WHAT IS CLAIMED

1. A process for anionic chain transfer polymerization comprising feeding a vinyl aromatic and/or conjugated diene monomer under an atmosphere comprising molecular hydrogen to a reactor vessel containing a reaction mixture of an inert ethereal solvent and an alkali metal or alkali metal alloy, wherein the partial pressure of hydrogen is maintained at pressures between about 1.0 Bar to about 20 Bar, and the molar ratio of g-atom alkali metal or alkali metal alloy to monomer is in the range of about 1:10 to about 1:100.

2. The process of claim 1, wherein said vinyl aromatic monomer is a styrenic monomer.

3. The process of claim 1, wherein the reaction mixture further comprises an electron transfer entraining agent.

4. The process of claim 1, wherein the ethereal solvent and alkali metal or alkali metal alloy are initially charged into the reactor vessel and agitated using high shear mixing to create a dispersion of the initially charged alkali metal or alkali metal alloy.

5. The process of claim 1, wherein the alkali metal alloy is comprised of sodium and potassium.

6. The process of claim 1 where the vinyl aromatic monomer is styrene, the ethereal solvent is tetrahydrofuran and the sodium potassium alloy is NaK_2.

7. The process of claim 1 where the vinyl aromatic monomer is styrene, the ethereal solvent is tetrahydrofuran, the sodium potassium alloy is NaK_2 and the partial pressure of hydrogen is maintained at pressures between about 2.5 Bar to about 10 Bar.