CLAIMS

What is claimed is:

1. A naphtha boiling range composition comprising a T90 distillation point of 221°C or less, an aromatics content of 10 wt% or more, a ratio of paraffins to aromatics of 1.4 or more, a sulfur content of 30 wppm or less, and a ratio of mercaptan sulfur to total sulfur of 0.10 to 0.90.

2. The composition of claim 1, wherein the composition comprises a ratio of isoparaffins to aromatics of 1.3 or more.

3. The composition of claim 1 or 2, wherein the composition comprises a total aromatics content of 23 wt% or less, or wherein the composition comprises a hydrogen content of 13.3 wt% or more, or a combination thereof.

4. The composition of any of claims 1 – 3, wherein the composition comprises a research octane number (RON) of 85 or more.

5. The composition of any of claims 1 – 4, wherein the composition comprises a research octane number (RON) of 89 or more, or wherein the composition comprises a (RON + MON) / 2 value of 85 or more, or a combination thereof.

6. The composition of any of claims 1 – 5, wherein the composition comprises a T90 distillation point of 200°C or less, or wherein the composition comprises a nitrogen content of 5.0 wppm or less, or a combination thereof.

7. A distillate boiling range composition comprising a T10 distillation point of 180°C or more, a T90 distillation point of 370°C or less, an aromatics content of 40 wt% or more, a sulfur content of between 10 to 1000 wppm, and a weight ratio of aliphatic sulfur to total sulfur of at least 0.15.

8. The composition of claim 7, wherein the composition comprises a paraffins content of 17 wt% or more, or wherein the composition comprises a weight ratio of paraffins to total saturates of 0.7 or more, or a combination thereof.

9. The composition of claim 7 or 8, wherein the composition comprises a BMCI of 50 or more, or wherein the composition comprises a ratio of BMCI to total sulfur of 0.05 or more, or a combination thereof.

10. The composition of any of claims 7 – 9, wherein the composition comprises 50 wt% to 80 wt% aromatics.

11. The composition of any of claims 7 – 10, wherein the composition comprises a specific energy of 42.0 MJ/kg or higher~~.~~; or wherein the composition comprises a cetane rating of 25 or more (or 38 or more); or a combination thereof.

~~12. The composition of any of claims 7 – 11, wherein the composition comprises a cetane rating of 25 or more (or 38 or more).~~

~~13.~~12. A composition comprising a T10 distillation point of 340°C or more, a T90 distillation point of 550°C or less, a sulfur content of 2500 wppm or less, a weight ratio of aliphatic sulfur to total sulfur of 0.15 or more, a saturates content of 20 wt% or more, and an aromatics content of 40 wt% or more.

~~14.~~13. The composition of claim ~~13~~ 12, wherein the weight ratio of aliphatic sulfur to total sulfur is 0.20 or more, or wherein the composition comprises a BMCI of 40 or more, or a combination thereof.

~~15.~~14. The composition of claim ~~13 or 14~~ 12 or 13, wherein the composition comprises a total saturates content of 25 wt% or more, or wherein the composition comprises a nitrogen content of 1000 wppm or less, or a combination thereof.

~~16.~~15. The composition of any of claims ~~13 – 15~~ 12 – 14, wherein the composition comprises a No Flow Point of 20°C or less.

~~17.~~16. A total effluent from an FCC process comprising a combined weight of a naphtha boiling range portion and a distillate boiling range portion of 65 wt% or more, 10 wt% or more of C_4 hydrocarbons, and a ratio of C_3 olefins to total C_3 hydrocarbons of 0.84 or more.

~~18.~~17. The total effluent of claim ~~17~~ 16, wherein the total effluent comprises 12 wt% or less of 340°C+ bottoms.

~~19.~~18. The total effluent of claim ~~17 or 18~~ 16 or 17, wherein the naphtha boiling range portion comprises 60 wt% or more of the total effluent~~.~~, or wherein the total effluent comprises a combined weight of the naphtha boiling range portion and the distillate boiling range portion of 72 wt% or more, or a combination thereof.

~~20.~~19. The total effluent of any of claims ~~17 – 19~~ 16 – 18, wherein the total effluent comprises 1.5 wt% or less of H_2, C_1 hydrocarbons, and C_2 hydrocarbons, or wherein the total effluent comprises a ratio of C_2 olefins to total C_2 hydrocarbons of 0.54 or more, or a combination thereof.

~~21. The total effluent of any of claims 17 – 20, wherein the total effluent comprises a combined weight of the naphtha boiling range portion and the distillate boiling range portion of 72 wt% or more.~~

~~22.~~20. The total effluent of any of claims ~~17 – 21~~ 16 – 19, wherein the naphtha boiling portion comprises a naphtha boiling range composition according to any of claims 1 – 6.

~~23.~~21. The total effluent of any of claims ~~17 – 22~~ 16 – 20, wherein the distillate boiling portion comprises a distillate boiling range composition according to any of claims ~~7 – 12~~ 7 – 11.

~~24.~~22. The total effluent of any of claims ~~18 – 23~~ 16 – 21, wherein the 340°C+ bottoms comprises a composition according to any of claims ~~13 – 16~~ 12 – 15.

~~25.~~23. A method for performing fluid catalytic cracking, comprising: exposing a feed to a cracking catalyst under fluid catalytic cracking conditions comprising 60 wt% or more conversion relative to 221°C to form coke and a total effluent, the feed comprising 25 wt% or more of a vacuum gas oil boiling range fraction, wherein the vacuum gas oil boiling range fraction comprises 10 wt% or more of aromatics, a naphthenes to aromatics weight ratio of 1.5 or higher, and a sulfur content of 1200 wppm or less, and wherein the total effluent comprises a naphtha boiling range portion, the naphtha boiling range portion comprising a sulfur content of 30 wppm or less relative to a weight of the naphtha boiling range portion, a ratio of mercaptan sulfur to total sulfur of 0.1 to 0.9, an aromatics content of 10 wt% or more relative to a weight of the naphtha boiling range portion, and a ratio of paraffins to aromatics of 1.0 or more.

~~26.~~24. The method of claim ~~25~~ 23, wherein a combined yield of coke, H_2, C_1 hydrocarbons, and C_2 hydrocarbons of 5.0 wt% or less relative to a weight of the feed.

~~27.~~25. The method of claim ~~25 or 26~~ 23 or 24, wherein the feed comprises an atmospheric resid, the atmospheric resid comprising the 25 wt% or more of the vacuum gas oil boiling range fraction.