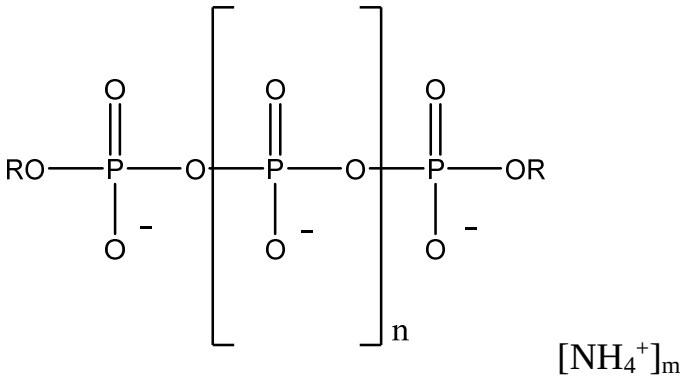
CLAIMS

1. A lubricating oil composition comprising:

a major amount of a base oil of lubricating viscosity; and

a polyphosphate-based dispersion comprising an ammonium polyphosphate and a dispersing agent, wherein the ammonium polyphosphate has the following structure:.



wherein R is independently a hydrogen or a hydrocarbyl group, n is an integer ranging from 1 to 1000, and m is n + 2.

2. The lubricating oil composition of claim 1, wherein the dispersing agent is a surfactant.

3. The lubricating oil composition of claim 1, wherein the dispersing agent is a stearate, benzenesulfonate, phosphatidylcholine, alkenyl succinate, oleate, or fatty alcohol.

4. The lubricating oil composition of claim 1, further comprising antioxidant, dispersant, anti-wear agent, detergent, rust inhibitor, dehazing agent, demulsifying agent, friction modifier, metal deactivating agent, pour point depressant, viscosity modifier, antifoaming agent, co-solvent, package compatibilizer, corrosion-inhibitor, dye, or extreme pressure agent.

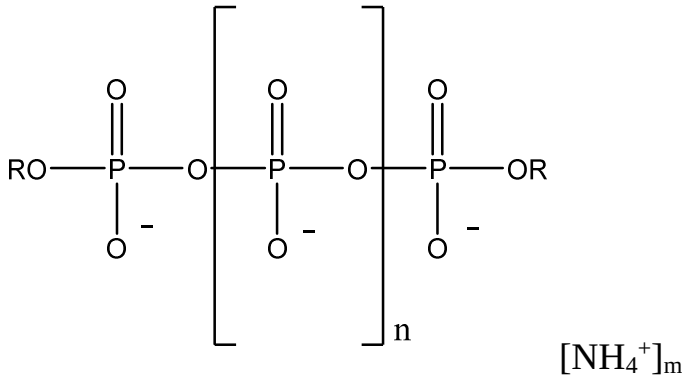
5. The lubricating oil composition of claim 1, further comprising zinc dithiophosphate.

6. A lubricating oil composition comprising:

a major amount of a base oil of lubricating viscosity;

an ammonium polyphosphate; and

a dispersing agent, wherein the ammonium polyphosphate has the following structure:.



wherein R is independently a hydrogen or a hydrocarbyl group, n is an integer ranging from 1 to 1000, and m is n + 2.

7. The lubricating oil composition of claim 6, wherein the dispersing agent is a surfactant.

8. The lubricating oil composition of claim 6, wherein the dispersing agent is a stearate, benzenesulfonate, phosphatidylcholine, alkenyl succinate, oleate, or fatty alcohol.

9. The lubricating oil composition of claim 6, further comprising antioxidant, dispersant, anti-wear agent, detergent, rust inhibitor, dehazing agent, demulsifying agent, friction modifier, metal deactivating agent, pour point depressant, viscosity

modifier, antifoaming agent, co-solvent, package compatibilizer, corrosion-inhibitor, dye, or extreme pressure agent.

10. The lubricating oil composition of claim 6, further comprising zinc dithiophosphate.

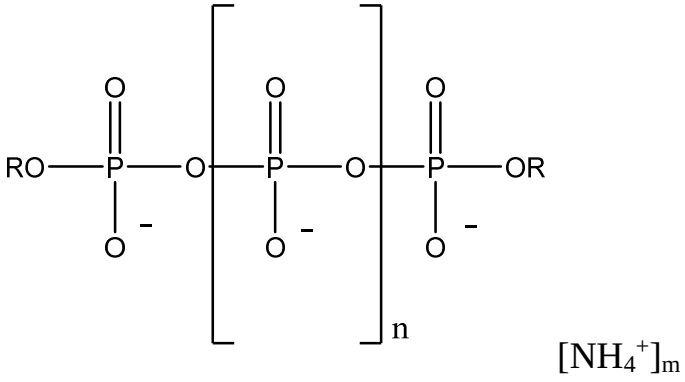
11. A method of operating an internal combustion engine, the method comprising:

lubricating the engine with a lubricating oil comprising:

a major amount of a base oil of lubricating viscosity;

an ammonium polyphosphate; and

a dispersing agent, wherein the ammonium polyphosphate has the following structure:.



wherein R is independently a hydrogen or a hydrocarbyl group, n is an integer ranging from 1 to 1000, and m is n + 2.

12. The method of claim 11, wherein the dispersing agent is a surfactant.

13. The method of claim 11, wherein the dispersing agent is a stearate, benzenesulfonate, phosphatidylcholine, alkenyl succinate, oleate, or fatty alcohol.

14. The method of claim 11, wherein the lubricating oil composition further comprises antioxidant, dispersant, anti-wear agent, detergent, rust inhibitor, dehazing

agent, demulsifying agent, friction modifier, metal deactivating agent, pour point depressant, viscosity modifier, antifoaming agent, co-solvent, package compatibilizer, corrosion-inhibitor, dye, or extreme pressure agent.

15. The method of claim 11, wherein the lubricating oil composition further comprises zinc dithiophosphate.