**CLAIMS**

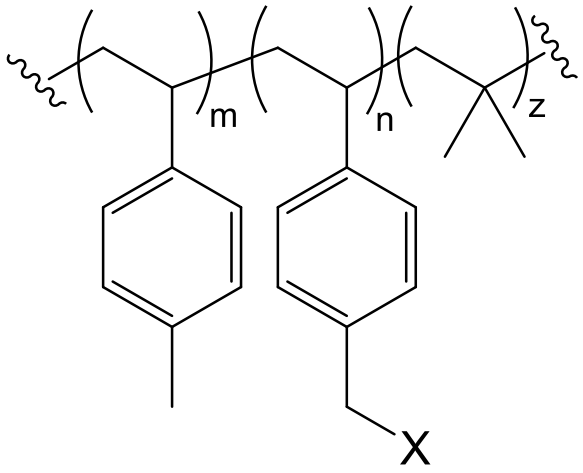
1. An elastomer composition, comprising:

a first elastomer, a second elastomer, and a nucleophile, wherein;

the first elastomer is a copolymer comprising p-methlystyrene, p-halomethylstyrene, and isobutylene derived units, the first elastomer comprising about 30 phr to about 100 phr of the elastomeric composition; and

the second elastomer comprises isobutylene derived repeat units and comprises about 30 phr to about 75 phr of the elastomeric composition.

2. The elastomer composition claim 1, wherein the first elastomer is a halogenated poly(isobutylene-co-p-methylstyrene) that can be represented by




wherein:

x is a halogen; and

each of m, n, and z is independently a numerical value representing the number of respective repeat units along the polymer backbone.

3. The elastomer composition of claim 2, wherein X comprises about 0.3 wt % to about 4.5 wt % of the first elastomer.

4. The elastomer composition of claim 2, wherein the first elastomer comprises about 0.1 mol % to about 7.5 mol % p-halomethylstyrene units, relative to total of p-methylstyrene and p-halomethylstyrene derived units.

5. The elastomer composition of claim 2, wherein the combination of the p-halomethylstyrene units and the p-methylstyrene units comprise about 0.5 wt % to about 30 wt % of the first elastomer.

6. The elastomer composition of claim 1, wherein the second elastomer is a vis-broken polymer capable of ionomer formation.

7. An elastomeric composition, comprising:

a first elastomer, a second elastomer, and a nucleophilic compound, wherein;

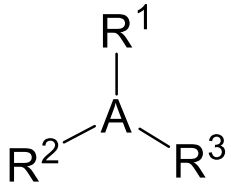
the first elastomer is a copolymer comprising p-methylstyrene, p-halomethylstyrene, and isobutylene derived repeat units;

the first elastomer comprises about 30 phr to about 100 phr of the elastomeric composition;

the second elastomer comprises about 30 phr to about 75 phr of the elastomeric composition;

the nucleophilic compound is a crosslinking agent, the nucleophilic compound comprising about 1 phr to about 5 phr of the elastomeric compostion.

8. The elastomeric network of claim 7, wherein the nucleophilic compound is represented by




wherein:

A is a nitrogen or phosphorus; and

$R^1$, $R^2$, and $R^3$ are independently selected from the group consisting of an alkyl substituent, an aryl substituent, a heteroatom, and combinations thereof, wherein:

the alkyl substituent is any one or more linear or branched $C_1$-$C_{18}$ alkyl substituents,

the aryl substituent is monocyclic or composed of fused $C_4$-$C_8$ rings,

and the heteroatom is selected from B, N, O, Si, P, and S.

9. The elastomeric network of claim 7, wherein the nucleophilic compound is selected from the group consisting of trimethylamine, triethylamine, triisopropylamine, tri-n-butylamine, trimethylphosphine, triethylphosphine, triisopropylphosphine, tri-n-butylphosphine, triphenylphosphine, and combinations thereof.

10. The elastomeric network of claim 7, wherein a molar ratio of the nucleophilic compound to halide of the first elastomer is about 0.2:1 to about 1.2:1.

11. The elastomeric network of claim 7, wherein the second elastomer is selected from the group consisting of natural rubber, polyisoprene rubber, poly(styrene-co-butadiene) rubber (SBR), polybutadiene rubber (BR), styrene-isoprene-butadiene rubber (SIBR), ethylene-propylene rubber (EPM), ethylene-propylene-diene rubber (EPDM), polysulfide, nitrile rubber, propylene oxide polymers, halobutyl rubber, star-branched butyl rubber, halogenated star-branched butyl rubber, ionic butyl rubber, and combinations thereof.

12. A method of making a tire component, the method comprising:

mixing a first elastomer and a second elastomer to form an elastomer composition in a mixer, wherein:

the first elastomer is a copolymer comprising p-methlystyrene, p-halomethylstyrene, and isobutylene derived repeat units;

the first elastomer comprises about 30 phr to about 100 phr of the elastomeric composition;

the second elastomer is butyl rubber; and

the second elastomer comprises about 30 phr to about 75 phr of the elastomeric composition;

blending the elastomer composition with a nucleophilic compound to form an elastomeric network, wherein:

the nucleophilic compound comprises about 1.4 phr to about 2.7 phr of the elastomeric network, and

a molar ratio of the nucleophilic compound to halide of the first elastomer is about 0.2:1 to about 1.2:1; and

integrating the elastomeric network into one or more components of a tire.

13. The method of claim 12, wherein the elastomeric network has a M100 value of about 0.1 MPa to about 3.6 MPa.

14. The method of claim 12, wherein the elastomeric network has an elongation at break of about 130 % to about 1380%.

15. The method of claim 12, wherein the elastomeric network has an $O_2$ permeability coefficient of about 0.1 (mm)•(cc)/ m²•day•mmHg to about 1.4 (mm)•(cc)/ m²•day•mmHg.