CLAIMS

1. A method for producing a hybrid polyester-polyether, comprising polymerizing at least one alkylene oxide in the presence of (1) a carboxylate initiator compound, (2) a double metal cyanide catalyst complex and (3) a ~~magnesium,~~ Group 3 – Group 15 metal or lanthanide series metal compound in which a ~~magnesium,~~ Group 3 – Group 15 metal or lanthanide series metal is bonded to at least one alkoxide, aryloxy, ~~carboxylate,~~ acyl, pyrophosphate, phosphate, thiophosphate, dithiophosphate, phosphate ester, thiophosphate ester, amide, siloxide hydride, carbamate or hydrocarbon anion, and wherein the ~~magnesium,~~ Group 3 – Group 15 metal or lanthanide series metal compound is devoid of halide anions.

2. The method of claim 1, wherein the carboxylate initiator has at least one carboxyl (-COOH) or carboxylate ($-COO^-$) group, or a carboxylate precursor group which produces a carboxyl or carboxylate group under the conditions of the polymerization.

3. The method of claim 2 wherein the carboxylate initiator is an alkanoic monoacid having from 1 to 30 carbon atoms, a keto acid, an aromatic mono- or di- acids, an aliphatic dicarboxylic acid, a tricarboxylic acid, a hydroxyacid, an unsaturated monocarboxylic acid, or an aminoacid.

4. The method of claim 2 wherein the carboxylate initiator is an anhydride of a dicarboxylic acid.

5. The method of claim 2 wherein the carboxylate initiator is a half acid ester formed in the reaction of a carboxylic acid anhydride compound with a polyol compound.

6. The method of claim 5 wherein the polyol compound is a polyester polyol, a polyether-polyester polyol, or a polyether polyol, such as ethylene glycol, diethylene glycol, propylene glycol, dipropylene glycol, 1,3-propanediol, 1,4-butanediol; 1,5- pentanediol, 1,6-hexanediol, 1,4-cyclohexanedimethanol, 1,8-