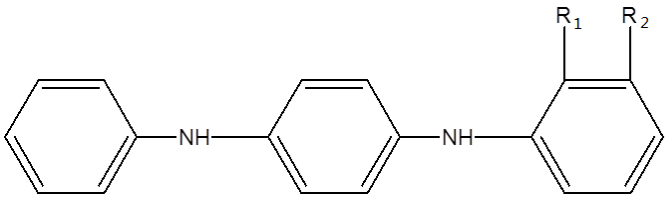
CLAIMS

~~WE CLAIM:~~

1. A compound of Formula I:



I,

wherein R_1 and R_2 are identical or different, each being independently selected from C1-C12 alkyl and C3-C8 cycloalkyl; and R_1 and R_2 are not methyl at same time.

2. The compound of claim 1, wherein R_1 is C1-C6 alkyl or C3-C6 cycloalkyl.

3. The compound of claim 1, wherein R_1 is methyl, ethyl, isobutyl, or cyclohexyl.

4. The compound of claim 1, wherein R_2 is C1-C12 alkyl or C3-C6 cycloalkyl.

5. The compound of claim 1, wherein R_2 is methyl, ethyl, 1,3-dimethylbutyl, 1,4-dimethylamyl, octyl, 1-methyl-6-ethyloctyl, or cyclohexyl.

6. The compound of claim 1, wherein

R_1 is methyl, R_2 is ethyl;

R_1 is methyl, R_2 is 1,3-dimethylbutyl;

R_1 is methyl, R_2 is 1-methyl-6-ethyloctyl;

R_1 is ethyl, R_2 is 1,4-dimethylamyl;

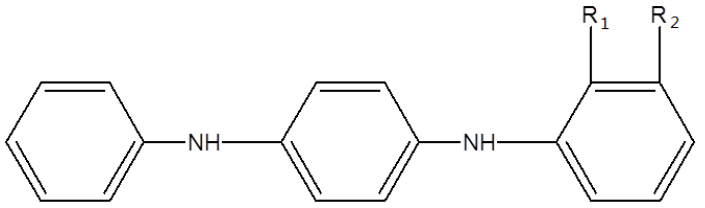
R_1 is ethyl, R_2 is cyclohexyl;

R_1 is isobutyl, R_2 is cyclohexyl; or

R_1 is cyclohexyl, R_2 is octyl.

~~6~~7. An antidegradant composition comprising

a first compound of Formula I:



I,

wherein R_1 and R_2 are identical or different, each being independently selected from C1-C12 alkyl and C3-C8 cycloalkyl, and

a second antidegradant that is not the first compound of Formula I.

~~7~~8. The antidegradant composition of claim ~~6~~7, wherein the second antidegradant is a pollution-type antidegradant.

~~8~~9. The antidegradant composition of claim ~~6~~7, wherein the second antidegradant is 6PPD, IPPD, or both.

~~9~~10. The antidegradant composition of claim ~~6~~7, wherein mass ratio of the first compound to the second antidegradant is in a range of 1:6 to 6:1.

~~10~~11. The antidegradant composition of claim ~~6~~7, wherein R_1 is C1-C6 alkyl or C3-C6 cycloalkyl.

~~11~~12. The antidegradant composition of claim ~~6~~7, wherein R_2 is C1-C12 alkyl or C3-C6 cycloalkyl.

~~12~~13. The antidegradant composition of claim ~~6~~7, wherein R_1 is methyl, ethyl, isobutyl, or cyclohexyl.

~~13~~14. The antidegradant composition of claim ~~6~~7, wherein R_2 is methyl, ethyl, 1,3-dimethylbutyl, 1,4-dimethylamyl, octyl, 1-methyl-6-ethyloctyl, or cyclohexyl.

15. The antidegradant composition of claim 7, wherein

R_1 is methyl, R_2 is methyl;

R_1 is methyl, R_2 is ethyl;

R_1 is methyl, R_2 is 1,3-dimethylbutyl;

R_1 is methyl, R_2 is 1-methyl-6-ethyloctyl;

R_1 is ethyl, R_2 is 1,4-dimethylamyl;

R_1 is ethyl, R_2 is cyclohexyl;

R_1 is isobutyl, R_2 is cyclohexyl; or

R_1 is cyclohexyl, R_2 is octyl.

~~14~~16. A rubber composition comprising the compound of claim 1.

~~15~~17. The rubber composition of claim ~~14~~16, wherein the compound is present in an amount of 0.5-5.0 parts by mass based on 100 parts by mass as a content of the diene elastomer comprised in the rubber composition.

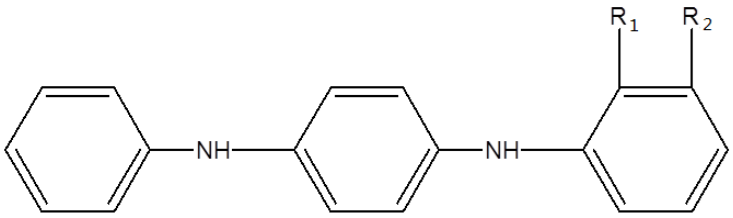
~~16~~18. A rubber composition comprising the antidegradant composition of claim ~~6~~7.

~~17~~19. A rubber article prepared using the rubber composition of claim ~~14~~ 16 as rubber ingredient.

~~18~~20. The rubber article of claim ~~17~~19, wherein the rubber article is a tire, a rubber overshoe, a sealing strip, an acoustic panel, or a crash pad.

~~19~~21. A method for using the rubber composition of claim ~~14~~16, comprising preparing a rubber article or retreading tires by using the rubber composition of claim ~~14~~16.

~~20~~22. A method for promoting resistance of a rubber or a rubber article to appearance discoloration, comprising using a compound of Formula I in a rubber or rubber article:



I,

wherein R_1 and R_2 are identical or different, each being independently selected from C1-C12 alkyl and C3-C8 cycloalkyl.