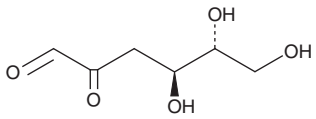
PRODUCT INFORMATION

3-deoxy Glucosone

Item No. 16347

CAS Registry No.:	4084-27-9
Formal Name:	3-deoxy-D-*erythro*-hexos-2-ulose
Synonyms:	2-keto-3-Deoxyglucose, 3-deoxy-D-*erythro*-Hexosulose
MF:	$C_6H_{10}O_5$
FW:	162.1
Purity:	≥95%
UV/Vis.:	λ_{max}: 224 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

3-deoxy Glucosone is supplied as a crystalline solid. A stock solution may be made by dissolving the 3-deoxy glucosone in the solvent of choice, which should be purged with an inert gas. 3-deoxy Glucosone is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 3-deoxy glucosone in ethanol is approximately 1 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 3-deoxy glucosone can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 3-deoxy glucosone in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

3-deoxy Glucosone is a highly reactive 2-oxoaldehyde intermediate of the Maillard reaction produced during oxidative stress in response to excess sugar consumption and in association with diabetes.[1-3] It is a precursor for the formation of advanced glycation endproducts and because it readily reacts with protein amino groups is also used for crosslinking studies.[4] 3-deoxy Glucosone can be used as a reference for the analysis and detection of glucose degradation products and glycating agents.

References

1. Yamada, H., Miyata, S., Igaki, N., *et al.* Increase in 3-deoxyglucosone levels in diabetic rat plasma. Specific *in vivo* determination of intermediate in advanced Maillard reaction. *J. Biol. Chem.* **269(32)**, 20275-20280 (1994).
2. Niwa, T. and Tsukushi, S. 3-Deoxyglucosone and AGEs in uremic complications: Inactivation of glutathione peroxidase by 3-deoxyglucosone. *Kidney Int. Suppl.* **78**, S37-S41 (2001).
3. Kusunoki, H., Miyata, S., Ohara, T., *et al.* Relation between serum 3-deoxyglucosone and development of diabetic microangiopathy. *Diabetes Care* **26(6)**, 1889-1894 (2003).
4. Thornalley, P.J., Langborg, A., and Minhas, H.S. Formation of glyoxal, methylglyoxal and 3-deoxyglucosone in the glycation of proteins by glucose. *Biochem. J.* **344(Pt 1)**, 109-116 (1999).

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