Claims:

1. A process for producing an ionomer comprising the steps of:

   (a) admixing in a mixer a halogenated copolymer with at least one nitrogen and/or phosphorous based nucleophile in an amount of from 0.01 to 1.1 molar equivalents based on the total allylic halide content of the halogenated copolymer, at a temperature in a range of 40 to 200°C for 0.5 to 30 minutes; and

   (b) extruding the mixture from step (a) at a temperature in a range of 50 to 200°C for 0.5 to 30 minutes and/or milling the mixture from step (a) in a multi roll mill, preferably a two roll mill for about 0.5-90 minutes at a temperature in a range of 50-200°C.

2. The process according to claim 1, wherein the mixing in step (a) is performed at a temperature in a range of 100 to 160°C.

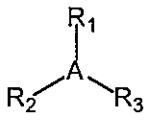
3. The process according to claims 1 or 2, wherein the mixture from step (a) is extruded at a temperature in a range of 80 to 150°C.

4. The process according to any of claims 1 to 3, wherein the mixing in step (a) is performed for 5 to 10 minutes.

5. The process according to any of claims 1 to 4, wherein the mixture from step (a) is extruded for 5 to 10 minutes.

6. The process according to any of claims 1 to 5, wherein the nucleophile is reacted in an amount of about 0.2 to 0.8 molar equivalents based on the total allylic halide content of the halogenated copolymer.

7. The process according to any one of claims 1 to 6, wherein the nucleophile comprises a compound of formula (I):




(I)

wherein,

A is a nitrogen or phosphorus; and,

$R_1$, $R_2$ and $R_3$ are independently: a vinyl group, a linear or branched $C_1$-$C_{18}$ alkyl group; a linear or branched $C_1$-$C_{18}$ alkyl group comprising one or more hetero atoms selected from the group consisting of O, N, S, B, Si and P; $C_6$-$C_{10}$ aryl group; $C_3$-$C_6$ heteroaryl group; $C_3$-$C_6$ cycloalkyl group; $C_3$-$C_6$ heterocycloalkyl group; or combinations thereof.

8. The process according to any one of claims 1 to 7, wherein the nucleophile comprises triphenylphosphine.

9. The process according to any one of claims 1 to 8, wherein the halogenated copolymer comprises a halogenated butyl rubber.

10. The process according to any one of claims 1 to 8, wherein the halogenated copolymer comprises brominated copolymer.

11. An ionomer obtained according to the process of any one of claims 1 to 10.

12. A ionomer produced by reacting a nucleophile with a halogenated copolymer having a total allylic halide content of 0.05 to 2.0 mol% based on the total allylic halide content of the halogenated copolymer, comprising an amount of residual nucleophile or oxidative derivative thereof in a range of 0 to 50% based on the amount of nucleophile reacted to form the ionomer.

13. A ionomer, preferably according to claim 12, comprising a Yellowness Index (ASTM E313) in a range of 20-60, preferably in a range of 20-41 and/or a ratio of reacted nucleophile to unreacted residual nucleophile or oxidative derivative thereof of at least 2.0, preferably 2.0 to 100.0, more preferably 2.5 to 100.0 even more preferably 2.5 to 20.0 and yet even more preferably 2.7 to 20.0.

14. The ionomer according to claim 11, 12 or 13, comprising an amount of the residual nucleophile or derivative thereof in a range of 5 to 20% based on an amount of the nucleophile reacted with the halogenated copolymer.

15. A composite comprising the ionomer according to claim 11, 12 or 13.