

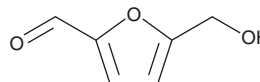
# PRODUCT INFORMATION



## 5-Hydroxymethylfurfural

Item No. 27835

|                   |  |
|-------------------|--|
| CAS Registry No.: | 67-47-0                                      |
| Formal Name:      | 5-(hydroxymethyl)-2-furancarboxaldehyde      |
| Synonym:          | NSC 40738                                    |
| MF:               | C <sub>6</sub> H <sub>6</sub> O <sub>3</sub> |
| FW:               | 126.1  |
| Purity:           | ≥98%   |
| UV/Vis.:          | λ <sub>max</sub> : 223, 281 nm               |
| Supplied as:      | A solid                                      |
| Storage:          | 4°C  |
| Stability:        | ≥4 years                                     |
| Item Origin:      | Synthetic                                    |



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

### Laboratory Procedures

5-Hydroxymethylfurfural is supplied as a solid. A stock solution may be made by dissolving the 5-hydroxymethylfurfural in the solvent of choice, which should be purged with an inert gas. 5-Hydroxymethylfurfural is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 5-hydroxymethylfurfural in these solvents is approximately 2.5, 3, and 1 mg/ml, respectively.

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-hydroxymethylfurfural can be prepared by directly dissolving the solid in aqueous buffers. The solubility of 5-hydroxymethylfurfural 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-Hydroxymethylfurfural is a furanic compound derived from the degradation of sugars.<sup>1-4</sup> It can be derived from reducing sugars *via* acid-catalyzed degradation or the Maillard reaction during the heating and storage of foods.<sup>2,3</sup> 5-Hydroxymethylfurfural is an intermediate in the synthesis of a variety of compounds including 2,5-diformylfuran (DFF), 2,5-furandicarboxylic acid (FDA), 2,5-bis(hydroxymethyl)furan (5-(hydroxymethyl) furfuryl alcohol; Item No. 20658), and dimethylfuran (DMF), among others.<sup>4</sup> 5-Hydroxymethylfurfural has been found in the marine algae *L. undulata* and scavenges 2,2-diphenyl-1-picrylhydrazyl (DPPH; Item No. 14805), hydroxyl, alkyl, and superoxide radicals in cell-free assays (IC<sub>50</sub>s = 27.1, 22.8, 45, and 33.5 μM, respectively).<sup>5</sup>

### References

1. Kucherov, F.A., Romashov, L.V., Galkin, K.I., *et al.* *ACS Sustainable Chem. Eng.* **6**(7), 8064-8092 (2018).
2. Murkovic, M. and Pichler, N. *Mol. Nutr. Food Res.* **50**(9), 842-846 (2006).
3. Jöbstl, D., Husøy, T., Alexander, J., *et al.* *Food Chem.* **123**(3), 814-818 (2010).
4. Rosatella, A.A., Simeonov, S.P., Frade, R.F.M., *et al.* *Green Chem.* **13**, 754-793 (2011).
5. Li, Y.-X., Li, Y., Qian, Z.-J., *et al.* *J. Microbiol. Biotechnol.* **19**(11), 1319-1327 (2009).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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