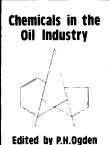


Chemicals in the Oil Industry



Edited by P. H. Ogden

Chemicals in the Oil Industry discusses some of the problems associated with oil production, particularly where the use of chemical additives is concerned. This book sets out to define those problems which can be solved through the use of chemical additives, the type of chemical currently favoured, the level of service required to supply such chemicals effectively to the oil industry, the volume of chemicals used, and the financial outlay required of the oil producer.

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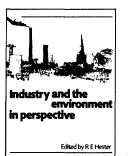
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Edited by R. E. Hester

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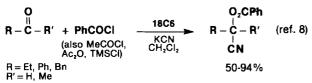


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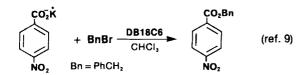
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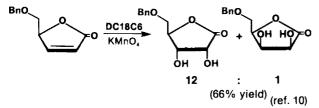
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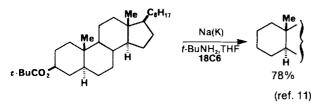
Esterification



Butenolide Oxidation

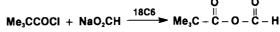


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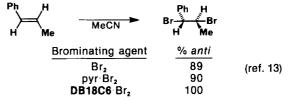
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Mixed-Anhydride Synthesis



reagent for N-formylation (ref. 12)

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References:

(1) For an interesting account by the discoverer, see Pedersen, C.J. Aldrichim. Acta 1971, 4, 1. (2) Standard CE abbreviations: 12C4=12crown-4 (similarly for 15C5 and 18C6), DB = dibenzo, DC = dicyclohexano. (3) Gokel, G.W.; Durst, H.D. Aldrichim. Acta 1976, 9, 3. Hiraoka, M. "Studies in Organic Chemistry, Vol. 12. Crown Compounds. Their Characteristics and Applications"; Elsevier: Amsterdam, Netherlands, 1982. (4) Shono, T. Kayaku Kogyo 1982, 33, 524; Chem. Abstr. 1983, 99, 155381c. (5) Kimura, K.; Shono, T. J. Liq. Chromatogr. 1982, 5, (Suppl. 2), 233. (6) Nakamura, H. et al. Anal. Chim. Acta 1982, 139, 217. (7) Bose, A.R. et al. J. Org. Chem. 1983, 48, 1780. (8) Chenevert, R. et al. Synth. Commun. 1983, 13, 403. (9) Wong, K.-H.; Wai, A.P.W. J. Chem. Soc., Perkin Trans. 2 1983, 317. (10) Mukaiyama, T. et al. Chem. Lett. 1983, 173. (11) Barrett, A.G.M. et al. J. Chem. Soc., Perkin Trans. 1 1981, 1501 and refs. cited therein. (12) Vlietstra, E.J. et al. Recl.: J. R. Neth. Chem. Soc. 1982, 101, 460. (13) Pannell, K.H.; Mays, A.J. J. Chem. Soc., Perkin Trans. 1 1982, 2153. (14) Smith, P.J.; Patel, B.N. J. Organometal. Chem. 1982, 243, C73. (15) Spek, A.L. et al. Cryst. Struc. Commun. 1982, 11, 1863. (16) Kolthoff, I.M. et al. Anal. Chem. 1983, 55, 1202.

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