

## Abstract

A ligand based chromium catalyst and application in catalyzing ethylene oligomerization are disclosed. The chromium catalyst is formed by a chromium  
5 compound and an organic ligand containing P and/or N. The substituents on N and P of the ligand can be replaced, whereby selective ethylene trimerization and tetramerization can be realized so as to produce 1-hexene and 1-octene at the same time.

10 (Fig. 1)