CLAIMS

1. A method for improving catalyst performance, preferably for improving catalyst performance in an oligomerization of ethylene, more preferably for improving catalyst performance in a trimerization of ethylene to 1-hexene, the method comprising:

pre-mixing at least one ligand and at least one chromium source in at least one solvent to form a pre-mixed composition;

activating the pre-mixed composition with an activator to form an activated composition; and

supplying the pre-activated composition to a reactor,

wherein the activating comprises mixing the pre-mixed composition with the activator external to the reactor, and stirring the activated composition for between approximately 1 minute and approximately 18 hours prior to supplying the activated composition to the reactor.

2. The method of claim 1, wherein the ligand is $((phenyl)_2PN(isopropyl)P(phenyl)NH(isopropyl))$.

3. The method of any one or more of claims 1 to 2, wherein the chromium source is chromium chloride, chromium acetyl acetonate, or a combination comprising at least one of the foregoing.

4. The method of any one or more of claims 1 to 3, wherein the solvent comprises toluene.

5. The method of any one or more of claims 1 to 4, wherein the solvent is supplied at a concentration between approximately 0.1 weight percent and approximately 95 weight percent, based on the total weight of the activated composition.

6. The method of any one or more of claims 1 to 5, wherein the activator is triethylaluminum.

7. The method of claim 1, wherein the mixing time is between approximately 3 hours and approximately 5 hours.

8. A method for improving catalyst performance in the oligomerization of ethylene, more preferably for improving catalyst performance in the trimerization of ethylene to 1-hexene, the method comprising:

pre-mixing ((phenyl)$_2$PN(isopropyl)P(phenyl)NH(isopropyl)) and at least one chromium source in toluene to form a pre-mixed composition;

activating the pre-mixed composition with an activator to form an activated composition; and

supplying the pre-activated composition to a reactor,

wherein the activating comprises mixing the pre-mixed composition with the activator external to the reactor, and stirring the activated composition for between approximately 1 minute and approximately 18 hours prior to supplying the activated composition to the reactor.

9. The method of claim 8, wherein the chromium source is chromium chloride, chromium acetyl acetonate, or a combination comprising at least one of the foregoing.

10. The method of claim 8 or 9, wherein the toluene is supplied at a concentration between approximately 0.1 weight percent and approximately 95 weight percent, based on the total weight of the activated composition.

11. The method of any one or more of claims 8 to 10, wherein the activator is triethylaluminum.

12. The method of claim 8, wherein the mixing time is between approximately 3 hours and approximately 5 hours.