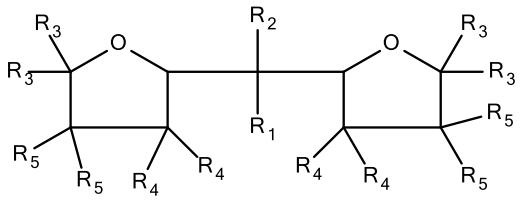
CLAIMS

1. A method of polymerization, the method comprising the steps of:
    a. polymerizing a conjugated diene monomer in the presence of a coordination catalyst to form a reactive polymer having an active terminus; and
    b. inhibiting said step of polymerizing with a Lewis base selected from the group consisting of:



    wherein R_1 and R_2 independently are hydrogen or an alkyl group and the total number of carbon atoms in $–CR_1R_2–$ ranges between one and nine inclusive; R_3, R_4, and R_5 independently are –H or $–C_nH_{2n+1}$ wherein n=1 to 6,
    wherein at least 60% by weight of the Lewis base comprises the meso-isomer.

2. The method of claim 1, the method further comprising reacting the reactive polymer at its active terminus with a functionalizing agent.

3. The method of claim 1, wherein the coordination catalyst is utilized in an amount of about 0.001 mmol to about 1 mmol of catalyst per 100 g of monomer.

4. The method of claim 1, wherein the meso-isomer Lewis base is utilized in an amount of less than 0.008 mmol of meso-isomer Lewis base per 100 g of monomer.

5. The method of claim 1, wherein the molar ratio of the meso-isomer Lewis base to the coordination catalyst is from about 1:1 to 5:1.

6. The method of claim 2, wherein said step of inhibiting ceases the rate at which the monomer is polymerized while maintaining the ability of the active terminus to react with the functionalizing agent.

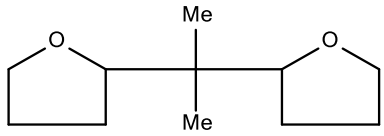
7. The method of claim 1, wherein at least about 90% by weight of the Lewis base comprises the meso-isomer.

8. The method of claim 1, wherein the coordination catalyst includes a lanthanide-based catalyst or neodymium-based catalyst.

9. The method of claim 1, wherein the conjugated diene monomer is 1,3-butadiene that forms cis-1,4-polybutadiene.

10. The method of claim 1, wherein step (a) is carried out in the presence of less than 20 percent by weight of organic solvent based on the total weight of conjugated diene monomer, organic solvent and resulting reactive polymer.

11. A method of preparing a polymer, the method comprising the steps of:
    a. polymerizing a conjugated diene monomer in the presence of a lanthanide-based coordination catalyst to form a reactive polymer having an active terminus;
    b. inhibiting said step of polymerizing with a Lewis base selected from the group consisting of:



    wherein at least 80% by weight of the Lewis base comprises the meso-isomer
    c. reacting the polymer at its active terminus with a functionalizing agent.

12. The method of claim 11, wherein step (a) is carried out in the presence of less than 20 percent by weight of organic solvent based on the total weight of conjugated diene monomer, organic solvent and resulting reactive polymer.

13. The method of claim 11, wherein step (a) is carried out in the presence of less than 5 percent by weight of organic solvent based on the total weight of conjugated diene monomer, organic solvent and resulting reactive polymer.

14. The method of claim 11, wherein the meso-isomer Lewis base is utilized in an amount of less than 0.008 mmol of catalyst per 100 g of monomer.

15. The method of claim 11, wherein the molar ratio of the meso-isomer Lewis base to the lanthanide-based coordination catalyst is less than 3:1.

16. The method of claim 11, wherein the molar ratio of the meso-isomer Lewis base to the coordination catalyst is from about 1:1 to 5:1.

17. The method of claim 11, wherein the coordination catalyst comprises a neodymium-based catalyst.

18. The method of claim 11, wherein at least about 90% by weight of the Lewis base comprises the meso-isomer.

19. The method of claim 11, wherein the conjugated diene monomer is 1,3-butadiene that forms cis-1,4-polybutadiene.