

CLAIMS

What is claimed is:

1. A kerosene boiling range composition comprising a T10 distillation point of 205°C or less, a final boiling point of 300°C or less, a naphthenes to aromatics weight ratio of 3.2 or more, an aromatics content of 4.0 wt% to 18 wt%, and a sulfur content of 150 wppm or less.
2. The kerosene boiling range composition of claim 1, wherein the kerosene boiling range composition comprises an aromatics content of 4.0 wt% to 10 wt%.
3. The kerosene boiling range composition of claims 1-2, wherein the kerosene boiling range composition comprises a naphthenes to aromatics weight ratio of 4.0 or more.
4. The kerosene boiling range composition of claims 1-3, wherein the kerosene boiling range composition comprises a cetane index of 31 to 55.
5. The kerosene boiling range composition of claims 1-4, wherein the kerosene boiling range composition comprises a fuel that satisfies the specifications for a jet fuel in accordance with ASTM D1655.
6. The kerosene boiling range composition of claims 1-5, wherein the kerosene boiling range composition comprises a pour point of -40°C or lower, or wherein the kerosene boiling range composition comprises a cloud point of -40°C or lower, wherein the kerosene boiling range composition comprises a freeze point of -40°C or lower, or a combination thereof.
7. The kerosene boiling range composition of claims 1-6, wherein the kerosene boiling range composition comprises a weight ratio of aliphatic sulfur to total sulfur of 0.05 or more.
8. The kerosene boiling range composition of claims 1-7, wherein the kerosene boiling range composition comprises a weight ratio of n-paraffins to total paraffins of 0.4 or more.
9. Use of a composition comprising the kerosene boiling range composition according to claims 1-9 as a fuel in an engine, a furnace, a burner, a combustion device, or a combination thereof.
10. Use of the composition of claim 9, wherein the kerosene boiling range composition has not been exposed to hydroprocessing conditions.
11. Use of the composition of claims 9-10, wherein the kerosene boiling range composition comprises a carbon intensity of 87 g CO₂eq / MJ of lower heating value or less.
12. A kerosene boiling range product comprising:
 - 1.0 wt% to 49 wt% of sustainable aviation fuel in accordance with ASTM D7566; and
 - 51 wt% to 99 wt% of a kerosene boiling range composition, the kerosene boiling range composition comprising a T10 distillation point of 205°C or less, a final boiling point of 300°C

or less, a naphthenes to aromatics weight ratio of 3.2 or more, an aromatics content of 4.0 wt% to 18 wt%, and a sulfur content of 100 wppm or less.

13. A method for forming a kerosene boiling range composition, comprising:
fractionating a crude oil comprising a final boiling point of 550°C or more to form at least a kerosene boiling range fraction, the crude oil comprising a naphthenes to aromatics volume ratio of 2.0 or more and a sulfur content of 0.2 wt% or less, the kerosene boiling range composition comprising a T10 distillation point of 205°C or less, a final boiling point of 300°C or less, a naphthenes to aromatics weight ratio of 3.2 or more, an aromatics content of 4.0 wt% to 18 wt%, and a sulfur content of 100 wppm or less.
14. The method of claim 13, wherein the crude oil comprises a paraffins content of 40 vol% or more.
15. The method of claims 13-14, wherein the kerosene boiling range fraction comprises a naphthenes to aromatics weight ratio of 4.0 or more.
16. The method of claims 13-15, further comprising blending at least a portion of the kerosene boiling range fraction with a sustainable aviation fuel in accordance with ASTM D7566.
17. The method of claims 13-16, wherein the kerosene boiling range composition comprises a non-hydrotreated composition that has not been exposed to more than 10 psia of hydrogen in the presence of a catalyst comprising a Group VI metal, a Group VIII metal, a catalyst comprising a zeolitic framework, or a combination thereof.
18. The method of claims 13-17, further comprising exposing the kerosene boiling range fraction to clay treatment, acid treatment, mercaptan oxidation, or a combination thereof.