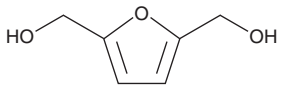
PRODUCT INFORMATION

5-(Hydroxymethyl)furfuryl Alcohol

Item No. 20658

CAS Registry No.: 1883-75-6
Formal Name: 2,5-furandimethanol
Synonyms: 2,5-Dihydroxymethylfurane, FaRez 6305, NSC 40737, NSC 524614
MF: $C_6H_8O_3$
FW: 128.1
Purity: ≥98%
UV/Vis.: λ_{max}: 223 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

5-(Hydroxymethyl)furfuryl alcohol is supplied as a crystalline solid. A stock solution may be made by dissolving the 5-(hydroxymethyl)furfuryl alcohol in the solvent of choice, which should be purged with an inert gas. 5-(Hydroxymethyl)furfuryl alcohol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 5-(hydroxymethyl)furfuryl alcohol in ethanol is approximately 25 mg/ml and approximately 20 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 5-(hydroxymethyl)furfuryl alcohol can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 5-(hydroxymethyl)furfuryl alcohol in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

5-(Hydroxymethyl)furfuryl alcohol is a heterocyclic organic compound that is naturally produced by certain wood-inhabiting fungi.[1] It can be derived by the reduction of the formyl group of 5-hydroxymethylfurfural.[2,3] 5-(Hydroxymethyl)furfuryl alcohol can be used as a building block in the enzymatic synthesis of biobased polyesters.[4]

References

1. Schneider, J., Anke, H., and Sterner, O. Xylaramide, a new antifungal compound, and other secondary metabolites from Xylaria longipes. *Z. Naturforsch. C.* **51(11-12)**, 802-806 (1996).
2. Liu, Z.L., Slininger, P.J., Dien, B.S., *et al.* Adaptive response of yeasts to furfural and 5-hydroxymethylfurfural and new chemical evidence for HMF conversion to 2,5-*bis*-hydroxymethylfuran. *J. Ind. Microbiol. Biotechnol.* **31(8)**, 345-352 (2004).
3. Zhang, Y., Han, B., Ezeji, T.C. Biotransformation of furfural and 5-hydroxymethyl furfural (HMF) by *Clostridium acetobutylicum* ATCC 824 during butanol fermentation. *New Biotechnol.* **29(3)**, 345-351 (2012).
4. Jiang, Y., Woortman, A.J.J., van Ekenstein, G.O.R.A., *et al.* Enzymatic synthesis of biobased polyesters using 2,5-*bis*(hydroxymethyl)furan as the building block. *Biomacromolecules* **15(7)**, 2482-2493 (2014).

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