

Safety Data Sheet

#16523938 · Full 16-section SDS

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

PRODUCT	CAS NUMBER	FORMULA	VERSION	REVISION DATE
5,5-Dimethylhydantoin (DMH)	77-71-4	C5H8N2O2	10	20 Aug 2026

SECTION 1

Identification

Product name	5,5-Dimethylhydantoin (DMH)
CAS number	77-71-4
Chemical formula	C5H8N2O2
Molecular weight	128.13
SMILES	<chem>O=C1NC(=O)C(N1)(C)C</chem>
EC / EINECS number	201-051-3
Recommended use & restrictions	For research and development. Laboratory chemicals. Manufacture of substances. Not suitable for human or veterinary purposes.
Emergency telephone	0344 892 0111 — National Poisons Information Service (NPIS) (United Kingdom — for healthcare professionals (via TOXBASE))

SECTION 2

Hazard identification

NONE

CODE	PRECAUTIONARY STATEMENT
P280	Wear protective gloves/protective clothing/eye protection/face protection
Other hazards (e.g. PBT / vPvB, not classified)	This substance is not classified as PBT or vPvB according to current UK criteria.

SECTION 3

Composition / information on ingredients

Purity / concentration	~100%
Impurities / stabilising additives	Not applicable

SECTION 4

First-aid measures

Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing.
Skin contact	Rinse with water.
Eye contact	Remove any contact lenses and open eyelids wide apart. Rinse with water.
Ingestion	Rinse mouth.
Symptoms / effects & medical attention	Treat symptomatically.

SECTION 5

Fire-fighting measures

Suitable extinguishing media	Extinguish with alcohol-resistant 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	Thermal decomposition or combustion products may include harmful gases or vapours, carbon dioxide, carbon monoxide, and oxides of nitrogen.
Advice for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6

Accidental release measures

Personal precautions & PPE	Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.
Environmental precautions	Avoid discharge into drains or watercourses or onto the ground.
Containment & clean-up methods	Collect spillage with a shovel and broom, place in suitable waste disposal containers and seal securely. Flush contaminated area with plenty of water.

For specific precautions, see Section 8 and Section 13.

SECTION 7

Handling & storage

Storage temperature	Ambient
Precautions for safe handling	Read and follow manufacturer's recommendations. Keep away from food, drink and animal feeding stuffs. Keep container tightly sealed when not in use.
Conditions for safe storage (incompatibilities)	Store away from strong oxidising agents.

SECTION 8

Exposure controls / personal protection

Occupational exposure limits (OEL / WEL) *Not applicable*

DNEC/PNEC data	Fresh water: PNEC = 1.4mg/L Fresh water sediment: PNEC = 8.33mg/kg sediment dw Water intermittent: PNEC = 9.72mg/L Microorganisms in sewage treatment: PNEC = 100mg/L Soil (Agriculture): PNEC=9.9mg/kg soil dw
Eye / face protection	Safety glasses Wear eye/face protection as recommended. All eye/face protection should comply with EN ISO 16321-1:2022.
Skin / hand protection	Gloves: Nitrile Rubber, 0.11mm (480 mins).
Respiratory protection	Dust mask (FFP2/FFP3) Keep self-contained breathing apparatus readily available for emergency use. Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided. Respiratory equipment: Reusable Air-Purifying Respirator (APR). Filter type: ABEK. Standard: EN 14387.

SECTION 9

Physical & chemical properties

Density (g/mL)	1.26 g/mL DERIVED FROM: LITERATURE
Flash point	Not applicable
Acidity	Not applicable
Appearance / physical state	Crystalline solid DERIVED FROM: LITERATURE
Colour	White DERIVED FROM: LITERATURE
Odour	Not known DERIVED FROM: LITERATURE
Melting / freezing point	175-180°C DERIVED FROM: LITERATURE
Boiling point	586 K at 1012.10 hPa DERIVED FROM: LITERATURE
Solubility (water)	Soluble in water. Soluble in water DERIVED FROM: LITERATURE
pH	Not applicable
Vapour pressure	0.0000038 hPa at 25 °C DERIVED FROM: LITERATURE
Partition coefficient (log Pow)	-0.475 22.4°C DERIVED FROM: LITERATURE
Auto-ignition / decomposition temp	Not applicable

SECTION 10

Stability & reactivity

Chemical stability / reactivity	The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed
Conditions to avoid	No data available
Incompatible materials	Strong oxidising agents.
Hazardous decomposition products	Thermal decomposition or combustion products may include harmful gases or vapours, carbon dioxide, carbon monoxide, and oxides of nitrogen. See section 5

SECTION 11

Toxicological information

Acute toxicity (LD50 / LC50)	LD50 oral (rat) 5,000 mg/kg; LD50 dermal (rat) 20,000 mg/kg.
Skin corrosion / irritation	<i>No data available</i>
Eye corrosion / irritation	<i>No data available</i>
Respiratory / skin sensitisation	<i>No data available</i>
Carcinogenicity	<i>No data available</i>
Mutagenicity	<i>No data available</i>
Reproductive toxicity	<i>No data available</i>
STOT (single / repeated exposure)	<i>No data available</i>
Aspiration hazard	<i>No data available</i>
Endocrine disruptors	This product not contain any known or suspected Endocrine disruptors.

SECTION 12

Ecological information

Aquatic toxicity	Toxicity to fish: static test LC50- Oncorhynchus mykiss (rainbow trout) - > 972.2 mg/l - 96 h Toxicity to daphnia and other aquatic invertebrates: static test EC50 - Daphnia magna (Water flea) - 6,200 mg/l - 48 h Toxicity to algae: Growth inhibition EC50 - Pseudokirchneriella subcapitata (green algae) - > 1,000 mg/l - 96 h Toxicity to bacteria: Respiration inhibition EC50 - Sludge Treatment - > 1,000 mg/l - 3 h Toxicity to fish(Chronic toxicity): NOEC - Pimephales promelas (fathead minnow) - 14 mg/l - 28 d, LOEC - Pimephales promelas (fathead minnow) - 29 mg/l - 28 d Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity): mortality LC50 - Daphnia magna (Water flea) - 116 mg/l - 21 d, mortality NOEC - Daphnia magna (Water flea) - 70.9 mg/l - 21 d
Persistence & degradability	Biodegradability aerobic - Exposure time 28 d: Result: 88 % - Readily biodegradable
Bioaccumulative potential	<i>No data available</i>
Mobility in soil	<i>No data available</i>
PBT / vPvB assessment	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 13

Disposal considerations

Waste treatment / disposal methods

Dispose of contents/container in accordance with national regulations.

SECTION 14

Transport information

UN number *Not applicable*

Proper shipping name *Not applicable*

Class *Not applicable*

Packing group *Not applicable*

Transport category *Not applicable*

Tunnel code *Not applicable*

Packing instruction (ADR) *Not applicable*

Packing instruction (IMDG) *Not applicable*

Environmental hazards *Not applicable*

Special precautions for user *Not applicable*

SECTION 15

Regulatory information

REACH code Y113

UFI code *Not applicable*

ECHA notification *Not applicable*

Chemical safety assessment carried out? Not required

SECTION 16

Other information

Revision notes / other information Replace SDS V2 Revision date: 30/06/2022

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