

WHAT IS CLAIMED IS:

1. A method of improving fuel economy comprising lubricating an internal combustion engine with a lubricant that comprises:
 - a. (a) a mixture of base oil having at least 25 wt.% renewable base oil comprising a hydrocarbon mixture in which:
 - i. the percentage of molecules with even carbon number is $\geq 80\%$ according to FIMS;
 - ii. the $BP/BI \geq -0.6037$ (Internal alkyl branching per molecule) + 2.0;
 - iii. on average there are 0.3 to 1.5 5+ methyl per molecule;
 - b. at least one of the following additives
 - i. dispersants
 - ii. detergents
 - iii. Inhibitors
 - iv. Friction Modifiers
 - v. Pour Point Depressants
 - vi. Viscosity Modifiers
2. The method of claim 1, wherein the lubricating oil composition comprises from about 5 wt.% to about 30 wt.% total additive concentration and from about 70 to about 95wt.% of the base oil mixture.
3. The method of claim 1, wherein the composition has a lubricating high temperature high shear viscosity less than 2.3 cP, based on ASTM D5481.
4. The method of claim 1, wherein the composition has a lubricating kinematic viscosity at 100°C less than or equal to 7.1 cSt, based on ASTM D445.
5. The method of claim 1, wherein the composition has a lubricating low temperature cold cranking viscosity at -35°C less than or equal to 6200 mPa.s, based on ASTM D5293.
6. The method of claim 1, wherein the lubricating composition has a lubricating SAE viscosity grade less than or equal to 0W-12, based on SAE J300.

7. The method of claim 1 wherein the fuel economy is improved by at least 0.3% and preferably more than 0.5%.
8. A method of improving fuel economy retention comprising lubricating an internal combustion engine with a lubricant that comprises:
- a. a mixture of base oil having at least 25 wt.% renewable base oil comprising a hydrocarbon mixture in which:
 - i. the percentage of molecules with even carbon number is $\geq 80\%$ according to FIMS;
 - ii. the $BP/BI \geq -0.6037$ (Internal alkyl branching per molecule) + 2.0;
 - iii. on average there are 0.3 to 1.5 5+ methyl per molecule;
 - b. at least one of the following additives
 - i. dispersants
 - ii. detergents
 - iii. Inhibitors
 - iv. Friction Modifiers
 - v. Pour Point Depressants
 - vi. Viscosity Modifiers
- wherein the lubricating oil composition comprises from about 5 wt.% to about 30 wt.% total additive concentration and from about 70 to about 95wt.% of the base oil mixture.
9. The method of claim 7, wherein the composition has a lubricating high temperature high shear viscosity less than 2.3 cP, based on ASTM D5481.
10. The method of claim 7, wherein the composition has a lubricating kinematic viscosity at 100°C less than or equal to 7.1 cSt, based on ASTM D445.
11. The method of claim 7, wherein the composition has a lubricating low temperature cold cranking viscosity at -35°C less than or equal to 6200 mPas, based on ASTM D5293.
12. The method of claim 7, wherein the composition has a lubricating oil SAE viscosity grade less than or equal to 0W-12, based on SAE J300.

13. The method of claim 7, wherein typical drain interval fuel economy loss is less than 0.5%, preferably less than 0%.
14. The method of claim 7, wherein extended drain interval fuel economy loss is less than 0.4 %, preferably less than 0%.
15. The method of claim 7, wherein the average fuel economy loss is less than 0.5 %, preferably less than 0 % throughout the life of a lubricant.
16. The method of claim 7, wherein there is an improvement in fuel economy retention and a retention in low speed pre ignition prevention in an internal combustion engine operated over an extended period of exposure of the lubricant to elevated temperature conditions.