

## Certificate of Analysis

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**Product Name:** Spermine NONOate

**Catalog No.:** 1135

**Batch No.:** 10

**CAS Number:** 136587-13-8

**IUPAC Name:** *N*-[4-[1-(3-Aminopropyl)-2-hydroxy-2-nitrosohydrazino]butyl-1,3-propanediamine]

### 1. PHYSICAL AND CHEMICAL PROPERTIES

**Batch Molecular Formula:** C<sub>10</sub>H<sub>26</sub>N<sub>6</sub>O<sub>2</sub>

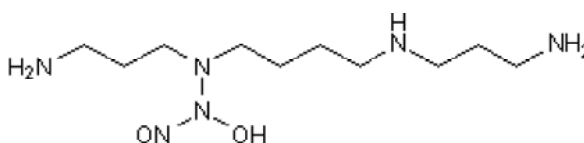
**Batch Molecular Weight:** 262.35

**Physical Appearance:** White solid

**Solubility:** water to 100 mM

**Storage:** Desiccate at -20°C

**Batch Molecular Structure:**



### 2. ANALYTICAL DATA

**Melting Point:** Between 102 - 105°C

**<sup>1</sup>H NMR:** consistent with structure

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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**Description:**

A stable complex of nitric oxide and spermine used to generate a controlled release of nitric oxide in solution ( $EC_{50} = 6.2 \mu M$  for relaxation of rabbit aorta, and  $t_{1/2} = 39$  min at  $37^{\circ}C$ , pH 7.4, aqueous solution).

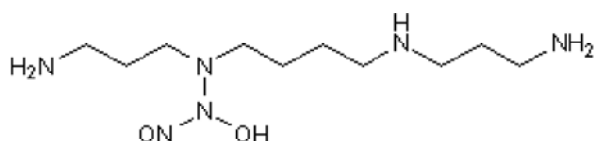
**Physical and Chemical Properties:**

Batch Molecular Formula:  $C_{10}H_{26}N_6O_2$

Batch Molecular Weight: 262.35

Physical Appearance: White solid

**Batch Molecular Structure:**



**Storage:** Desiccate at  $-20^{\circ}C$

**Solubility & Usage Info:**

water to 100 mM

This product is supplied as a lyophilized solid and may be very hard to visualize. Solutions should be made by adding solvent directly to the vial. The vial should then be vortexed vigorously to ensure the product has completely dissolved.

**Stability and Solubility Advice:**

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a  $45-60^{\circ}C$  water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

**SOLIDS:** Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

**SOLUTIONS:** We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at  $-20^{\circ}C$  or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

**Licensing Information:**

Sold with the permission of the NIH, US Patent 5,155,137

**References:**

**Ferrero et al** (1999) Comparative effects of several nitric oxide donors on intracellular cyclic GMP levels in bovine chromaffin cells: correlation with nitric oxide production. *Br.J.Pharmacol.* **127** 779. PMID: 10401570.

**Homer and Wanstall** (1998) In vitro comparison of two NONOates (novel nitric oxide donors) on rat pulmonary arteries. *Eur.J.Pharmacol.* **356** 49. PMID: 9761423.

**Ramamurthi and Lewis** (1997) Measurement and modeling of nitric oxide release rates for nitric oxide donors. *Chem.Res.Toxicol.* **10** 408. PMID: 9114977.

**Maragos et al** (1991) Complexes of NO with nucleophiles as agents for the controlled biological release of nitric oxide. Vasorelaxant effects. *J.Med.Chem.* **34** 3242. PMID: 1956043.

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