WHAT IS CLAIMED IS:

1. A modified polyisobutylene polymer for rubber compounding, prepared by mixing:

polyisobutylene having isobutylene as a main chain;

unsaturated dicarboxylic anhydride; and

a silane compound; wherein the polyisobutylene has a terminal vinylidene content of 80 to 99 mol % based on ^{13}C—NMR.

2. The modified polyisobutylene polymer of claim 1, wherein the modified polyisobutylene polymer is prepared by mixing 20 to 80 wt% of the polyisobutylene having isobutylene as the main chain, 1 to 20 wt% of the unsaturated dicarboxylic anhydride, and 1 to 60 wt% of the silane compound.

3. The modified polyisobutylene polymer of claim 1, wherein the polyisobutylene having isobutylene as the main chain has a number average molecular weight of 350 g/mol to 6,000 g/mol.

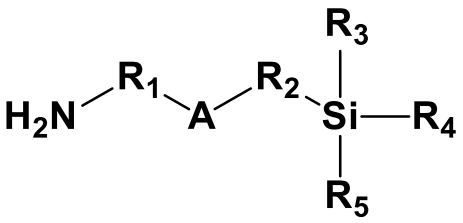
4. The modified polyisobutylene polymer of claim 1, wherein the polyisobutylene having isobutylene as the main chain has a polydispersity of 1 to 5.

5. The modified polyisobutylene polymer of 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.

6. The modified polyisobutylene polymer of claim 1, wherein the silane compound contains an amino group.

7. The modified polyisobutylene polymer of claim 6, wherein the silane compound is represented by Chemical Formula 1 below:

[Chemical Formula 1]



in Chemical Formula 1,

R_1 and R_2 are each independently selected from among alkylene with C1-C5, aminoalkylene with C1-C5, carbonylene and alkyl carbonylene withC1-C5, and are identical to or different from each other;

R_3, R_4 and R_5 are each independently selected from among hydrogen, hydroxy, alkyl with C1-C20, cycloalkyl with C1-C12, acyloxy withC2-C14, aryloxy with C4-C20, araloxy with C5-C30,

amine with C1-C20 and alkoxy with C1-C12, and are identical to or different from each other; and

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

8. The modified polyisobutylene polymer of claim 6, wherein the silane compound is at least one selected from among 3-aminopropyl triethoxysilane, 3-aminopropyl trimethoxysilane, N-(2-aminoethyl)-3-aminopropyl triethoxysilane, 3-aminopropyl methyldiethoxysilane, 3-aminopropyl silanetriol, 3-aminopropyl methyldimethoxysilane, 3-(2-aminoethylamino)propyl dimethoxymethylsilane, 3-(2-aminoethylamino)propyl trimethoxysilane, 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 of claim 1, wherein the modified polyisobutylene polymer contains nitrogen.

10. The modified polyisobutylene polymer of claim 1, wherein the modified polyisobutylene polymer contains a carbonyl group.

11. The modified polyisobutylene polymer of claim 1, wherein the modified polyisobutylene polymer contains an amide group.

12. The modified polyisobutylene polymer of claim 1, wherein the modified polyisobutylene polymer has a Si content of 0.05 to 10 mass% based on X-ray fluorescence analysis.

13. The modified polyisobutylene polymer of claim 1, wherein the modified polyisobutylene polymer has a glass transition temperature of -50°C or less.

14. The modified polyisobutylene polymer of claim 1, wherein the modified polyisobutylene polymer has a Brookfield viscosity at 150°C of 5 to 10,000 cP.

15. The modified polyisobutylene polymer of claim 1, wherein the modified polyisobutylene polymer has a number average molecular weight of 580 to 10,000 g/mol.

16. The modified polyisobutylene polymer of claim 1, wherein the modified polyisobutylene polymer has a polydispersity of 1 to 5.

17. A rubber composition, comprising:

the modified polyisobutylene polymer of any one of claims 1 to 16;

a rubber base; and

a filler.

18. The rubber composition of claim 17, wherein the filler comprises at least one selected from among silica and carbon black.

19. The rubber composition of claim 17, wherein the rubber base comprises at least one selected from among butadiene rubber, butyl rubber, emulsion-polymerized styrene butadiene rubber (E-SBR), solution-polymerized styrene butadiene rubber (S-SBR), epichlorohydrin rubber, nitrile rubber, hydrogenated nitrile rubber, brominated polyisobutyl isoprene-co-paramethyl styrene (BIMS) rubber, urethane rubber, fluorine rubber, silicone rubber, styrene-ethylene-butadiene-styrene copolymer rubber, ethylene propylene rubber, ethylene-propylene-diene monomer rubber, Hypalon rubber, chloroprene rubber, ethylene vinyl acetate rubber and acrylic rubber.

20. The rubber composition of claim 17, wherein the rubber composition comprises, based on 100 parts by weight of the rubber base, 50 to 150 parts by weight of silica, 5 to 20

parts by weight of carbon black, 2 to 40 parts by weight of the modified polyisobutylene polymer, and 2 to 15 parts by weight of a silane-coupling agent.