



SAFETY DATA SHEET

2,4-Dinitrophenylhydrazine (33% wetted material)

According to the REACH etc. (Amendment etc.) (EU Exit) Regulations 2020 No. 1577, as amended.

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

1.1. Product identifier

Product name	2,4-Dinitrophenylhydrazine (33% wetted material)
Chemical name	2,4-dinitrophenylhydrazine
Product number	90025724
CAS number	119-26-6
EC number	204-309-3

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

Uses advised against	For research and development purposes. Not suitable for human consumption or veterinary purposes.
----------------------	---

1.3. Details of the supplier of the safety data sheet

Supplier	Molekula Ltd. Lingfield Way, Darlington, DL1 4XX, United Kingdom +44 (0) 3302000333 info@molekula.com
----------	---

1.4. Emergency telephone number

+44 (0) 7769276927

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (SI 2019 No. 720)

Physical hazards	Flam. Sol. 1 - H228 Desen. Expl. 1 – H206
Health hazards	Acute Tox. 4 - H302 Eye Irrit. 2 - H319
Environmental hazards	Not Classified

2.2. Label elements

EC number	204-309-3
-----------	-----------

Hazard pictograms



Signal word	Danger
-------------	--------

2,4-Dinitrophenylhydrazine (33% wetted material)

Hazard statements	<p>H228 Flammable solid.</p> <p>H206 Fire, blast or projection hazard; increased risk of explosion if desensitising agent is reduced.</p> <p>H302 Harmful if swallowed.</p> <p>H319 Causes serious eye irritation.</p>
Precautionary statements	<p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>P212 Avoid heating under confinement or reduction of the desensitising agent.</p> <p>P230 Keep wetted with water.</p> <p>P233 Keep container tightly closed.</p> <p>P240 Ground and bond container and receiving equipment.</p> <p>P241 Use explosion-proof electrical equipment.</p> <p>P264 Wash contaminated skin thoroughly after handling.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P301+P312 IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P337+P313 If eye irritation persists: Get medical advice/ attention.</p> <p>P370+P380+P375 In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.</p> <p>P401 Store in accordance with national regulations.</p> <p>P501 Dispose of contents/ container in accordance with national regulations.</p>
Supplemental label information	EUH001 Explosive when dry
Contains	2,4-dinitrophenylhydrazine

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

2,4-dinitrophenylhydrazine CAS number: 119-26-6	50-75%
Classification Expl. 1.1 - H201 Acute Tox. 4 - H302 Eye Irrit. 2 - H319	
Distilled water CAS number: —	25-50%
Classification Not Classified	

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

2,4-Dinitrophenylhydrazine (33% wetted material)

General information	Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Loosen tight clothing such as collar, tie or belt. Get medical attention if symptoms are severe or persist.
Ingestion	Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Never give anything by mouth to an unconscious person. Place unconscious person on their side in the recovery position and ensure breathing can take place. Keep affected person under observation. Get medical attention if symptoms are severe or persist.
Skin contact	Rinse with water.
Eye contact	Rinse with water. Do not rub eye. Remove any contact lenses and open eyelids wide apart. Get medical attention if any discomfort continues.
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue.

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

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	A single exposure may cause the following adverse effects: Temporary irritation.
Ingestion	May cause discomfort if swallowed. Stomach pain. Nausea, vomiting.
Skin contact	Prolonged contact may cause dryness of the skin.
Eye contact	Irritating to eyes.

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

Notes for the doctor	Treat symptomatically.
-----------------------------	------------------------

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards	Flammable solid. Dust may form explosive mixture with air. Fire-water run-off in sewers may create fire or explosion hazard. This product is toxic.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Toxic gases or vapours. Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrous gases (NO _x). Heating may cause a fire or explosion.

5.3. Advice for firefighters

Protective actions during firefighting	Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.
---	--

2,4-Dinitrophenylhydrazine (33% wetted material)

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material. Evacuate area. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that becomes contaminated.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Do not allow material to enter confined spaces, due to the risk of explosion. Provide adequate ventilation. Collect spillage with a shovel and broom, or similar and reuse, if possible. Collect and place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

Advice on general occupational hygiene Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store away from incompatible materials (see Section 10). Keep away from oxidising materials, heat and flames. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.

Air and light sensitive. Store under inert gas. Store at temperatures between 2°C/35.6°F and 8°C/46.4°F.

Storage class Flammable solid storage.

7.3. Specific end use(s)

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

2,4-Dinitrophenylhydrazine (33% wetted material)

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Hand protection

Nitrile rubber. Protective gloves should have a minimum thickness of 0.11 mm.

Other skin and body protection

Wear appropriate clothing to prevent repeated or prolonged skin contact.

Hygiene measures

Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

Respiratory protection

Ensure all respiratory protective equipment is suitable for its intended use and is 'UKCA'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges suitable for intended use should be used. Full face mask respirators with replaceable filter cartridges suitable for intended use should be used. Half mask and quarter mask respirators with replaceable filter cartridges suitable for intended use should be used.

Environmental exposure controls

Keep container tightly sealed when not in use. Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance Solid. Crystalline powder.

Colour Orange. Red.

Odour Not known.

Odour threshold No information available.

pH No information available.

Melting point 194°C/381.2°F (dry)

Initial boiling point and range No information available.

Flash point No information available.

Evaporation rate No information available.

Flammability (solid, gas) No information available.

Upper/lower flammability or explosive limits No information available.

Vapour pressure No information available.

2,4-Dinitrophenylhydrazine (33% wetted material)

Vapour density	No information available.
Relative density	No information available.
Solubility(ies)	No information available.
Partition coefficient	No information available.
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Explosive properties	Explosive when dry. Risk of explosion if heated under confinement.

9.2. Other information

Molecular weight	198.14
------------------	--------

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Risk of explosion if heated under confinement. Explosive when dry.
------------	--

10.2. Chemical stability

Stability	Stable under the prescribed storage conditions.
-----------	---

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	The following materials may react strongly with the product: Oxidising agents.
------------------------------------	--

10.4. Conditions to avoid

Conditions to avoid	Avoid heat, flames and other sources of ignition. Static electricity and formation of sparks must be prevented. Avoid generation and spreading of dust. Avoid dust close to ignition sources. Do not allow to dry out.
---------------------	--

10.5. Incompatible materials

Materials to avoid	Oxidising materials. Acids - oxidising.
--------------------	---

10.6. Hazardous decomposition products

Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Toxic gases or vapours. Carbon monoxide (CO). Carbon dioxide (CO ₂). Nitrous gases (NO _x).
----------------------------------	---

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Summary	Harmful if swallowed.
---------	-----------------------

ATE oral (mg/kg)	769.23
------------------	--------

Acute toxicity - dermal

Summary	Based on available data the classification criteria are not met.
---------	--

Acute toxicity - inhalation

Summary	Based on available data the classification criteria are not met.
---------	--

Skin corrosion/irritation

Summary	Based on available data the classification criteria are not met.
---------	--

Serious eye damage/irritation

2,4-Dinitrophenylhydrazine (33% wetted material)

Summary	Causes serious eye irritation.
<u>Respiratory sensitisation</u>	
Summary	Based on available data the classification criteria are not met.
<u>Skin sensitisation</u>	
Summary	Based on available data the classification criteria are not met.
<u>Germ cell mutagenicity</u>	
Summary	Based on available data the classification criteria are not met.
<u>Carcinogenicity</u>	
Summary	Based on available data the classification criteria are not met.
IARC carcinogenicity	None of the ingredients are listed or exempt.
<u>Reproductive toxicity</u>	
Summary	Based on available data the classification criteria are not met.
<u>Specific target organ toxicity - single exposure</u>	
Summary	Based on available data the classification criteria are not met.
<u>Specific target organ toxicity - repeated exposure</u>	
Summary	Based on available data the classification criteria are not met.
<u>Aspiration hazard</u>	
Summary	Not relevant. Solid.
General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	A single exposure may cause the following adverse effects: Temporary irritation.
Ingestion	May cause discomfort if swallowed. Stomach pain. Nausea, vomiting.
Skin contact	Prolonged contact may cause dryness of the skin.
Eye contact	Irritating to eyes.
Route of exposure	Ingestion Inhalation Skin and/or eye contact
Target organs	No specific target organs known.

SECTION 12: Ecological information

Ecotoxicity	Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.
--------------------	---

12.1. Toxicity

Acute aquatic toxicity

Summary	Based on available data the classification criteria are not met.
----------------	--

Chronic aquatic toxicity

Summary	Based on available data the classification criteria are not met.
----------------	--

12.2. Persistence and degradability

Persistence and degradability	The degradability of the product is not known.
--------------------------------------	--

12.3. Bioaccumulative potential

2,4-Dinitrophenylhydrazine (33% wetted material)

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient No information available.

12.4. Mobility in soil

Mobility No data available.

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information The generation of waste should be minimised or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product residues and hence be potentially hazardous.

Disposal methods Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

General For limited quantity packaging/limited load information, consult the relevant modal documentation using the data shown in this section.

14.1. UN number

UN No. (ADR/RID) 1325

UN No. (IMDG) 1325

UN No. (ICAO) 1325

UN No. (ADN) 1325

14.2. UN proper shipping name

Proper shipping name (ADR/RID) FLAMMABLE SOLID, ORGANIC, N.O.S. (2,4-Dinitrophenylhydrazine (33% wetted material))

Proper shipping name (IMDG) FLAMMABLE SOLID, ORGANIC, N.O.S. (2,4-Dinitrophenylhydrazine (33% wetted material))

Proper shipping name (ICAO) FLAMMABLE SOLID, ORGANIC, N.O.S. (2,4-Dinitrophenylhydrazine (33% wetted material))

Proper shipping name (ADN) FLAMMABLE SOLID, ORGANIC, N.O.S. (2,4-Dinitrophenylhydrazine (33% wetted material))

14.3. Transport hazard class(es)

ADR/RID class 4.1

ADR/RID classification code F1

ADR/RID label 4.1

IMDG class 4.1

ICAO class/division 4.1

2,4-Dinitrophenylhydrazine (33% wetted material)

ADN class 4.1

Transport labels



14.4. Packing group

ADR/RID packing group	II
IMDG packing group	II
ICAO packing group	II
ADN packing group	II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

EmS F-A, S-G

ADR transport category 2

Emergency Action Code 1Z

Hazard Identification Number (ADR/RID) 40

Tunnel restriction code (E)

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

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78
and the IBC Code

SECTION 15: Regulatory information

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

National regulations Health and Safety at Work etc. Act 1974 (as amended).
The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].
EH40/2005 Workplace exposure limits.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

None of the ingredients are listed or exempt.

SECTION 16: Other information

2,4-Dinitrophenylhydrazine (33% wetted material)

Abbreviations and acronyms used in the safety data sheet	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
	ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
	RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
	IATA: International Air Transport Association.
	ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
	IMDG: International Maritime Dangerous Goods.
	CAS: Chemical Abstracts Service.
	ATE: Acute Toxicity Estimate.
	LC50: Lethal Concentration to 50 % of a test population.
	LD50: Lethal Dose to 50% of a test population (Median Lethal Dose).
	EC ₅₀ : 50% of maximal Effective Concentration.
	PBT: Persistent, Bioaccumulative and Toxic substance.
	vPvB: Very Persistent and Very Bioaccumulative.
Classification abbreviations and acronyms	Flam. Sol. = Flammable solid
	Acute Tox. = Acute toxicity
	Eye Irrit. = Eye irritation
Classification procedures according to SI 2019 No. 720	Acute Tox. 4 - H302: Eye Irrit. 2 - H319: : Calculation method. Flam. Sol. 1 - H228: : Expert judgement.
Training advice	Only trained personnel should use this material.
Revision date	07/06/2021
Revision	1
SDS number	182
Hazard statements in full	H206 Fire, blast or projection hazard; increased risk of explosion if desensitising agent is reduced.
	H201 Explosive; mass explosion hazard.
	H228 Flammable solid.
	H302 Harmful if swallowed.
	H319 Causes serious eye irritation.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.