

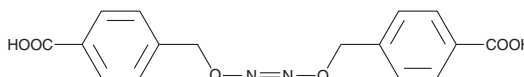
# PRODUCT INFORMATION



## 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<sub>16</sub>H<sub>14</sub>N<sub>2</sub>O<sub>6</sub>  
**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.<sup>1,2</sup> 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).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897

[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM