

CLAIMS

1. A composite comprising a polyethylene and within a range from 1 wt% to 25 wt% of at least one cyclic-olefin copolymer by weight of the composition, wherein the cyclic-olefin copolymer has a glass transition temperature (T_g) of at least 30°C.
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2. The composite of claim 1, where the cyclic-olefin copolymer comprises at least 50 wt% cyclic olefin derived units, by weight of the copolymer.
3. The composite of claims 1 or 2, wherein the cyclic-olefin copolymer has a T_g value
10 within a range from 30°C to 180°C.
4. The composite of any one of the preceding claims, wherein the polyethylene has a branching index (g'vis) of less than 0.8, and the composite has a melt strength (σ_z) within a range from 300 kPa to 600 kPa.
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5. The composite of any one of the preceding claims, wherein the wherein the polyethylene has a g'vis of greater than 0.95, and the composite has a melt strength (σ_z) within a range from 100 kPa to 1000 kPa.
- 20 6. The composite of any one of the preceding claims, wherein the wherein the polyethylene has a g'vis within a range from 0.95 to 0.8, and the composite has a melt strength (σ_z) of greater than 800 kPa.
7. The composite of any one of the preceding claims, wherein the polyethylene has a
25 density within a range from 0.90 g/cm³ to 0.94 g/cm³.
8. The composite of any one of the preceding claims, having a crystallization temperature (T_c) of at least 100°C.
- 30 9. The composite of any one of the preceding claims, having a heat of fusion (ΔH) of less than 120 J/g.

10. The composite of any one of the preceding claims, wherein inorganic fillers and/or fibers are absent.
11. The composite of any one of the preceding claims, wherein polymeric compatibilizers
5 are absent.
12. The composite of any one of the preceding claims, comprising rods having an average length of at least 4 μm , and at least 5 nm in average diameter.
- 10 13. An oriented article comprising the composite of any one of the preceding claims.
14. A method for forming a composite of any one of the preceding claims 1 to 12 comprising combining a polyethylene and within a range from 1 wt% to 25 wt% of at least one cyclic-olefin copolymer by weight of the composition; and orienting the composite.
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15. The method of claim 14, wherein the orienting step comprises melt blending, film forming, thermoforming, rotomolding, blow molding, injection molding, extrusion coating, and/or foaming.