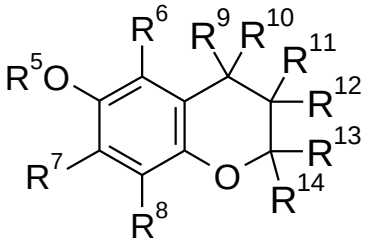
Claims

1. Process for processing polyisobutenes in at least one kneader or extruder at a temperature of at least 80 to 160 °C for not more than 2 hours and/or a specific shear energy of at least 0.08 kWh/kg, preferably at least 0.10, more preferably at least 0.15, even more preferably at least 0.15, and especially at least 0.20 kWh/kg polyisobutene, wherein the polyisobutene contains more than 100 to 5000 ppm by weight of at least one chromanol or the at least one chromanol is incorporated into the polyisobutene during the process, and wherein the average molecular weight (measured in the form of the Staudinger Index J_0) decreases not more than 5%, wherein the at least one chromanol is of formula



(I)

wherein

R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, R^{12}, R^{13} and R^{14} are each independently hydrogen, C_1-C_4-alkyl, C_1-C_4-alkyloxy or C_6-C_{12}-aryl and

R^5 is additionally C_1-C_4-alkylcarbonyl, C_1-C_4-alkyloxycarbonyl, C_6-C_{12}-arylcarbonyl or C_6-C_{12}-aryloxycarbonyl,

R^{13} and R^{14} additionally may be C_5-C_{30}-alkyl, C_5-C_{30}-alkenyl, C_5-C_{30}-alkadienyl or C_5-C_{30}-alkatrienyl, preferably C_6-C_{20}-alkyl or -alkatrienyl, more preferably C_{11}-C_{16}-alkyl or -alkatrienyl, especially C_{16}-alkyl or or C_{16}-alkatrienyl

and the radicals mentioned may each optionally be interrupted by one or more oxygen atoms and/or sulfur atoms and/or one or more substituted or unsubstituted imino groups, or be substituted by functional groups, aryl, alkyl, aryloxy, alkyloxy, halogen, heteroatoms and/or heterocycles,

and R^{13} is additionally chlorine.

2. Process according to Claim 1, wherein the at least one chromanol of formula (I) is selected from the group consisting of 2,2,5,7,8-pentamethyl-6-chromanol, 2,2,5,7-tetramethyl-6-chromanol, 2,2,5,8-tetramethyl-6-chromanol, 2,2,7,8-tetramethyl-6-chromanol, 2,2,5-trimethyl-6-chromanol, 2,2,7-trimethyl-6-chromanol and 2,2,8-trimethyl-6-chromanol, particularly preferred are 2,2,5,7,8-pentamethyl-6-chromanol, 2,2,5,7-tetramethyl-6-chromanol, 2,2,5,8-tetramethyl-6-chromanol and 2,2,7,8-tetramethyl-6-chromanol and very particularly preferred is 2,2,5,7,8-pentamethyl-6-chromanol.

3. Process according to Claim 1, wherein the at least one chromanol comprises at least one compound selected from the group consisting of α-, β-, γ- or δ-tocopherol or a α-, β-, γ- and δ-tocotrienol.

4. Process according to Claim 1, wherein the at least one chromanol comprises α- or γ-tocopherol.

5. Process according to Claim 1, wherein the at least one chromanol comprises vitamin E of natural or synthetic origin.

6. Process according to any one of the preceding claims, wherein the at least one chromanol is a tocopherol and may be used singly or in mixtures and in enantiomerically pure or enriched form or as racemic mixture of the enantiomers.

7. Polyisobutene with a viscosity-average molecular weight Mv of 20 000 to 10 000 000 and a content of free, monomeric isobutene of less than 30 ppm by weight comprising more than 100 to 5000 ppm by weight of at least one chromanol as described in any one of the preceding claims.

8. Use of the polyisobutylenes according to Claim 7 in or as sealants, adhesives, coatings and roofings as well as white and black filled sheeting.

9. Use of the polyisobutylenes according to Claim 7 as or as an ingredient in chewing gums.

10. Use of the polyisobutylenes according to Claim 7 in plasters or adhesives for plasters.

11. Use according to Claim 9 or 10, wherein the polyisobutene has a content of free, monomeric isobutene less than 25, more preferably less than 20, even more preferably less than 15, and especially less than 10 ppm by weight.

12. Use according to any of the claims 8 to 11, wherein the at least one chromanol comprises, preferably consists of one or more of α-, β-, γ- or δ-tocopherols and/or one or more of α-, β-, γ- or δ-tocotrienol, preferably one or more of α- and γ-tocopherol, and especially synthetic or preferably natural vitamin E.

13. Chewing gum, comprising polyisobutene with a content of free, monomeric isobutene of less than 30 ppm by weight comprising at least one chromanol comprising, preferably consisting of one or more of α-, β-, γ- or δ-tocopherols and/or one or more of α-, β-, γ- or δ-tocotrienol, preferably one or more of α- and γ-tocopherol, and especially synthetic or preferably natural vitamin E.