The polymerization of 1,2-epoxy compounds catalyzed by the cationic polymerization of 3,4-epoxy compounds with aliphatic titanates.

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It was found that the condensation product of certain metal-containing compounds with an aliphatic titanate exerts remarkable catalytic activity in the polymerization reaction of 1,2-epoxy compounds, yielding high molecular weight polymers.

Some Friedel-Crafts type metal halide catalysts or organometallic compounds easily condense, releasing alkyl halide or olefin mixtures, with an aliphatic titanate on heating. The condensation products are reasonably assumed to be metal- or poly-organopropyl-titanium compounds.

The condensation from organometallics exhibited higher catalytic activities compared with the other catalysts prepared similarly from various metal compounds, for the polymerization of ethylene oxide and its monounsaturated derivatives, such as propylene oxide, glycidyl ethers and epichlorohydrin.

The catalysts prepared from organometallics showed interesting properties for the polymerization reaction. Their activities and activities seemed to depend on the degree of condensation. These seem to exert high reactivity in the polymerization reaction and gave the highest crystalline polymers of epichlorohydrin among the polymers by the other catalysts as prepared.

STEROIDAL ASPECTS OF THE CATIONIC POLYMERIZATION OF CIS AND TRANS 4-METHYLMETHACRYLATE WITH ALUMINUM ORGANOMETALLIC COMPOUNDS.

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In the polymerization of reasonable heterocyclic monomers such as mono-substituted thiophenes by means of a catalytic transition metal complex, the monomerization process shows more emphasized activity with catalytic complex than with homogenous transition metal complexes. A similar trend has been observed in the polymerization of acrylates with catalysts of the type [AlCl3] [2].

In the presence of the (3-ethyl-2-propyl) tert-butylase, the polymerization of both racemic 4-methyl-1-hexene and racemic 5,7-dimethyl-1-octene becomes stereoselective.

Surprisingly, in the case of 4-methyl-1-hexene, the stereoselective fraction shows an activity with catalytic activity with catalytic complex than with homogenous transition metal complexes. A similar trend has been observed in the polymerization of acrylates with catalysts of the type [AlCl3] [2].

STEREOCHEMICAL ASPECTS OF THE CATIONIC POLYMERIZATION OF CIS AND TRANS 4-METHYLMETHACRYLATE WITH ALUMINUM ORGANOMETALLIC COMPOUNDS.

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The rate of polymerization is decreased with lower Al/EO ratio. At higher polymerization pressure, the activity of ethylene oxide increases with lower Al/EO ratio. At higher polymerization pressure, the activity of ethylene oxide increases with lower Al/EO ratio.

1,4-POLYVINYL (1,4)-1,4-POLYVINYL (1,4)-BUTADIENE POLYMERIZATION WITH ALUMINUM ALKYL ETHER COMPLEXES.

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Under specific kinetic conditions by (n-butyl x-nickel) complexes are able to promote a regioselective (95 1.4) and perfectly "living" polymerization of butadiene (as evidenced by the Mn = [M]o ([D]) experimental relationship, and polymerization resumption experiments). That unique behavior has been applied to the synthesis of interesting new polymeric structures.

1) a distearin block poly(cis 1,4-trans 1,4) butadiene of high molecular weight, both sequences of which are able to crystallize independently;

2) a diblock poly(cis 1,4 butadiene-diyne) with polybutadiene-diyne, which is a very interesting emulsifier for stabilizing polystyrene- HD polyethylene blends;

3) a multistirerblock poly(cis 1,4-trans 1,4) butadiene, which is a very interesting emulsifier for stabilizing polystyrene- HD polyethylene blends.

STEREOSELECTIVE POLYMERIZATION WITH ALUMINUM ORGANOMETALLIC COMPOUNDS.

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In the presence of [AlCl3] and Lewis bases, the stereoselectivity was higher than that observed with cis-1,4-propylene. The polymerization of both racemic 4-methyl-1-hexene and racemic 5,7-dimethyl-1-octene becomes stereoselective.

Surprisingly, in the case of 4-methyl-1-hexene, the stereoselective fraction shows an activity with catalytic activity with catalytic complex than with homogenous transition metal complexes. A similar trend has been observed in the polymerization of acrylates with catalysts of the type [AlCl3] [2].

The rate of polymerization is decreased with lower Al/EO ratio. At higher polymerization pressure, the activity of ethylene oxide increases with lower Al/EO ratio. At higher polymerization pressure, the activity of ethylene oxide increases with lower Al/EO ratio.