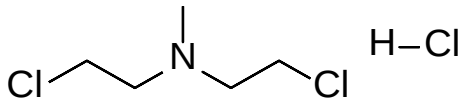
Product data sheet

MedKoo Cat#: 100560 Name: Mechlorethamine HCl CAS: 55-86-7 (HCl) Chemical Formula: $C_5H_{12}Cl_3N$ Exact Mass: 191.0035 Molecular Weight: 192.508	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Mechlorethamine, an antineoplastic nitrogen mustard also known as HN2 hydrochloride, is a nitrogen analog of sulfur mustard. It is a light yellow brown, crystalline, hygroscopic powder that is very soluble in water and also soluble in alcohol. (Source: http://www.rxlist.com/mustargen-drug.htm).

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	144.5	750.62
Ethanol	39.0	202.59
Water	69.5	361.02

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	5.19 mL	25.97 mL	51.95 mL
5 mM	1.04 mL	5.19 mL	10.39 mL
10 mM	0.52 mL	2.60 mL	5.19 mL
50 mM	0.10 mL	0.52 mL	1.04 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Giuliani I, Baeza-Squiban A, Marano F. Early cytotoxic effects of mechlorethamine, a nitrogen mustard, on mammalian airway epithelium. Toxicol In Vitro. 1997 Oct;11(5):695-702. doi: 10.1016/s0887-2333(97)00070-2. PMID: 20654373.
2. Khan S, Ramwani JJ, O'Brien PJ. Hepatocyte toxicity of mechlorethamine and other alkylating anticancer drugs. Role of lipid peroxidation. Biochem Pharmacol. 1992 May 8;43(9):1963-7. doi: 10.1016/0006-2952(92)90639-z. PMID: 1596284.

In vivo study

1. Rao TJR, Mao G, Cuffari BJ, Billack B. Dysregulation of the mTOR pathway by mechlorethamine. Toxicology. 2023 Jan 26;486:153434. doi: 10.1016/j.tox.2023.153434. Epub ahead of print. PMID: 36708981.
2. Dorr RT, Soble M, Alberts DS. Efficacy of sodium thiosulfate as a local antidote to mechlorethamine skin toxicity in the mouse. Cancer Chemother Pharmacol. 1988;22(4):299-302. doi: 10.1007/BF00254235. PMID: 3168143.

7. Bioactivity
Biological target:

Chlormethine hydrochloride is a vesicant and necrotizing irritant destructive to mucous membranes.

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In vitro activity

The aim of this in vitro study was to characterize the early effects of short-term exposure to low concentrations of mechlorethamine (HN2), a nitrogen mustard, on rabbit tracheal primary cultures. Marked inhibition of cell growth was observed without recovery until 14 days after the treatment with sublethal doses of HN2.

Reference: Toxicol In Vitro. 1997 Oct;11(5):695-702. https://pubmed.ncbi.nlm.nih.gov/20654373/

In vivo activity

Mouse skin toxicity studies were carried out to find a local antidote to decrease the severity of tissue damage by this agent. Intradermal (i.d.) HN2 (0.005-0.5 mg) caused dose-dependent skin ulcers in the mouse. Isotonic sodium thiosulfate Na2S2O3 (0.167 M) or hypertonic (0.34 M) Na2S2O3 (0.05 ml) given immediately after HN2 significantly reduced the mean HN2 ulceration area and the total time of ulceration.

Reference: Cancer Chemother Pharmacol. 1988;22(4):299-302. https://pubmed.ncbi.nlm.nih.gov/3168143/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.