CLAIMS:

1. A process for producing at least two lube boiling range fractions including a light oil lube fraction and a heavy oil lube fraction, which comprises:

hydrocracking a hydrocarbon feed in a first hydrocracking step under a first hydrocracking regime to provide a hydrocrackate with a boiling range suitable for a heavy oil fraction,

fractionating the hydrocrackate to separate at least a first portion for a light oil fraction and a second portion for the heavy oil fraction;

hydrocracking the portion for the light oil fraction in a second hydrocracking step under a second hydrocracking regime, in which the first hydrocracking step and the second hydrocracking step are carried out in a common hydroprocessing reactor containing a plurality of beds in sequence, the first portion for the light oil fraction and the second portion for the heavy oil fraction being introduced at different points in the sequence, to form a second light oil hydrocrackate with a boiling range suitable for the light oil fraction,

combining the hydrocrackate portion for the heavy oil and the second light oil hydrocrackate to form a combined hydrocrackate,

processing the combined hydrocrackate to meet product specifications for the light oil lube fraction and the heavy oil lube fraction and form a combined stream of a finished light oil lube fraction and a finished heavy oil lube fraction, and

fractionating the combined stream to separate the finished light oil lube fraction and the finished heavy oil lube fraction.

2. A process according to claim 1 in which the first hydrocracking regime of the first hydrocracking step provide a hydrocrackate with lube quality specifications comprising aromatics and cold flow properties required for the finished heavy oil lube fraction.

3. A process according to claim 1 in which the second hydrocracking regime of the second hydrocracking step provide a hydrocrackate with lube quality specifications comprising aromatics and cold flow properties required for the finished light oil lube fraction.

4. A process according to claim 1 in which the first hydrocracking step and the second hydrocracking step are carried out respectively in a first hydrocracker and a second hydrocracker.

5. A process according to claim 1 in which the first hydrocracking step provides a hydrocrackate with a boiling range suitable for both lube oil fractions.

6. A process according to claim 1 in which the first portion for the light oil fraction is introduced into the sequence before the second portion for the heavy oil fraction.

7. A process according to claim 1 in which the first and second hydrocracking steps are carried out in the presence of hydrocracking catalysts comprising a metal function having hydrogenation/dehydrogenation activity supported on a porous, refractory metal oxide support.

8. A process according to claim 7 in which the first hydrocracking step is carried out in the presence of hydrocracking catalyst comprising a base metal function of Group VI and Group VIII (IUPAC) metals.

9. A process according to claim 7 in which the first hydrocracking step is carried out in the presence of hydrocracking catalyst comprising a sulfided base metal function of Group VI and Group VIII (IUPAC) metals.

10. A process according to claim 7 in which the porous, refractory metal oxide supports of the first and second hydrocracking steps comprise alumina, silica or silica-alumina.

11. A process according to claim 7 in which the first and second hydrocracking steps are carried out in the presence of hydrocracking catalysts comprising a faujasite.

12. A process according to claim 7 in which the first and second hydrocracking steps are carried out in the presence of hydrocracking catalysts comprising zeolite Y or zeolite USY.

13. A process according to claim 1 operated as a continuous process with no intermediate product tankage.

14. A process according to claim 1 operated as a non-blocked continuous process.

15. A process for producing at least two lube boiling range fractions including a light oil lube fraction and a heavy oil lube fraction, which comprises:

hydrocracking a hydrocarbon feed in a first hydrocracking step under a first hydrocracking regime to provide a first hydrocrackate with a boiling range suitable for a heavy oil fraction,

fractionating the hydrocrackate to separate at least a first portion for a light oil fraction and a second portion for the heavy oil fraction;

hydrocracking the portion for the light oil fraction in a second hydrocracking step under a second hydrocracking regime, to form a second light oil hydrocrackate with a boiling range suitable for the light oil fraction,

combining the hydrocrackate portion for the heavy oil and the second light oil hydrocrackate to form a combined hydrocrackate,

processing the combined hydrocrackate to meet product specifications for the light oil lube fraction and the heavy oil lube fraction and form a combined stream of a finished light oil lube fraction and a finished heavy oil lube fraction, and

fractionating the combined stream to separate the finished light oil lube fraction and the finished heavy oil lube fraction; wherein the first hydrocrackate and the combined stream are fractionated to form the finished light oil lube fraction and the finished heavy oil lube fraction in a common divided wall fractionator.

16. A process according to claim 15 in which the first hydrocrackate is separated into the first portion for the light oil fraction and the second portion for the heavy oil fraction in one section of the divided wall fractionator on one side of the divided wall and the combined stream is fractionated on the other side of the divided wall.