

CLAIMS

1. A composition comprising:
about 5 parts per hundred parts rubber (phr) to about 95 phr of a halobutyl rubber; and
5 about 5 phr to about 95 phr of an elastomer composition,
wherein the elastomer composition comprises:
a C₄ to C₇ isoolefin;
a non-halogenated alkylstyrene; and
a halogenated alkylstyrene,
10 wherein the non-halogenated alkylstyrene and the halogenated alkylstyrene
cumulatively are present in the elastomer composition in the amount of about 3 wt% to about
15 wt% based on the elastomer composition; and
wherein the halogenated alkylstyrene is present at from 0.1 mol% to 2 mol%
relative to the non-halogenated alkylstyrene.
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2. The composition of claim 1, wherein the elastomer composition further comprises:
a diolefin, wherein the C₄ to C₇ isoolefin is not the same as the diolefin.
3. The composition of claim 2, wherein the diolefin is isoprene, butadiene,
20 cyclopentadiene, or combinations thereof.
4. The composition of claims 2-3, wherein the diolefin is present in the elastomer
composition in the amount of less than or equal to about 10 wt% based on the elastomer
composition.
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5. The composition of any preceding claim, wherein the C₄ to C₇ isoolefin is
halogenated.
6. The composition of any preceding claim, wherein the C₄ to C₇ isoolefin is
30 halogenated with bromine.
7. The composition of any preceding claim, wherein the non-halogenated alkylstyrene is
p-methylstyrene.

8. The composition of any preceding claim, wherein the elastomer composition is present at about 70 phr to about 95 phr, and wherein the halobutyl rubber is present at about 5 phr to about 30 phr.
- 5 9. The composition of any preceding claim, wherein the composition has a glass transition temperature of about -39 °C to about -32 °C
- 10 10. The composition of any preceding claim, wherein the halobutyl rubber is selected from the group consisting of: bromobutyl rubber, chlorobutyl rubber, and combinations thereof.
- 15 11. The composition of any preceding claim, wherein the halobutyl rubber is selected from the group consisting of: brominated isobutylene-isoprene rubber, chlorinated isobutylene-isoprene rubber, brominated isobutylene-co-p-methylstyrene copolymer, and combinations thereof.
- 20 12. The composition of any preceding claim further comprising:
processing aid;
curative; and
filler.
- 25 13. A process to make the composition of any preceding claim, comprising the steps of:
a. polymerizing in a first reactor the C₄ to C₇ isoolefin, the non-halogenated alkylstyrene, the halogenated alkylstyrene, optionally the diolefin, and optionally the isobutylene-p-methylstyrene;
b. polymerizing in a second reactor monomers of the halobutyl rubber;
c. combining product streams from the first and second reactors to produce a blend;
and
d. optionally combining the blend with the processing aid, the curative, and the filler.
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14. A process to make the composition of claims 1-12, comprising the steps of:
- a. polymerizing in a first reactor the C₄ to C₇ isoolefin, the non-halogenated alkylstyrene, the halogenated alkylstyrene, optionally the diolefin, and optionally the isobutylene-p-methylstyrene to produce the elastomer composition;
 - 5 b. polymerizing in a second reactor monomers of the halobutyl rubber to produce the halobutyl rubber; and
 - c. optionally combining the elastomer composition, the halobutyl rubber, optionally the processing aid, optionally the curative, and optionally the filler.
- 10 15. The composition of claim 12, wherein the filler is carbon black and present at about 20 to about 100 phr.
16. The composition of claim 12, wherein the filler is clay and present at about 1 to about 30 phr.
- 15 17. An article comprising the composition of any one of claims 1-12 or 15-16.
18. A tire innerliner comprising the composition of any one of claims 1-12 or 15-16.
- 20 19. A tire comprising the tire innerliner of claim 18.