CLAIMS

1. A hydrocarbon-based lubricating base oil wherein

a urea adduct value is not greater than 4 % by mass,

a viscosity index is 100 or higher,

an average of carbon atoms number is 23-31 as determined by gas chromatography distillation,

a value obtained by dividing an integral value of a peak in 30 ppm by an integral value of total peaks in the range from 0 ppm to 50 ppm for the ^{13}C-NMR spectrum is 0.1-0.2, and

a product of a value obtained by dividing an integral value of peaks attributed to tertiary carbon atoms by an integral value of total peaks in the range of from 0 ppm to 50 ppm for the ^{13}C-NMR spectrum, and the average of carbon atoms number, is 1.8-2.5.

2. The hydrocarbon-based lubricating base oil according to claim 1, having the average of carbon atoms number of 27-31.

3. The hydrocarbon-based lubricating base oil according to claim 2, wherein the ratio of the tertiary carbon atoms within the fourth carbon atoms from a terminal carbon atom of a main chain is at least 25% and less than 60% based on the total amount of tertiary carbon atoms.

4. The hydrocarbon-based lubricating base oil according to claim 1, having the average of carbon atoms number of at least 23 and less than 27.

5. The hydrocarbon-based lubricating base oil according to claim 4, wherein the ratio of the tertiary carbon atoms within the fourth carbon atoms from a terminal carbon atom of a main chain is at least 25% and less than 70% based on the total amount of tertiary carbon atoms.

6. The hydrocarbon-based lubricating base oil according to claim 4 or 5, having a kinematic viscosity at 40°C of not greater than 25 mm^2/s, the viscosity index of 120 or higher and a difference between a 90% distillation temperature and a 5% distillation temperature of not more than 75°C.

7. A method for producing a hydrocarbon-based lubricating base oil comprising:

a step of hydrocracking/hydroisomerization of a feed stock oil containing normal paraffins, so that a urea adduct value of an obtained treated product is not greater than 4 % by mass, a viscosity index is 100 or higher, an average of carbon atoms number is 23-31 as determined by gas chromatography distillation, a value obtained by dividing an integral value of a peak in 30 ppm by an integral value of total peaks in the range from 0 ppm to 50 ppm for the ^{13}C-NMR spectrum is 0.1-0.2, and a product of a value obtained by dividing an integral value of peaks attributed to tertiary carbon atoms by an integral value of total peaks in the range of from 0 ppm to 50 ppm for the ^{13}C-NMR spectrum, and the average of carbon atoms number, is 1.8-2.5.

8. The method for producing a hydrocarbon-based lubricating base oil according to claim 7, wherein the average of carbon atoms number is 27-31.

9. The method for producing a hydrocarbon-based lubricating base oil according to claim 7, wherein the average of carbon atoms number is at least 23 and less than 27.

10. A lubricating oil composition comprising a hydrocarbon-based lubricating base oil according to any one of claims 1 to 6.

11. A lubricating oil composition according to claim 10, further comprising a viscosity index improver, and having a kinematic viscosity at 100°C of 4-12 mm^2/s and a viscosity index of 140-300.

12. The lubricating oil composition according to claim 11, wherein the viscosity index improver is a poly(meth)acrylate-based viscosity index improver.

13. The lubricating oil composition according to claim 12, wherein the PSSI of the poly(meth)acrylate-based viscosity index improver is not greater than 40, and the ratio of the weight-average molecular weight and the PSSI of the poly(meth)acrylate-based viscosity index improver is at least 1×10^4.

14. The lubricating oil composition according to any one of claims 11 to 13, wherein the ratio of the HTHS viscosity at 100°C with respect to the HTHS viscosity at 150°C of the lubricating oil composition satisfies the condition represented by the following inequality (A):

HTHS (100°C)/HTHS (150°C) $\leq$ 2.04 (A)

,wherein HTHS (100°C) represents the HTHS viscosity at 100°C and HTHS (150°C) represents the HTHS viscosity at 150°C.

CLAIMS

1. A hydrocarbon-based lubricating base oil wherein

a urea adduct value is not greater than 4 % by mass,

a viscosity index is 100 or higher,

an average of carbon atoms number is 23-31 as determined by gas chromatography distillation,

a value obtained by dividing an integral value of a peak in 30 ppm by an integral value of total peaks in the range from 0 ppm to 50 ppm for the ^{13}C-NMR spectrum is 0.1-0.2, and

a product of a value obtained by dividing an integral value of peaks attributed to tertiary carbon atoms by an integral value of total peaks in the range of from 0 ppm to 50 ppm for the ^{13}C-NMR spectrum, and the average of carbon atoms number, is 1.8-2.5.

2. The hydrocarbon-based lubricating base oil according to claim 1, having the average of carbon atoms number of 27-31.

3. The hydrocarbon-based lubricating base oil according to claim 2, wherein the ratio of the tertiary carbon atoms within the fourth carbon atoms from a terminal carbon atom of a main chain is at least 25% and less than 60% based on the total amount of tertiary carbon atoms.

4. The hydrocarbon-based lubricating base oil according to claim 1, having the average of carbon atoms number of at least 23 and less than 27.

5. The hydrocarbon-based lubricating base oil according to claim 4, wherein the ratio of the tertiary carbon atoms within the fourth carbon atoms from a terminal carbon atom of a main chain is at least 25% and less than 70% based on the total amount of tertiary carbon atoms.

6. The hydrocarbon-based lubricating base oil according to claim 4, having a kinematic viscosity at 40°C of not greater than 25 mm^2/s, the viscosity index of 120

or higher and a difference between a 90% distillation temperature and a 5% distillation temperature of not more than 75°C.

7. A method for producing a hydrocarbon-based lubricating base oil comprising:

a step of hydrocracking/hydroisomerization of a feed stock oil containing normal paraffins, so that a urea adduct value of an obtained treated product is not greater than 4% by mass, a viscosity index is 100 or higher, an average of carbon atoms number is 23-31 as determined by gas chromatography distillation, a value obtained by dividing an integral value of a peak in 30 ppm by an integral value of total peaks in the range from 0 ppm to 50 ppm for the ^{13}C-NMR spectrum is 0.1-0.2, and a product of a value obtained by dividing an integral value of peaks attributed to tertiary carbon atoms by an integral value of total peaks in the range of from 0 ppm to 50 ppm for the ^{13}C-NMR spectrum, and the average of carbon atoms number, is 1.8-2.5.

8. The method for producing a hydrocarbon-based lubricating base oil according to claim 7, wherein the average of carbon atoms number is 27-31.

9. The method for producing a hydrocarbon-based lubricating base oil according to claim 7, wherein the average of carbon atoms number is at least 23 and less than 27.

10. A lubricating oil composition comprising a hydrocarbon-based lubricating base oil according to claim 1.

11. A lubricating oil composition according to claim 10, further comprising a viscosity index improver, and having a kinematic viscosity at 100°C of 4-12 mm^2/s and a viscosity index of 140-300.

12. The lubricating oil composition according to claim 11, wherein the viscosity index improver is a poly(meth)acrylate-based viscosity index improver.

13. The lubricating oil composition according to claim 12, wherein the PSSI of the poly(meth)acrylate-based viscosity index improver is not greater than 40, and the

ratio of the weight-average molecular weight and the PSSI of the poly(meth)acrylate-based viscosity index improver is at least 1×10^4.

14. The lubricating oil composition according to claim 11, wherein the ratio of the HTHS viscosity at 100°C with respect to the HTHS viscosity at 150°C of the lubricating oil composition satisfies the condition represented by the following inequality (A):

HTHS (100°C)/HTHS (150°C) $\leq$2.04 (A),

wherein HTHS (100°C) represents the HTHS viscosity at 100°C and HTHS (150°C) represents the HTHS viscosity at 150°C.