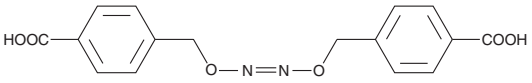
PRODUCT INFORMATION

SOTS-1 (technical grade)

Item No. 10009642

CAS Registry No.:	223507-96-8
Formal Name:	4,4'-[azobis(oxymethylene]*bis*-benzoic acid
Synonyms:	Superoxide Thermal Source, Di-(4-Carboxybenzyl)Hyponitrite
MF:	$C_{16}H_{14}N_2O_6$
FW:	330.3
Purity:	≥80%
Supplied as:	A crystalline solid
Storage:	-80°C
Stability:	≥2 years



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

Laboratory Procedures

SOTS-1 (technical grade) is supplied as a crystalline solid. A stock solution may be made by dissolving the SOTS-1 (technical grade) in the solvent of choice, which should be purged with an inert gas. SOTS-1 (technical grade) is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of SOTS-1 (technical grade) in these solvents is approximately 10 and 2 mg/ml, respectively.

SOTS-1 (technical grade) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, SOTS-1 (technical grade) should first be dissolved in DMF and then diluted with the aqueous buffer of choice. SOTS-1 (technical grade) has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Superoxide radical anion is a toxic by-product of mitochondrial respiration that is formed from approximately 1-4% of the oxygen metabolized by aerobic organisms. SOTS-1 is an azo-compound that can be thermally decomposed in aqueous solution to generate superoxide radical anion at a constant, controlled rate. More specifically, SOTS-1 thermally decomposes to form an intermediate that reacts with oxygen at the diffusion-controlled limit to generate superoxide radical anion. The decay of SOTS-1 into the intermediate follows first order kinetics, and exhibits a half-life of 4900 seconds at physiological pH and temperature.[1,2] This allows for study of the effect of superoxide on biologically relevant systems in a controlled environment that closely mimics conditions *in vivo*.

References

1. Konya, K.G., Paul, T., Lin, S., *et al.* Laser flash photolysis studies on the first superoxide thermal source. First direct measurements of the rates of solvent-assisted 1,2-hydrogen atom shifts and a proposed new mechanism for this unusual rearrangement. *J. Am. Chem. Soc.* **122(31)**, 7518-7527 (2000).
2. Ingold, K.U., Paul, T., Young, M.J., *et al.* Invention of the first azo compound to serve as a superoxide thermal source under physiological conditions: Concept, synthesis, and chemical properties. *J. Am. Chem. Soc.* **119(50)**, 12364-12365 (1997).

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