

Norbornene Bicyclo[2.2.1]hept-2-ene

Structural Formula

Empirical Formula C₇ H₁₀
Synonyms

- 2-Norbornylene
- 2-Norbornene
- Norcamphene

CAS Number 498-66-8

Colourless or white solid with characteristic odour. Norbornene is a liquid with low viscosity above 47 °C. Solid norbornene has a high solubility in common organic solvents as for example in acetone and in aliphatic, cycloaliphatic or aromatic solvents.

Unsaturated bicyclic hydrocarbon (cycloolefin)

Property	Value	Unit
Molecular weight	94.2	g/mol
Melting Point	46-47	°C
Boiling Point	96	°C
Density (50°C)	0.845	g/ml
Viscosity (50°C)	0.75	mPas s
Heat of evaporation	372	kJ/kg
Vapor pressure at 59 °C	301	hPa
Flash point	-8	°C
Ignition Temperature	450	°C
Lower explosion limit	2.5	% weight
	0.77	% vol.
	31	g/m ³
Upper explosion limit	18.4	% weight
	6.5	% vol.
	272	g/m ³
Dipole moment	0.396	Debye
Thermal conductivity	0.12	W/m K
Water solubility at 20°C	134	mg/l
Odour threshold	0.25	mg/m ³

Purity

98% area (GC); different grades are available. This typical value is subject to change without further notice. Norbornene will be delivered unstabilized. The addition of a stabilizer is possible on request.

Packaging

Norbornene can be supplied in containers of different kind and size. More information on request.

Storage and Handling

Norbornene is a solid, capable of being stored in mild steel, stainless steel or glass containers at atmospheric pressure. Use only PTFE, perfluorated elastomers or metal for gaskets and seals. The storage under nitrogen is recommended to avoid contact with oxygen. Storage vessels and transfer equipment should be adequately grounded to prevent the accumulation of static electricity. Norbornene should be stored in a tightly closed and dry container in a cool, well ventilated place away from heat, flames, sparks and other sources of ignition. Furthermore norbornene should be separated from food and feeding stuff. The German storage category is 4.1B (flammable solid substances; TRGS 510).

Avoid contact with strong oxidizing agents, mineral acids or bases, strong Lewis acids or bases or polymerization initiators. Use norbornene only with adequate ventilation and avoid direct contact with the substance, as it can be absorbed into the body by inhalation and by ingestion. Please review the information on our material safety data sheet (MSDS) which is available on request. The MSDS must be consulted and fully understood before handling, storage, use or disposal of this product.

Stability and Reactivity

Norbornene is stable at normal temperatures and pressure even without stabilizer. No hazardous polymerization or other reactions may occur under ordinary conditions. Norbornene is an inflammable hydrocarbon but begins burning after reaching its ignition temperature under access of air or oxygen. Furthermore it may form explosive mixtures with air and oxygen. Like all other hydrocarbons and olefins, norbornene reacts even below its ignition temperature with air or oxygen to form traces of autoxidation products.

Other Information

Hazard Ratings

NFPA (Scale 0-4)

Health = 2

Fire = 3

Reactivity = 1

HMIS

Health 4

Fire = 3

Reactivity = 1

GHS Classification	H228: Flammable solid. H319: Causes serious eye irritation. H361: Suspected of damaging fertility or the unborn child. H411: Toxic to aquatic life with long lasting effects. H401: Toxic to aquatic life (UN-GHS)
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Toxicological and Ecological Information

Please refer to MSDS.

Regulatory Information

2-Norbornene is listed in the following international chemical inventories:

Country	Inventory
EC	EINECS Number 207-866-0
Switzerland	SWISS Number G-4815
USA	TSCA
Canada	NDSL
Australia	AICS
Japan	ENCS Number 4-1763; ISHL Number 7-(2)-108
Philippines	PICCS
New Zealand	HSNO 006795

10/2011/EC

2-Norbornene is listed in the register of monomers and other starting materials in „Annex 1“ of the European Regulation 10/2011 which are permitted for the production of necessary articles made of polymers being designed for the contact with food. For further details the review of the EC guidelines 1999/91/EC and 90/128EEC is strongly recommended.

Transport Information

Please refer to MSDS.

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