

# Cesium Carbonate

Cesium carbonate is a versatile reagent for organic synthesis. This inorganic base has been employed in numerous organic applications ranging from N-protection of amino acids to a base in either the Horner-Wadsworth-Emmons reaction or in Suzuki couplings. It has also found use as a catalyst for ethylene oxide polymerization, in coating for spatter-free welding of steel in CO<sub>2</sub>, as a functional interlayer in photovoltaic devices and in oxide cathodes.

Alfa Aesar is pleased to offer a range of different grades of cesium carbonate to match your scientific requirement.

## Cesium carbonate

[534-17-8], Cs<sub>2</sub>CO<sub>3</sub>, F.W. 325.82, Powder, m.p. 610° dec., d. 4.072, Merck 14,2010, Solubility: Very soluble in water and alcohol. Soluble in ether, EINECS 208-591-9, MDL MFCD00010957, R:36/37/38-68, S:26-36/37

Can be used to prepare Cs salts of N-protected amino acids or peptides, which can then be cleanly esterified by treatment with an alkyl halide in DMF: *Helv. Chim. Acta*, **56**, 1476 (1973); *J. Org. Chem.*, **42**, 1286 (1977). Carboxylic acids can be esterified in high yield with an alkyl halide and Cs<sub>2</sub>CO<sub>3</sub> at ambient temperature in DMF: *Synth. Commun.*, **30**, 2687 (2000). Benzoic acids can be esterified by refluxing with an alcohol in acetonitrile: *Org. Prep. Proced. Int.*, **28**, 480 (1996). The di-Cs salts of catechol and resorcinol are superior to other alkali metal salts in the reaction with dibromoethers in DMF to give crown ethers: *J. Chem. Soc., Chem. Commun.*, 285 (1979). Also used in the facile synthesis of alkyl phenyl ethers from phenols and alkyl halides in acetonitrile: *Synth. Commun.*, **25**, 1367 (1995), and catalytically in the O-methylation of phenols by heating in excess dimethyl carbonate: *Synlett*, 1063 (1998); K<sub>2</sub>CO<sub>3</sub> was found to be less effective. Indoles undergo N-alkylation in DMPU: *Synlett*, 2394 (2004). For use in formation of macrocyclic sulfides from dithiols and dibromoalkanes, see: *J. Org. Chem.*, **46**, 4481 (1981); *Org. Synth. Coll.*, **8**, 592 (1993). Salts of other metals are ineffective. For a review of the 'cesium ion effect' and macrocyclization, see: *Org. Prep. Proced. Int.*, **24**, 285 (1992). Superior base for Horner-Wadsworth-Emmons olefination reaction of phosphonates: *Chem. Lett.*, 335 (1989); *Bull. Soc. Chim. Belg.*, **100**, 267 (1991). For cleavage of 2-oxazolidinones to give amino alcohols, see: *Tetrahedron Lett.*, **28**, 4185 (1987). For a brief feature on uses of the reagent in synthesis, see: *Synlett*, 2447 (2004).

## Standard Catalog Items Available from Stock

### 12887 Cesium carbonate, 99% (metals basis)

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## Reference

The Merck Index, 14th Edition, Merck & Co Inc, Whitehouse Station, NJ, 2006.