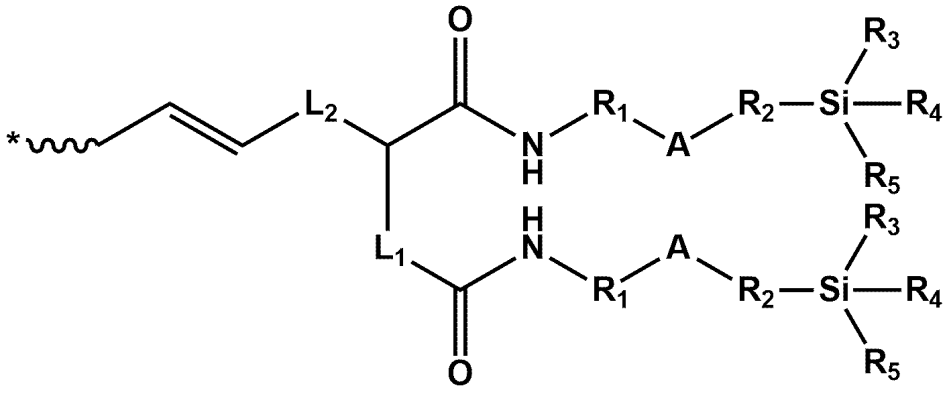
WHAT IS CLAIMED IS:

1. A modified polyisobutylene polymer for rubber compounding, the modified polyisobutylene polymer being prepared by reacting reactants including a polyisobutylene, an unsaturated dicarboxylic anhydride, and an amino group-containing silane compound, wherein the modified polyisobutylene polymer comprises a diamide structure satisfying Formula 2 velow.

[Formula 2]



(In Formula 2,

L_1 and L_2 are each independently a linear or branched (C1-C5)alkylene;

R_1 and R_2 are each independently selected from among (C1-C5)alkylene, (C1-C5)aminoalkylene, carbonylene, and (C1-C5)alkylcarbonylene;

R_3, R_4, and R_5 are each independently selected from among hydrogen, hydroxy, (C1-C20)alkyl, (C1-C12)cycloalkyl, (C2-C14)acyloxy, (C4-C20)aryloxy, (C5-C30) araloxy, (C1-C20)amine,

and (C1-C12)alkoxy;

A is methylene, S_n, or $((R_6)NR_7)_n$ wherein R_6 is hydrogen or (C1-C5) alkyl, R_7 is (C1-C5)alkylene, and n is an integer in a range of from 1 to 10;

* indicates a connection with polyisobutylene.)

2. The modified polyisobutylene polymer according to claim 1, wherein the modified polyisobutylene polymer is prepared by reacting the amino group-containing silane compound with a derivative that is prepared by reacting the polyisobutylene and the unsaturated dicarboxylic anhydride.

3. The modified polyisobutylene polymer according to claim 2, wherein the molar ratio of the polyisobutylene to the unsaturated dicarboxylic anhydride is in a range of 1:0.7 to 2, and the molar ratio of the derivative to the amino group-containing silane compound is in a range of 1:2 to 5.

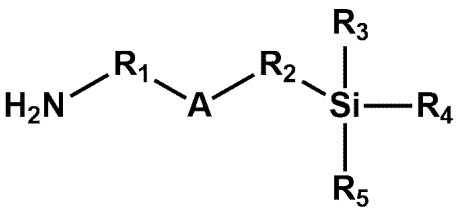
4. The modified polyisobutylene polymer according to claim 1, wherein the polyisobutylene has a number average molecular weight of 200 to 10,000 g/mol.

5. The modified polyisobutylene polymer according to claim 1, wherein the polyisobutylene has a molecular weight distribution in a range of from 1 to 5.

6. The modified polyisobutylene polymer according to claim 1, wherein the unsaturated dicarboxylic anhydride is at least one selected from among maleic anhydride, itaconic anhydride, citraconic anhydride, propenyl succinic anhydride, and 2-pentendioic anhydride.

7. The modified polyisobutylene polymer according to claim 1, wherein the amino group-containing silane compound satisfies Formula 1 below.

[Formula 1]



(In Formula 1,

R_1 and R_2 are each independently selected from among (C1-C5)alkylene, (C1-C5)aminoalkylene, carbonylene, and (C1-C5)alkylcarbonylene;

R_3, R_4, and R_5 are each independently selected from among hydrogen, hydroxy, (C1-C20)alkyl, (C1-C12)cycloalkyl, (C2-C14)acyloxy, (C4-C20)aryloxy, (C5-C30)araloxy, (C1-C20)amine, and (C1-C12)alkoxy;

A is methylene, S_n, or $((R_6)NR_7)_n$ wherein R_6 is hydrogen or (C1-C5) alkyl, R_7 is (C1-C5)alkylene, and n is an integer in a

range of from 1 to 10.)

8. In the modified polyisobutylene polymer according to claim 7, wherein the amino group-containing silane compound may be at least one compound selected from the group consisting of 3-aminopropyl trimethoxysilane, 3-aminopropyl triethoxysilane, 3-aminopropyl methyldimethoxysilane, 3-aminopropyl methyldiethoxysilane, 3-(2-aminoethylamino)propyl trimethoxysilane, 3-(2-aminoethylamino)propyl triethoxysilane, N-(2-aminoethyl)-3-aminopropyl trimethoxysilane, N-(2-aminoethyl)-3-aminopropyl triethoxysilane, 3-aminopropyl silanetriol, (3-(2-aminoethylamino)propyl methyldimethoxysilane), 2-ethanediamine N-(2-aminoethyl)-N'-[3-(trimethoxysilyl)propyl]-1, 1-[3-(trimethoxysilyl)propyl]urea, and 1-[3-(triethoxysilyl)propyl)]urea.

9. The modified polyisobutylene polymer according to claim 1, wherein a result of X-ray fluorescence analysis shows that the modified polyisobutylene polymer has a Si content in a range of from 0.03 mass% to 10 mass%.

10. The modified polyisobutylene polymer according to claim 1, wherein the modified polyisobutylene polymer has a viscosity in a range of from 1 to 15,000 cP at 150°C.

11. The modified polyisobutylene polymer according to claim 1, wherein the modified polyisobutylene polymer has a number average molecular weight in a range of from 800 to 10,000 g/mol.

12. The modified polyisobutylene polymer according to claim 1, wherein the modified polyisobutylene polymer has a molecular weight distribution in a range of from 1 to 5.

13. A rubber composition comprising: the modified polyisobutylene polymer according to any one of claim 1 to 12; a rubber base; and a filler.

14. The rubber composition according to claim 13, wherein the filler is silica, carbon black, or a mixture thereof.

15. The rubber composition according to claim 13, wherein the rubber base comprises at least one selected from among butadiene rubber, butyl rubber, emulsion polymerization styrene butadiene rubber (E-SBR), solution polymerization styrene butadiene rubber (S-SBR), epichlorohydrin rubber, nitrile rubber, hydrogenated nitrile rubber, brominated polyisobutylisoprene-co-paramethyl styrene (BIMS) rubber, urethane rubber, fluoro rubber, silicone rubber, styrene-ethylenebutadiene styrene copolymer rubber, ethylenepropylene rubber, ethylenepropylenediene monomer rubber, hypalon rubber, chloroprene rubber, ethylene vinyl

acetate rubber, and acrylic rubber.

16. The rubber composition according to claim 14, wherein the rubber composition comprises 50 to 150 parts by weight of silica, 5 to 20 parts by weight of carbon black, and 2 to 40 parts by weight of the modified polyisobutylene polymer, relative to 100 parts by weight of the rubber base.