

**Product Name:** NF 110

**Catalog No.:** 2548

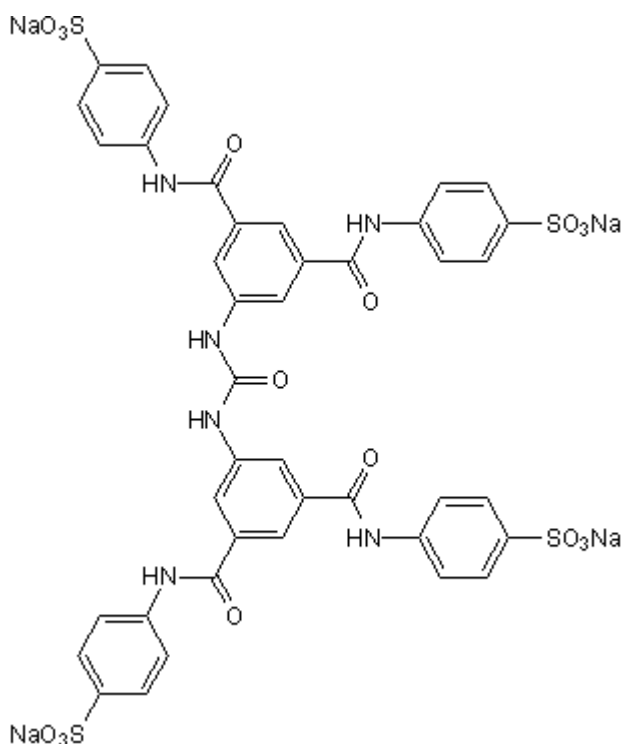
**Batch No.:** 2

**CAS Number:** 111150-22-2

**IUPAC Name:** 4,4',4'',4'''-[Carbonylbis(imino-5,1,3-benzenetriylbis(carbonylimino))]tetrakisbenzenesulfonic acid tetrasodium salt

**1. PHYSICAL AND CHEMICAL PROPERTIES**

**Batch Molecular Formula:**  $C_{41}H_{28}N_6Na_4O_{17}S_4 \cdot 12H_2O$   
**Batch Molecular Weight:** 1313.08  
**Physical Appearance:** White solid  
**Solubility:** water to 40 mM  
**Storage:** Desiccate at RT  
**Batch Molecular Structure:**



**2. ANALYTICAL DATA**

**HPLC:** Shows 94.6% purity  
**<sup>1</sup>H NMR:** Consistent with structure  
**Mass Spectrum:** Consistent with structure

**Microanalysis:**

	Carbon	Hydrogen	Nitrogen
Theoretical	37.5	3.99	6.4
Found	37.58	3.62	6.38

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**Description:**

High affinity P2X<sub>3</sub> receptor antagonist (K<sub>i</sub> values are 36, 82 and 4144 nM for P2X<sub>3</sub>, P2X<sub>1</sub> and P2X<sub>2</sub> recombinant receptors respectively). Shows no activity at P2Y<sub>1</sub>, P2Y<sub>2</sub> and P2Y<sub>11</sub> receptors (IC<sub>50</sub> > 10 μM). Potently inhibits α,β-meATP-evoked desensitizing currents in rat DRG neurons (IC<sub>50</sub> = 527 nM). Shows antitumor activity against several tumor types.

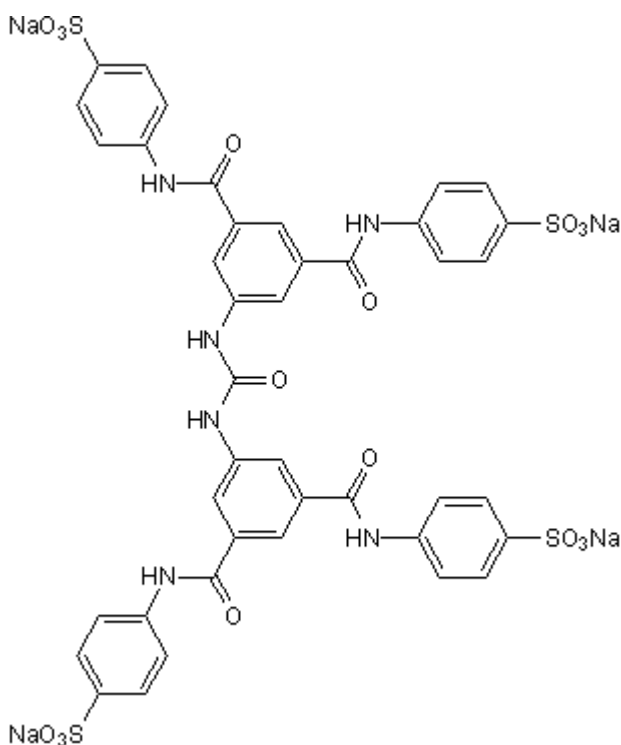
**Physical and Chemical Properties:**

Batch Molecular Formula: C<sub>41</sub>H<sub>28</sub>N<sub>6</sub>Na<sub>4</sub>O<sub>17</sub>S<sub>4</sub>·12H<sub>2</sub>O

Batch Molecular Weight: 1313.08

Physical Appearance: White solid

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**Storage:** Desiccate at RT

**Solubility & Usage Info:**

water to 40 mM

**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°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°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

**References:**

**Dhar et al (2000)** Antitumour activity of suramin analogues in human tumour cell lines and primary cultures of tumour cells from patients. *Eur.J.Cancer* **36** 803. PMID: 10762755.

**Kassack et al (2004)** Structure-activity relationships of analogues of NF449 confirm NF449 as the most potent and selective known P2X<sub>1</sub> receptor antagonist. *Eur.J.Med.Chem.* **39** 345. PMID: 15072843.

**Hausmann et al (2006)** The suramin analog 4,4',4",4'''-(Carbonylbis(imino-5,1,3-benzenetriylbis (carbonylimino)))tetra-kis-benzenesulfonic acid (NF110) potently blocks P2X<sub>3</sub> receptors: subtype selectivity is determined by location of sulfonic acid groups. *Mol.Pharmacol.* **69** 2058. PMID: 16551782.

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