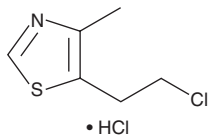
PRODUCT INFORMATION

Chlormethiazole (hydrochloride)

Item No. 33437

CAS Registry No.: 6001-74-7
Formal Name: 5-(2-chloroethyl)-4-methyl-thiazole, monohydrochloride
Synonym: Clomethiazole
MF: $C_6H_8ClNS \bullet HCl$
FW: 198.1
Purity: ≥98%
UV/Vis.: λ_{max}: 213, 250 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Chlormethiazole (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the chlormethiazole (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Chlormethiazole (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of chlormethiazole (hydrochloride) in ethanol is approximately 20 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of chlormethiazole (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of chlormethiazole (hydrochloride) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Chlormethiazole is a potentiator of $GABA_A$ receptors.[1] It potentiates GABA-induced currents in L-M(TK-) cells expressing $\alpha_1\beta_1\gamma_2$ or $\alpha_1\beta_2\gamma_2$ subunit-containing $GABA_A$ receptors with EC_{50} values of 0.8 and 3.4 µM, respectively. Chlormethiazole protects against seizures induced by maximal electroshock (MES) in mice (ED_{50} = 130.8 mg/kg).[2] It reduces infarct volume in a rat model of focal ischemia induced by permanent middle cerebral artery occlusion (MCAO).[3] Formulations containing chlormethiazole have been used in the treatment of acute alcohol withdrawal.

References

1. Nelson, R.M., Green, A.R., and Hainsworth, A.H. Electrophysiological actions of γ-aminobutyric acid and clomethiazole on recombinant $GABA_A$ receptors. *Eur. J. Pharmacol.* **452(3)**, 255-262 (2002).
2. Pilip, S., Urbańska, E.M., Swiader, M., *et al.* Anticonvulsant action of chlormethiazole is prevented by subconvulsive amounts of strychnine and aminophylline but not by bicuculline and picrotoxin. *Pol. J. Pharmacol.* **52(4)**, 267-273 (2000).
3. Sydserff, S.G., Cross, A.J., and Green, A.R. The neuroprotective effect of chlormethiazole on ischaemic neuronal damage following permanent middle cerebral artery ischaemia in the rat. *Neurodegeneration* **4(3)**, 323-328 (1995).

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