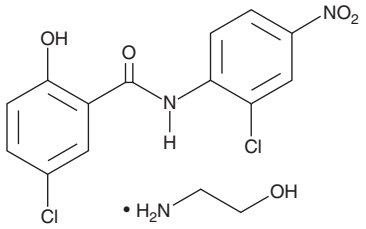
PRODUCT INFORMATION

Niclosamide (ethanolamine salt)

Item No. 17118

CAS Registry No.: 1420-04-8
Formal Name: 5-chloro-N-(2-chloro-4-nitrophenyl)-2-hydroxy-benzamide compd. with 2-aminoethanol
Synonyms: BAY-73, BAY-6076, Bayer 73, Bayer 6076, HL 2448
MF: $C_{13}H_8Cl_2N_2O_4 \bullet C_2H_7NO$
FW: 388.2
Purity: ≥98%
UV/Vis.: λ_{max}: 210, 235, 331 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

Niclosamide (ethanolamine salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the niclosamide (ethanolamine salt) in the solvent of choice. Niclosamide (ethanolamine salt) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of niclosamide (ethanolamine salt) in ethanol is approximately 0.25 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Niclosamide (ethanolamine salt) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, niclosamide (ethanolamine salt) should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Niclosamide (ethanolamine salt) has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Niclosamide is a molluscicide.[1] It is toxic to *H. trivolvis* snail eggs, juveniles, and adults (LC_{50}s = 0.035, 0.044, and 0.11 mg/kg, respectively), as well as rainbow trout, white sucker, and fathead minnow (LC_{50}s = 0.03, 0.09, and 0.11 mg/L, respectively).[1,2] Niclosamide induces cell cycle arrest at the G_0/G_1 phase and induces apoptosis in DU145 human prostate cancer cells in a concentration-dependent manner.[3] It inhibits STAT3-induced gene expression in a reporter assay using HeLa human cervical cancer cells when used at a concentration of 5 µM. Niclosamide (1 µM) uncouples mitochondria from respiration and increases the oxygen consumption rate of NIH3T3 mouse fibroblasts.[4] Dietary administration of niclosamide (1,500 ppm) reduces blood glucose and plasma insulin levels, as well as decreases liver weight and triglyceride levels, in a mouse model of high-fat diet-induced diabetes.[4] Formulations containing niclosamide have been used in the control of molluscs in aquatic settings.

References

1. Tchounwou, P.B., Englande, A.J., Jr., and Malek, E.A. Toxicity evaluation of Bayluscide® and malathion to three developmental stages of freshwater snails. *Arch. Environ. Contam. Toxicol.* **21(3)**, 351-358 (1991).
2. Marking, L.L. and Bills, T.D. Effects of contaminants on toxicity of the lampricides TFM and Bayer 73 to three species of fish. *J. Great Lakes Res.* **11(2)**, 171-178 (1985).
3. Ren, X., Duan, L., He, Q., *et al.* Identification of niclosamide as a new small-molecule inhibitor of the STAT3 signaling pathway. *ACS Med. Chem. Lett.* **1(9)**, 454-459 (2010).
4. Tao, H., Zhang, Y., Zeng, X., *et al.* Niclosamide ethanolamine-induced mild mitochondrial uncoupling improves diabetic symptoms in mice. *Nat. Med.* **20(11)**, 1263-1269 (2014).

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