

Dess-Martin Periodinane

[DMP, 1, 1, 1-Triacetoxy-1,1 dihydro-1,2-benziodoxol-3(1H)-one]

Stock # L15779

CAS number: 87413-09-0

Formula: $C_{13}H_{13}IO_8$

Formula weight: 424.15

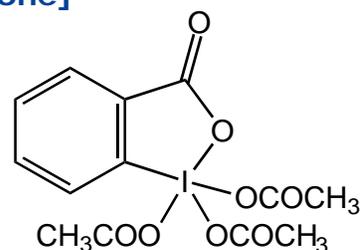
Melting point: 130-132 ° dec.

Merck: 13,2950

Fieser: 12, 378 14, 254 15, 252 16, 271 17, 271 18, 286 20, 192 21, 154

Beilstein Registry number: 4548207

MDL Number: MFCD00130127



One of the mildest reagents for the selective oxidation of primary and secondary alcohols to aldehydes and ketones. High yields can be obtained at ambient temperatures, under neutral conditions, in chloroform, dichloromethane or acetonitrile: *J. Org. Chem.*, **48**, 4155 (1983); *J. Am. Chem. Soc.*, **113**, 7277 (1991); (reviews): *J. Prakt. Chem./Chem. Ztg.*, **388**, 588 (1996); Synlett, 278 (2000). Has been employed for the oxidation of a wide variety of sensitive substrates and is particularly valuable in multi-step syntheses of polyfunctional molecules with complex stereochemistry. For an example involving exclusive oxidation of one of four possible secondary OH groups in a synthesis of erythromycin B, see: *J. Am. Chem. Soc.*, **119**, 3193 (1997). Allylic and benzylic alcohols can be oxidised selectively in the presence of saturated alcohols, and give the carbonyl compounds cleanly without over-oxidation or *cis-trans* isomerisation: *Tetrahedron Lett.*, **29**, 995 (1988); *J. Org. Chem.*, **55**, 1636 (1990). Hydroxamic acids are oxidized to acyl nitroso compounds which can undergo cycloaddition to dienes: *Synth. Commun.*, **30**, 47 (2000). Has also been used for deoxygenation of ketoximes to ketones under mild conditions: *Tetrahedron Lett.*, **39**, 3209 (1998); *Synthesis*, 760 (1999). Deprotection of thioacetals can be accomplished under extremely mild conditions: *Org. Lett.*, **5**, 575 (2003).

CAUTION! In the presence of moisture, may form iodoxybenzoic acid which has been reported to be explosive under excessive heating or impact: *Chem. Eng. News*, **68**(29), 3 (1990).

For a detailed discussion of the scope and advantages of this reagent, see: *Encyclopedia of Reagents for Organic Synthesis*, L. A. Paquette, Ed., Wiley, Chichester (1995), vol. **7**, p. 4982.