

**POLY ALPHA OLEFIN COMPOSITIONS AND PROCESS TO PRODUCE POLY
ALPHA OLEFIN COMPOSITIONS**

ABSTRACT

This invention is directed to a two-step process for the preparation of poly alpha olefins wherein the first step involves oligomerizing low molecular weight linear alpha olefins in the presence of a single site catalyst and the second step involves oligomerization of at least a portion of the product from the first step in the presence of an oligomerization catalyst. The dimer product from the first oligomerization is characterized by a tri-substituted vinylene olefin content of at least 25 wt%. The poly alpha olefins produced in the second oligomerization step are characterized by very low viscosity and excellent Noack volatility.