LC50 inhalation – rat (vapours):	0.75 mg/l Source: ECHA
Skin corrosion/irritation:	Cause severe skin burns pH: 10.6 – 10.7

Hydrazine (302-01-2):

pH:	No data available in the literature
Serious eye damage/irritation:	Causes serious eye damage pH: 10.6 – 10.7

Hydrazine (302-01-2):

pH:	No data available in the literature
Respiratory or skin sensitisation:	May cause an allergic skin reaction
Germ cell mutagenicity:	Not classified
Carcinogenicity:	May cause cancer

Hydrazine (302-01-2):

IARC group:	2A – Probably carcinogenic to humans
Reproductive toxicity:	Not classified
STOT-single exposure:	Not classified
STOT-repeated exposure:	Not classified

HYDRAZINE HYDRATE 55% (10217-52-4):

NOAEL (oral, rat, 90 days):	3 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)
hydrazine (302-01-2):	
NOAEL (oral, rat, 90 days):	3 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents)
Aspiration hazard:	Not classified
hydrazine (302-01-2):	
Viscosity, kinematic:	No data available in the literature

[cont…]

Information on other hazards:

Endocrine disrupting properties:

Adverse health effects caused by endocrine disrupting properties: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other information:

Potential adverse human health effects and symptoms: Odour threshold is well above one of the exposure limits, Produces effects on the nervous system, Toxic if swallowed, Causes severe skin burns, Toxic in contact with skin, Fatal if inhaled, Causes serious eye damage, Caution! Substance is absorbed through the skin.

12. ECOLOGICAL INFORMATION

Toxicity:

Ecology – general: Dangerous for the environment.

Ecology – air: Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Photolysis in the air. Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology – water: Very toxic to crustacea. Very toxic to crustacea with long lasting effects. Very toxic to fishes. Groundwater pollutant. Inhibition of activated sludge. Very toxic to algae. pH shift. Autooxidation in water. Hydrolysis in water.

Hazardous to the aquatic environment, short–term (acute): Very toxic to aquatic life.

Hazardous to the aquatic environment, long–term (chronic): Very toxic to aquatic life with long lasting effects.

HYDRAZINE HYDRATE 55% (10217-52-4):

LC50 - Fish [1]: 0.61 mg/l (Other, 96 h, Lebistes reticulatus, Static system, Fresh water, Experimental value, Anhydrous form)

EC50 - Crustacea [1]: 0.16 mg/l (EPA 600/3-75/009, 48 h, Daphnia pulex, Semi-static system, Fresh water, Experimental value, Anhydrous form)

EC50 - Crustacea [2]: 0.16 mg/l Test organisms (species): Daphnia pulex

ErC50 algae: 0.017 mg/l (EU Method C.3, 48 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Anhydrous form)

Hydrazine (302-01-2):

LC50 - Fish [1]: 0.61 mg/l Test organisms (species): Lebistes reticulatus

EC50 - Crustacea [1]: 0.19 mg/l Test organisms (species): Daphnia pulex

EC50 - Crustacea [2]: 0.16 mg/l Test organisms (species): Daphnia pulex

ErC50 algae: 0.017 mg/l Source: ECHA

Persistence and degradability:

HYDRAZINE HYDRATE 55% (10217-52-4):

Persistence and degradability: Biodegradable in the soil, Inherently biodegradable.

Chemical oxygen demand (COD): Not applicable (inorganic)

ThOD: Not applicable (inorganic)

Biodegradation: 100% 1 day

[cont…]

Hydrazine (302-01-2):

Persistence and degradability: Biodegradable in the soil, Inherently biodegradable.

Chemical oxygen demand (COD): Not applicable (inorganic)

ThOD: Not applicable (inorganic)

Bioaccumulative potential:

HYDRAZINE HYDRATE 55% (10217-52-4):

BCF – Fish [1]: 0.25 – 0.5 (96 h, Poecilia reticulata, Literature study, Anhydrous form)

Partition coefficient n-octanol/water (Log Pow): -0.16 (Anhydrous form, Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method)

Bioaccumulative potential: Low potential for bioaccumulation (BCF < 500).

Hydrazine (302-01-2):

BCF – Fish [1]: 0.5 (96 h, Poecilia reticulata, Literature study, Hard water)

BCF – Fish [2]: 0.25 (96 h, Poecilia reticulata, Literature study, Soft water)

Partition coefficient n-octanol/water (Log Pow): -0.16 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method)

Bioaccumulative potential: Not bioaccumulative.

Mobility in soil:

HYDRAZINE HYDRATE 55% (10217-52-4):

Ecology – soil: No (test)data on mobility of the substance available. May be harmful to plant growth, blooming and fruit formation.

Hydrazine (302-01-2):

Surface tension: 66.7 m/N/m (25°C)

Ecology – soil: No (test)data on mobility of the substance available. May be harmful to plant growth, blooming and fruit formation.

Results of PBT and vPvB assessment: 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.

Endocrine disrupting properties:

Adverse effects on the environment caused by endocrine disrupting properties:

The substance is included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties or is identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

Other adverse effects: No additional information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods: Dispose of contents/container in accordance with licensed collector's sorting instructions. Do not allow product to spread into the environment. 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.

[cont…]

Product/Packaging disposal recommendations: Do not discharge into drains or the environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery.

Additional information: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

European List of Waste (LoW, EC 2000/532): Waste code can't be determined according to the European Waste Catalogue (EWC), since it depends on the use of the product.

14. TRANSPORT INFORMATION

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

ADR	IMDG	IATA	ADN	RID
UN number or ID number				
UN3293	UN3293	UN3293	UN3293	UN3293
UN proper shipping name				
HYDRAZINE, AQUEOUS SOLUTION	HYDRAZINE, AQUEOUS SOLUTION	Hydrazine, aqueous solution	HYDRAZINE, AQUEOUS SOLUTION	HYDRAZINE, AQUEOUS SOLUTION
Transport document description				
UN 3293, HYDRAZINE, AQUEOUS SOLUTION, 6.1, III, (E), ENVIRONMENTALLY HAZARDOUS	UN 3293 HYDRAZINE, AQUEOUS SOLUTION, 6.1, III, MARINE POLLUTANT/ ENVIRONME NTALLY HAZARDOUS	UN 3293 Hydrazine, aqueous solution, 6.1, III, ENVIRONMENTALLY HAZARDOUS	UN 3293, HYDRAZINE, AQUEOUS SOLUTION, 6.1, III, ENVIRONMENTALLY HAZARDOUS	UN 3293 HYDRAZINE, AQUEOUS SOLUTION, 6.1, III, ENVIRONMENTALLY HAZARDOUS
Transport hazard class(es):				
6.1 	6.1 	6.1 	6.1 	6.1 
Packing group				
III	III	III	III	III
Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes EmS-No. (Fire): F-A EmS-No. (Spillage): S-A	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes

[cont…]

Special precautions for user:

Overland transport:

Transport regulations (ADR): Subject to the provisions

Classification code (ADR): T4

Special provisions (ADR): 566

Limited quantities (ADR): 5l

Excepted quantities (ADR): E1

Packing instructions (ADR): P001, IBC03, LP01, R001

Mixed packing provisions (ADR): MP19

Portable tank and bulk container instructions (ADR): T4

Portable tank and bulk container special provisions (ADR): TP1

Tank code (ADR): L4BH

Tank special provisions (ADR): TU15, TE19

Vehicle for tank carriage: AT

Transport category (ADR): 2

Special provisions for carriage - Packages (ADR): V12

Special provisions for carriage - Loading, unloading and handling (ADR): CV13, CV28

Special provisions for carriage - Operation (ADR): S9

Hazard identification number (Kemler No.): 60

Orange plates:

Tunnel restriction code (ADR): E

EAC code: •2X

Transport by sea:

Transport regulations (IMDG): Subject to the provisions

Special provisions (IMDG): 223

Limited quantities (IMDG): 5L

Excepted quantities (IMDG): E1

Packing instructions (IMDG): P001, LP01

IBC packing instructions (IMDG): IBC03

Tank instructions (IMDG): T4

Tank special provisions (IMDG): TP1

Stowage category (IMDG): A

Segregation (IMDG): SGG18, SG35

Properties and observations (IMDG): Colourless liquid. Reacts violently with acids. Toxic if swallowed, by skin contact or by inhalation

[cont…]

Air transport:

Transport regulations (IATA): Subject to the provisions
PCA Excepted quantities (IATA): E1
PCA Limited quantities (IATA): Y642
PCA limited quantity max net quantity (IATA): 2L
PCA packing instructions (IATA): 655
PCA max net quantity (IATA): 60L
CAO packing instructions (IATA): 663
CAO max net quantity (IATA): 220L
Special provisions (IATA): A3
ERG code (IATA): 6L

Inland waterway transport:

Classification code (ADN): T4
Special provisions (ADN): 566, 802
Limited quantities (ADN): 5L
Excepted quantities (ADN): E1
Equipment required (ADN): PP, EP, TOX, A
Ventilation (ADN): VE02
Number of blue cones/lights (ADN): 0

Rail transport:

Transport regulations (RID): Subject to the provisions
Classification code (RID): T4
Special provisions (RID): 566
Limited quantities (RID): 5L
Excepted quantities (RID): E1
Packing instructions (RID): P001, IBC03, LP01, R001
Mixed packing provisions (RID): MP19
Portable tank and bulk container instructions (RID): T4
Portable tank and bulk container special provisions (RID): TP1
Tank codes for RID tanks (RID): L4BH
Special provisions for RID tanks (RID): TU15
Transport category (RID): 2
Special provisions for carriage – Packages (RID): W12
Special provisions for carriage - Loading, unloading and handling (RID): CW13, CW28, CW31
Colis express (express parcels) (RID): CE8
Hazard identification number (RID): 60

Maritime transport in bulk according to IMO instruments: Not applicable.

[cont…]

15. REGULATORY INFORMATION

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.