CLAIMS

1. An additive for diesel fuel and fuel oil, comprising:

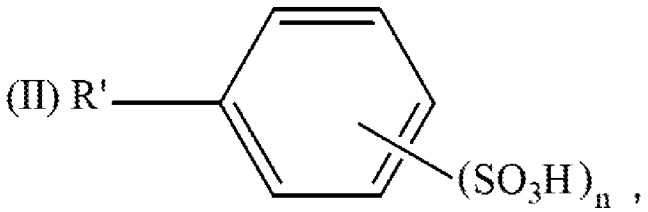
A) from 2 to 12 % by weight, with respect to the sum of components A), B) and C), of an oxidation catalyst comprising a mixture of salts of at least one iron salt, and at least one cerium salt;

B) from 82 to 92 % by weight, with respect to the sum of components A), B) and C), of at least one organic nitrate; and

C) from 6 to 16 % by weight, with respect to the sum of components A), B) and C), of at least one dispersing agent, wherein the dispersing agent C) is selected from alkyl amines, alkyl amides, alkyl aryl amines, alkyl aryl amides, or mixtures thereof.

2. The additive according to claim 1, wherein said at least one iron salt and said at least one cerium salt are salts of acids selected from the group consisting of:

(I) R-COOH in which R is a linear or branched, saturated or unsaturated C_7-C_{17} aliphatic radical, or is a C_5-C_{12} alicyclic radical, and

(II) 

wherein R' is H or a linear or branched, saturated or unsaturated C_1-C_{12} aliphatic radical, and n is an integer number from 1 to 5.

3. The additive according to claim 1 or 2, wherein the iron salt is an acid of formula (I) in which R is a linear saturated C_{17} aliphatic radical, and the cerium salt is an acid of formula (II) in which R' is a linear saturated C_{12} aliphatic radical and n is an integer number equal to 1.

4. The additive according to any one of claims from 1 to 3, wherein the quantity of metals in the oxidation catalyst A), expressed as weight percentage of metal

iron and cerium with respect to the total weight of the catalyst, ranges from 0.1 to 1.2% of cerium and from 0.1 to 1.2 % of iron.

5. The additive according to claim 4, wherein the quantity of metals in the oxidation catalyst A), expressed as weight percentage of metal iron and cerium with respect to the total weight of the catalyst, ranges from 0.3 to 1% of cerium and from 0.3 to 1% of iron.

6. The additive according to any one of claims from 1 to 5, wherein in said oxidation catalyst A) the weight ratio between cerium and iron ranges from 0.8 to 1.2.

7. The additive according to any one of claims from 1 to 6, wherein the organic nitrate B) is selected from the group consisting of amyl nitrate, i-amyl nitrate, i-octyl nitrate, or binary or ternary mixtures thereof.

8. The additive according to claim 7, wherein the organic nitrate B) is i-octyl nitrate.

9. The additive according to claim 1, wherein the dispersing agent C) is selected from alkyl amines and alkyl amides with C_{10}-C_{24} aliphatic chain.

10. The additive according to any one of claims from 1 to 9, wherein the quantity of oxidation catalyst A) is comprised between 3 and 12% by weight, the quantity of organic nitrate B) is comprised between 82 and 91 % by weight, and the quantity of dispersing agent C) is comprised between 6 and 15% by weight, with respect to the total weight of the additive.

11. The additive according to any one of claims from 1 to 10, wherein the quantity of oxidation catalyst A) is comprised between 3 and 9% by weight, the quantity of organic nitrate B) is comprised between 84 and 90 % by weight, and the quantity of dispersing agent C) is comprised between 7 and 13% by weight, with respect to the total weight of the additive.

12. The additive according to any one of claims from 1 to 11, wherein the quantity of oxidation catalyst A) is equal to 5% by weight, the quantity of organic

nitrate B) is equal to 86% by weight, and the quantity of dispersing agent C) is equal to 9% by weight, with respect to the total weight of the additive.

13. A fuel composition comprising a fuel selected from the group consisting of diesel fuel and fuel oil, and an at least one additive according to any one of claims from 1 to 12.

14. The fuel composition according to claim 13, wherein the quantity of additive is comprised between 1 and 10 g/l of fuel.

15. The fuel composition according to claim 14, wherein the quantity of additive is comprised between 1 and 5 g/l of fuel.

16. The fuel composition according to claim 15, wherein the quantity of additive is equal to 2 g/l of fuel.

17. A use of the additive according to any one of claims from 1 to 12, for improving the combustion efficiency of diesel fuel in diesel engines.

18. The use of the additive according to any one of claims from 1 to 12, for improving the combustion efficiency of fuel oil for boilers.

19. A method for improving the combustion efficiency of a fuel selected from diesel fuel and fuel oil, comprising the step of adding to said fuel at least one additive according to any one of claims from 1 to 12.

20. The method according to claim 19, wherein in said step of adding from 1 to 10 g/l of said at least one additive are added to the fuel.

21. The method according to claim 20, wherein in said step of adding from 1 to 5 g/l of said at least one additive are added to the fuel.

22. The method according to claim 21, wherein in said step of adding 2 g/l of said at least one additive are added to the fuel.