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[21] Application No.: GCC/P/2000/1098 [22] Filing Date: 13/12/2000 [30] Priority: [31] Priority No. [32] Priority date [33] State 99310003.1 13/12/1999 EP [72] Inventors: 1- Paul Willett, 2- Robert Wild, 3- Simon William Colley, 4- Michael Anthony Wood [73] Owner: Kvaerner Process Technology Limited, 20, Eastbourne Terrance London W2 6le, England [74] Agent: Suleiman Ibrahim Al Ammar	[51] Int.Cl. ⁷ : C07C 29/17, 31/20 [56] Cited Documents: - EP 937698 A1 (BASF AKTIENGESELLSCHAFT) 25 August 1999 - US 5395990 A (SCARLETT) 07 March 1995

[54] PROCESS FOR THE CO-PRODUCTION OF ALIPHATIC DIOLS AND CYCLIC ETHERS

[57] Abstract: A process is described for the co-production of a diol product (e.g. butane-1,4-diol) and a cyclic ether (e.g. tetrahydrofuran) by hydrogenation of an aliphatic diester or lactones feedstock, such as dimethyl or diethyl male ate, which contains a minor amount of acidic material, such as the corresponding monoester. It utilizes a plurality of hydrogenation zones (8, 9, 10) connected in series, each containing a charge (12, 17, 24) of a granular ester hydrogenation catalyst. The first hydrogenation zone (8) contains a bed (12) of a catalyst (e.g. reduced copper chromite) which is tolerant of a minor amount of acidic material, while the second hydrogenation zone (9) contains a bed (17) of a catalyst which provides enhanced yields of cyclic ethers compared to the catalyst of the first hydrogenation zone (8). A third hydrogenation zone (10) contains a bed (24) of a catalyst, which exhibits low selectivity towards conversion of the diester to at least one byproduct (e.g. 2-(4'-hydroxybutoxy)-tetrahydrofuran). The feedstock is supplied to the first hydrogenation zone (8) as a vaporous stream comprising hydrogen and the hydrogen table material and the zones (8, 9, 10) are typically operated under adiabatic conditions. From the third hydrogenation zone (10) there is recovered a final product stream which is substantially free of the hydrogen table material and which contains the diol, cyclic ether and other byproducts, the selectivity to the cyclic ether being greater in the final product stream than in the first intermediate product stream.

No. of claims: 24

No. of figures: 2

