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.

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 1 minute and approximately 18 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.

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 1 minute and approximately 18 hours.