Product Information

1-Fluoro-2,4-dinitrobenzene

≥ 98.5% (GC)

D1529

Product Description

Molecular Formula: $C_6H_3FN_2O_4$

Molecular Weight: 186.1

CAS Registry Number: 70-34-8

Melting point: 26 °C[1]

Density: 1.48 g/mL

Refractive Index: 1.5690 (20 °C)[2]

Molarity: 7.95 M

Synonyms: DNFB, 2,4-dinitrofluorobenzene, Sanger's Reagent, 2,4-dinitrobenzene fluoride, 2,4-DNFB, 1,2,4-Fluorodinitrobenzene, Fluoro-1,3-dinitrobenzene

1-Fluoro-2,4-dinitrobenzene (DNFB) is a halogenated and nitrated aromatic compound that modifies the *N*-terminal amino acids of proteins and peptides. DNFB is also commonly known as Sanger's Reagent, named after Frederick Sanger, who reported, in a classic 1945 paper, the use of DNFB for derivatization of proteins and peptides specifically at their *N*-termini.[3] In the Sanger procedure, DNFB is used to form dinitrophenyl derivatives,[4] for end group determination of proteins,[3] and to derivatize primary amines.[5]

The effect of DFNB on the enzymatic properties of mitochondrial b-c1 complex isolated from beef heart mitochondria indicated that the chemical modification by DNFB strongly inhibits the reductase activity of the complex.[6] DNFB has been reported to inactivate fructose diphosphatase by reacting with a cysteine residue.[7] DNFB can also cause reversible dinitrophenylation of thiols in muscle glyceraldehyde 3-phosphate dehydrogenase.[8] DNFB has been used as a sensitization reagent in contact hyperactivity studies.[9]

Several dissertations[11-15] have cited use of product D1529 in their protocols.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The half-life of DNFB at 15 °C in a Tris buffer is:[10]

- 56.7 hours at pH 8.03
- 6.5 hours at pH 9.53

Preparation Instructions

DNFB is soluble in chloroform (100 mg/mL). DNFB is also soluble in benzene, ether, and propylene glycol.

A saturated solution at 15 °C in water is 0.0086 M and in 8 M urea is 0.062 M.[10] The concentration of DNFB at saturation was determined spectrophotometrically as dinitrophenol after basic hydrolysis.

References

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