CLAIMS:

1. A lubricant base stock composition comprising a viscosity index of 80 or more; a saturates content of 95 wt% or more; a sulfur content of 300 wppm or less; a kinematic viscosity at 100°C of 8.5 cSt to 15 cSt; 2.8 wt% or less of 4+-ring naphthenes; 9.0 epsilon carbon atoms or less per 100 carbon atoms in the composition; and 0.82 or less terminal and pendant propyl groups per 100 carbon atoms in the composition.

2. The composition of claim 1, further comprising a cycloparaffin performance ratio of 1.20 to 1.34.

3. The composition of claim 1, further comprising 74.0 wt% or more of total naphthenes relative to the total weight of saturates and aromatics in the composition.

4. The composition of claim 1, further comprising 1.6 wt% or less of 4-ring naphthenes relative to the total weight of saturates and aromatics in the composition.

5. The composition of claim 1, wherein the composition comprises 2.6 wt% or less of 4+-ring naphthenes relative to the total weight of saturates and aromatics in the composition; or wherein the composition comprises 10.0 wt% or less of 3+-ring naphthenes; or a combination thereof.

6. A lubricant base stock composition comprising a viscosity index of 80 or more; a saturates content of 98 wt% or more; a sulfur content of 300 wppm or less; a kinematic viscosity at 100°C of 3.5 cSt to 6.5 cSt; a total naphthenes content of 81.0 wt% or more; 41.0 wt% or more of 1-ring naphthenes; and 8 epsilon carbon atoms or less per 100 carbon atoms in the composition.

7. The composition of claim 6, wherein the composition further comprises 9.0 wt% or less of 3-ring naphthenes relative to the total weight of saturates and aromatics in the composition; or wherein the composition further comprises 1.9 wt% or less of 4-ring naphthenes; or a combination thereof.

8. The composition of claim 6, wherein the composition comprises 83.0 wt% or more of naphthenes relative to the total weight of saturates and aromatics in the composition.

9. The composition of claim 6, wherein the composition comprises 43.0 wt% or more of 1-ring naphthenes relative to the total weight of saturates and aromatics in the composition.

10. The composition of claim 6, wherein the composition further comprises 2.9 wt% or less of 4+-ring naphthenes relative to the total weight of saturates and aromatics in the composition; or wherein the composition further comprises 11.0 wt% or less of 3+-ring naphthenes relative to the total weight of saturates and aromatics in the composition; or a combination thereof.

11. The composition of claim 6, further comprising 16.0 wt% or less of multi-branched

paraffins relative to the total weight of saturates and aromatics in the composition.

12. The composition of claim 6, wherein the composition comprises a kinematic viscosity at 100°C of 4.0 cSt to 6.0 cSt.

13. The composition of claim 6, wherein the composition further comprises a pour point of -12°C or less.

14. The composition of claim 6, further comprising at least one additive to form a formulated lubricant.

15. A lubricant base stock composition comprising a viscosity index of 80 or more; a saturates content of 98 wt% or more; a sulfur content of 300 wppm or less; a kinematic viscosity at 100°C of 3.5 cSt to 6.5 cSt; 1.8 wt% or less of 4-ring naphthenes; 0.9 wt% or less of 5-ring naphthenes; and 8.0 epsilon carbon atoms or less per 100 carbon atoms in the composition.

16. The composition of claim 15, further comprising 0.5 wt% or less of monomethyl paraffins relative to a weight of saturates and aromatics in the composition.

17. The composition of claim 15, wherein the composition comprises 1.6 wt% or less of 4-ring aromatics relative to a weight of saturates and aromatics in the composition; or wherein the composition comprises 0.6 wt% or less of 5-ring aromatics relative to a weight of saturates and aromatics in the composition; or a combination thereof.

18. The composition of claim 15, wherein the composition comprises 2.0 wt% or less of 4+-ring aromatics relative to a weight of saturates and aromatics in the composition; or wherein the composition comprises 0.7 wt% or less of 5+-ring aromatics relative to a weight of saturates and aromatics in the composition; or a combination thereof.

19. The composition of claim 15, wherein the composition comprises 45.0 wt% or more of 1-ring naphthenes relative to the total weight of saturates and aromatics in the composition.

20. The composition of claim 15, wherein the composition comprises 81.0 wt% or more of naphthenes relative to the total weight of saturates and aromatics in the composition.

21. The composition of claim 1, further comprising dimethyl paraffins.