

A B S T R A C T

Improvements or modifications of earlier process for preparing chromium-containing compounds, such as, for example, chromium pyrrolides, by forming a mixture of a chromium salt, a metal amide, particularly a pyrrolide, and an electron pair donor solvent, such as, for example, an ether, and reaction with an unsaturated hydrocarbon are disclosed, including use of pyrrole or derivatives thereof as the pyrrolide and an aliphatic as the unsaturated hydrocarbon. A new process for preparing a catalyst system comprises combining a metal source, a pyrrole-containing compound and a metal alkyl without a preliminary reaction step between the metal source and the pyrrole-containing compound in the presence of an electron donor solvent. These catalyst systems and chromium-containing compounds either unsupported or supported on an inorganic oxide support, if desired functioning as a cocatalyst in combination with another polymerization catalyst, such as containing chromium or titanium, can be used to trimerize, oligomerize, and/or polymerize olefins.

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