Print Date: Mar 13th 2024

Certificate of Analysis

Product Name: **Mag-Fura-2 AM** **Catalog No.: 7855** **Batch No.: 1**

CAS Number: 130100-20-8

IUPAC Name: Bis(acetoxymethyl) 2,2'-((5-(2-(acetoxymethoxy)-2-oxoethoxy)-2-(5-((acetoxymethoxy)carbonyl)oxazol-2-yl) benzofuran-6-yl)azanediyl)diacetate

1. PHYSICAL AND CHEMICAL PROPERTIES

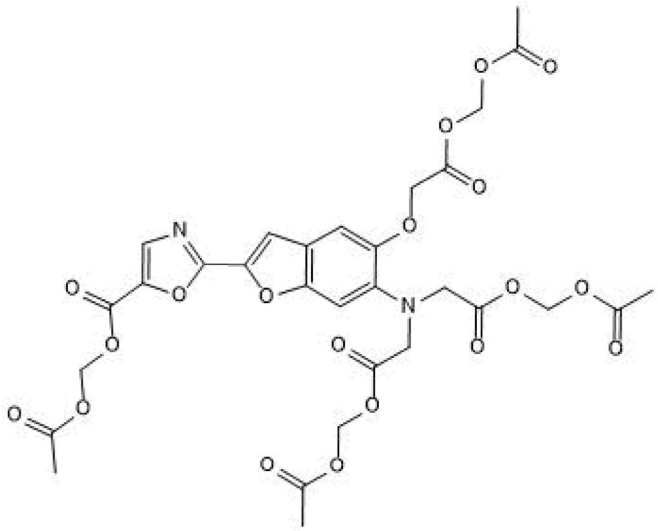
Batch Molecular Formula: $C_{30}H_{30}N_2O_{19}$

Batch Molecular Weight: 722.57

Physical Appearance: Green liquid

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99% purity at 254 nm

UV Spectrum: Consistent with structure

λ_{max}: 365 nm (ethyl acetate)

λ_{ex}: 365 nm (ethyl acetate)

λ_{em}: 473 nm (ethyl acetate)

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Description:

Mag-Fura-2 AM is a cell-permeable fluorescent magnesium ion (Mg^{2+}) indicator. It shows selectivity for Mg^{2+} over other bivalent ions (Zn^{2+}, Cu^{2+} and Ca^{2+}). It exhibits >13,000-fold selectivity for Mg^{2+} ions over Ca^{2+} ions (Mg^{2+} Kd = 1.9 nM vs Ca^{2+} Kd = 25 µM). Excitation and emission maxima (λ) are 369 and 511 nm, respectively. Mag-Fura-2 AM can be used as an indirect indicator of ATP consumption/production. It is recommended to prepare stock solutions in DMSO.

Physical and Chemical Properties:

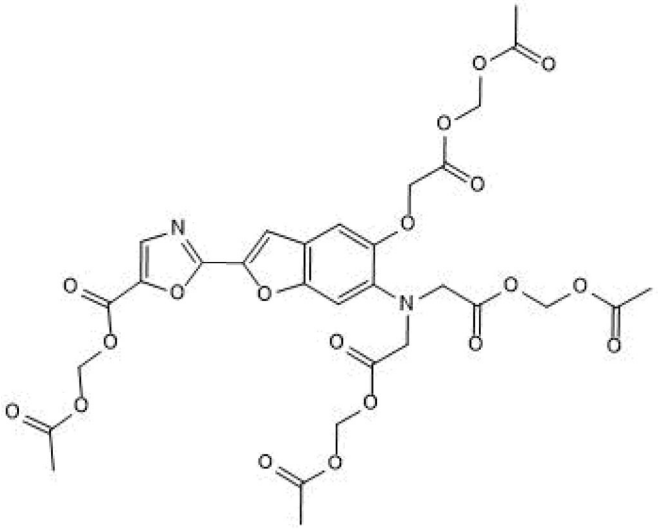
Batch Molecular Formula: $C_{30}H_{30}N_2O_{19}$

Batch Molecular Weight: 722.57

Physical Appearance: Green liquid

Minimum Purity: ≥95%

Batch Molecular Structure:



Storage: Store at -20°C

CAUTION - This product is light sensitive and we recommend that the solid material and any solutions obtained are protected from exposure to light.

Solubility & Usage Info:

This product is supplied in lyophilized form. It may appear as a solid, gel or film and 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°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. *Unless contradicted by product-specific protocols or instructions, our standard recommendations apply:

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:

Watanabe *et al* (2022) Chronic magnesium deficiency causes reversible mitochondrial permeability transition pore opening and impairs hypoxia tolerance in the rat heart. J.Pharmacol.Sci. ***148*** 238. PMID: 35063139.

Cheng *et al* (2021) Variability of mitochondrial energy balance across brain regions. J.Neurochem. ***157*** 1234. PMID: 33190229.

Schütz *et al* (2021) Trophectoderm cell failure leads to peri-implantation lethality in Trpm7-deficient mouse embryos. Cell Rep. ***37*** 109851. PMID: 34686339.

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