PHENYLMETHYLSULFONYL FLUORIDE
Product Number **MF105**
Storage Temperature RT

ProductInformation

CAS #: 329-98-6
Synonyms: PMSF; α-toluenesulfonyl fluoride

Product Description
Appearance: White to faint yellow powder
Molecular weight: 174.2
Molecular Formula: $C_7H_7FO_2S$
Melting Point: 91-92°C[1] Sigma typically finds values in the range of 91-94°C.

PMSF is a inhibitor of serine proteases and acetylcholinesterase.[2] It inhibits proteases such as chymotrypsin, trypsin, thrombin and thiol proteases such as papain.

PMSF inhibits serine proteases by sulfonating serine residues at the active site.[3,4]

Precautions and Disclaimer
PMSF is considered a highly toxic cholinesterase inhibitor. See Material Safety Data Sheet.

Preparation Instructions
PMSF is soluble in anhydrous isopropanol at 35 mg/ml with heating, resulting in a clear to very slightly hazy, colorless to faint yellow solution.

Recommended stock solution: 100 mM in anhydrous isopropanol or anhydrous (100%, not 95%) ethanol. A 200 mM solution in dry solvent is stable for at least 9 months at 2-8°C.[5] PMSF is very unstable in the presence of water. The half-life of aqueous PMSF at 25°C at pH 7.0, 7.5, and 8.0 is 110, 55, and 35 minutes, respectively.[6]

Storage/Stability
When stored as indicated, PMSF has a shelf-life of three years.

References

1. J. Am. Chem. Soc., vol. 85, 997 (1963).
2. Turini, P., *J. Pharmacol. Exp. Ther*., vol. 167, 98 (1969).
3. Gold, A.,*Methods in Enzymology*, vol. 11, 706 (1967).
4. Gold, A. and Fahrney, D., Biochemistry, vol. 3, 783 (1964).
5. *Proteolytic Enzymes: A Practical Approach*, edited by R.J. Benyon, page 246 (1989).
6. *Anal. Biochem.*, vol. 86, 574 (1978).

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