CLAIMS:

1. A base stock composition comprising a hydroprocessed base stock having a number average molecular weight (M_n) of 600 g/mol to 3000 g/mol, a weight average molecular weight (M_w) of 900 g/mol to 10000 g/mol, a polydispersity (M_w / M_n) of at least 1.4, a pour point of 0°C or less, a kinematic viscosity at 100°C of at least 35 cSt, a kinematic viscosity at 40°C of at least 600 cSt, and a viscosity index of at least 50, with the proviso that the hydroprocessed base stock is not a polyalphaolefin (PAO).

2. The composition of claim 1, wherein the polydispersity is at least 1.7.

3. The composition of claim 1, wherein the composition has 23.5 wt% or less of epsilon carbons as determined by ^{13}C-NMR.

4. The composition of claim 1, wherein the number average molecular weight (M_n) is at least 900 g/mol.

5. The composition of claim 1, wherein the weight average molecular weight (M_w) is at least 1500 g/mol.

6. The composition of claim 1, wherein the composition has a glass transition temperature of -40°C or less; or wherein the composition has a crystallization temperature of -20°C or less; or a combination thereof.

7. The composition of claim 1, wherein the composition has a sulfur content of 0.5 wt% or less.

8. The composition of claim 1, wherein the composition has a) a kinematic viscosity at 40°C of at least 700 cSt; b) a kinematic viscosity at 100°C of at least 40 cSt; or c) a combination thereof.

9. The composition of claim 1, wherein the viscosity index is at least 80.

10. The composition of claim 1, wherein the viscosity index is at least 100.

11. The composition of claim 1, wherein the viscosity index is at least 50 and equal to or less than 150.

12. The composition of claim 1, further comprising at least one additive for forming a formulated lubricant base oil.