Product Data Sheet

Product Name: Tosylchloramide sodium trihydrate
Cat. No.: GC32363

Chemical Properties

Cas. No.	7080-50-4		
SMILES	O=S(C1=CC=C(C)C=C1)([N-]Cl)=O.[Na+].O.O.O		
Formula	$C_7H_{13}ClNNaO_5S$	M.Wt	281.69
Solubility	DMSO : 100 mg/mL (355.00 mM; Need ultrasonic)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			

Protocol

Animal experiment:

Rats: Male and female groups of rats are exposed to tosylchloramide at concentrations of 0.2, 0.9 and 4 mg/m3 for 6 hr/day, 5 days/week during 4 weeks. All rats are sacrificed after treatment for 4 weeks[2].

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

References:

[1]. Kloth LC, et al. Bactericidal and cytotoxic effects of chloramine-T on wound pathogens and human fibroblasts in vitro. Adv Skin Wound Care. 2007 Jun;20(6):331-45.
[2]. Shim I, et al. Inhalation exposure to chloramine T induces DNA damage and inflammation in lung of Sprague-Dawley rats. J Toxicol Sci. 2013;38(6):937-46.
[3]. Kuklina I, et al. Investigation of chloramine-T impact on crayfish Astacus leptodactylus (Esch., 1823) cardiac activity. Environ Sci Pollut Res Int. 2014 Sep;21(17):10262-9.
[4]. Martínez MA, et al. Induction of cytochrome P450-dependent mixed function oxidase activities and peroxisome proliferation by chloramine-T in male rat liver. Food Chem Toxicol. 2017 Aug;106(Pt A):86-91.

Background

Tosylchloramide sodium trihydrate (Chloramine T sodium trihydrate) is a disinfectant agent widely used in laboratories, kitchens and hospitals. It is also used as a biocide in air fresheners and deodorants.

Gram-positive growth is reduced by 95% to 100% after tosylchloramide treatment, regardless of dose, with or without serum. E coli (gram-negative; with/without serum) is reduced 94% to 100% at antiseptic concentrations of 300 and 400 ppm. At 200 ppm, E coli growth is fully inhibited without serum present and by 50% with serum. At 100 and 200 ppm, cell viability remains greater than 90% under all experimental conditions. A 300-ppm, 3-minute exposure to tosylchloramide results in cell viability of up to 70%,

with longer exposures producing lower viabilities. Serum does not affect cell viability in any condition[1].

A dose-dependently significant DNA damage in the rat tissues and inflammation is histopathologically noted around the terminal airways of the lung in both male and female rats[2]. The 24-h exposure to 50 mg/L of chloramine-T is toxic for crayfish and leads to substantial loss of energy that became apparent during subsequently conducted physical stress[3]. Tosylchloramide may potentiate the toxicity of many xenobiotics via metabolic activation and/or accumulation of reactive metabolites. The activities of CYP2E1, CYP1A1/2 CYP2B1/2, CYP3A4 and CYP4A1/2 enzymes significantly increase after treatment with 2.50, 5 and 10 mg/kg bw/day tosylchloramide, in a dose-dependent manner. This effect is not observed after tosylchloramide treatment at dose of 1.25 mg/kg bw/day[4].

[1]. Kloth LC, et al. Bactericidal and cytotoxic effects of chloramine-T on wound pathogens and human fibroblasts in vitro. Adv Skin Wound Care. 2007 Jun;20(6):331-45. [2]. Shim I, et al. Inhalation exposure to chloramine T induces DNA damage and inflammation in lung of Sprague-Dawley rats. J Toxicol Sci. 2013;38(6):937-46. [3]. Kuklina I, et al. Investigation of chloramine-T impact on crayfish Astacus leptodactylus (Esch., 1823) cardiac activity. Environ Sci Pollut Res Int. 2014 Sep;21(17):10262-9. [4]. Martínez MA, et al. Induction of cytochrome P450-dependent mixed function oxidase activities and peroxisome proliferation by chloramine-T in male rat liver. Food Chem Toxicol. 2017 Aug;106(Pt A):86-91.

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