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**COBALT-CATALYZED PROCESS FOR
PREPARING 1,3-PROPANEDIOL
USING A LIPOPHILIC QUATERNARY
ARSONIUM SALT PROMOTER**

Slaugh Lynn H; Powell Joseph; Forschner Thomas C; Semple Thomas C; Weider Paul Houston, TX, UNITED STATES assigned to Shell Oil Company

1,3-Propanediol is prepared in a process which involves reacting ethylene oxide with carbon monoxide and hydrogen in an essentially non-water-miscible solvent in the presence of a non-phosphine-ligated cobalt catalyst and a lipophilic quaternary arsonium salt promoter to produce an intermediate product mixture containing 3-hydroxypropanal in an amount less than 15 wt %; extracting the 3-hydroxypropanal from the intermediate product mixture into an aqueous liquid at a temperature less than about 100°C and separating the aqueous phase containing 3-hydroxypropanal from the organic phase containing cobalt catalyst; hydrogenating the 3-hydroxypropanal in the aqueous phase to 1,3-propanediol; and recovering the 1,3-propanediol. The process enables the production of 1,3-propanediol in high yields and selectivity without the use of a phosphine ligand-modified cobalt catalyst.

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**COBALT-CATALYZED PROCESS FOR
PREPARING 1,3-PROPANEDIOL
USING A LIPOPHILIC BIDENTATE
PHOSPHINE PROMOTOR**

Powell Joseph B; Slaugh Lynn; Forschner Thomas C; Semple Thomas C; Weider Paul Houston, TX, UNITED STATES assigned to Shell Oil Company

1,3-Propanediol is prepared in a process which involves reacting ethylene oxide with carbon monoxide and hydrogen in an essentially non-water-miscible solvent in the presence of a non-phosphine-ligated cobalt catalyst and a lipophilic bidentate phosphine promoter to produce an intermediate product mixture containing 3-hydroxypropanal in an amount less than 15 wt%; extracting the 3-hydroxypropanal from the intermediate product mixture into an aqueous liquid at a temperature less than about 100°C and separating the aqueous phase containing 3-hydroxypropanal from the organic phase containing cobalt catalyst; hydrogenating the 3-hydroxypropanal in the aqueous phase to 1,3-propanediol; and recovering the 1,3-propanediol. The process enables the production of 1,3-propanediol in high yield and selectivity without the use of a phosphine ligand-modified cobalt catalyst.

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**PROCESS FOR PRODUCING
CATALYST USED FOR SYNTHESIS
OF METHACRYLIC ACID**

Naito Hiroyuk; Otani Masato; Oh-Kita Motom; Kuroda Toru Hiroshima, JAPAN assigned to Mitsubishi Rayon Co Ltd

PCT No. PCT/JP93/00597 Sec. 371 Date Nov. 4, 1994 Sec. 102(e) Date Nov. 4, 1994 PCT Filed May 7, 1993 PCT Pub. No. WO93/23161 PCT Pub. Date Nov. 25, 1993. There is provided a process for efficient production of a solid catalyst usable for synthesis of methacrylic acid from methacrolein which comprises adding a lower alcohol or acetone to a dried product obtained from a mixed solution or aqueous slurry containing at least Mo, P and V as catalyst components and shaping the mixture by extrusion molding.