catalysts in a given reactor environment whereby each catalyst makes a type of polymer that is distinct in composition. The catalysts can make polymers which differ in the amount or type of comonomer incorporated therein, the density, the amount of crystallinity, the crystallite size attributable to a polymer of such composition, the type or degree of tacticity (isotactic or syndiotactic), regio-regularity or regio-irregularity, the amount of branching, including long chain branching or hyper-branching, the homogeneity, or any other chemical or physical property. The shuttling mechanism employs one or more shuttling agents, which do not make polymer, but serve to transfer the polymer between active catalyst sites. Alternatively, chain shuttling may be employed to produce a block copolymer by employing two or more reactors in series. In this case, the shuttling agent acts to extend the average life of a growing polymer chain such that the polymer chains experience chain growth in each reactor before termination. The composition of each of the polymer blocks is determined by the catalyst(s) and the reactor conditions.

## SUMMARY ~~OF THE INVENTION~~

**[9]** Compositions are disclosed comprising:

A) a crystalline polyalphaolefin, polypropylene or a propylene copolymer,

B) a low density polyethylene, and

C) at least one crystalline block composite comprising:

i) a crystalline ethylene based polymer;

ii) a crystalline alpha-olefin based polymer and

iii) a block copolymer comprising a crystalline ethylene block and a crystalline alpha-olefin block.

[9a] There is provided a composition comprising:

A) a first alpha-olefin that is a crystalline alpha-olefin based polymer selected from crystalline polyalphaolefin, polypropylene, and a propylene copolymer,

B) a second alpha-olefin that is a low density polyethylene having a density of 0.91 g/cm$^3$ to 0.94 g/cm$^3$, and

C) at least one crystalline block composite comprising:

i) a third alpha-olefin that is a crystalline ethylene based polymer;

ii) a fourth alpha-olefin that is a crystalline alpha-olefin based polymer, and

iii) a block copolymer comprising a crystalline ethylene block and a crystalline alpha-olefin block wherein the crystalline ethylene block of the block copolymer is the same composition as the crystalline ethylene based polymer in the block composite and the crystalline alpha-olefin block of the block copolymer is the same composition as the crystalline alpha-olefin based polymer of the block composite wherein the crystalline block composite is present in an amount of 0.5 wt % to 15 wt %.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[10]** Figure 1 shows a general graphical representation of the relationship between weight fraction of CAO in the polymer to CBCI.

**[11]** Figure 2 shows DSC curves for CBC1.

**[12]** Figure 3 shows FTREF analysis of CBC1.

**[13]** Figure 4 shows HTLC analysis of CBC1.

**[14]** Figure 5 shows a TEM micrograph of CBC1 at 2 μm resolution.

We claim:

1. A composition comprising:

A) a first alpha-olefin that is a crystalline alpha-olefin based polymer selected from crystalline polyalphaolefin, polypropylene, and ~~or~~ a propylene copolymer,

B) a second alpha-olefin that is a low density polyethylene having a density of 0.91 g/cm$^3$ to 0.94 g/cm$^3$, and

C) at least one crystalline block composite comprising:

i) a third alpha-olefin that is a crystalline ethylene based polymer;

ii) a fourth alpha-olefin that is a crystalline alpha-olefin based polymer, and

iii) a block copolymer comprising a crystalline ethylene block and a crystalline alpha-olefin block wherein the crystalline ethylene block of the block copolymer is the same composition as the crystalline ethylene based polymer in the block composite and the crystalline alpha-olefin block of the block copolymer is the same composition as the crystalline alpha-olefin based polymer of the block composite wherein the crystalline block composite is present in an amount of 0.5 wt % to 15 wt %.

2. The composition of Claim 1 wherein component A) is selected from the group consisting of polypropylene, polybutylene and poly(4-methylpentene).

3. The composition of Claim 1 wherein component A) is a propylene based elastomer or a propylene based plastomer.

~~4. The composition of any of the preceding claims wherein component C) is present in an amount of from 0.5 wt % to 15 wt% based on the total weight of the composition.~~

~~5. The composition of any of the preceding claims wherein component C) has a Crystalline Block Composite Index of greater than 0.0 up to 1.0.~~

~~6. The composition of any of the preceding claims wherein component C) has a Crystalline Block Composite Index of 0.1 to 0.9.~~

7.4. The composition of ~~any of the preceding~~ claim~~s~~ 1 wherein the melt strength of the composition at 100 mm/s and 190 °C is at least 115% greater than that of the composition lacking component C).

8.5. The composition of ~~any of the preceding~~ claim~~s~~ 1 wherein the mean particle diameter of the composition is at least 50% less than that of the composition lacking component C).