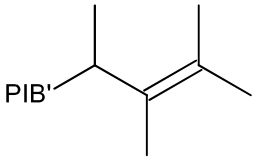
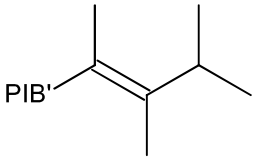
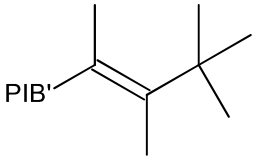
In an aspect, there is provided a medium molecular polyisobutene composition with a number average molecular weight Mn of more than 10000 to 100000 g/mol determined by gel permeation chromatography comprising 20 to 75 % (in sum) , preferably 25 to 60 % of at least one isomer bearing a tetra-substituted double bond, preferably selected from the group consisting of



(C3)



(C4)



(C5)

in which PIB, PIB' and PIB'' refer to appropriately shortened polymeric backbones of the polyisobutene.

In another aspect, there is provided the use of a polyisobutene composition as defined above in photo reactions, preferably in photo oxygenations.

In another aspect, there is provided the use of a polyisobutene composition as defined above in sealants, adhesives, coatings or roofings.

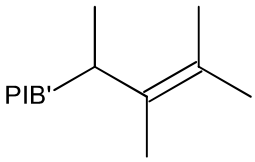
In another aspect, there is provided a process for preparation of compositions as defined above, comprising the steps of

- choosing as a starting material a medium molecular polyisobutene composition with a number average molecular weight Mn of more than 10000 to 100000 g/mol, preferably from 11000 to 90000, more preferably from 12000 to 80000, most preferably from 13000 to 75000, and especially from 14000 to 70000 determined by gel permeation chromatography with a content of polyisobutene species (A) bearing an alpha-double bond of at least 30 mol%, preferably at least 40 mol%, more preferably at least 50 mol%, most preferably at least 60 mol% and especially at least 70 mol%,

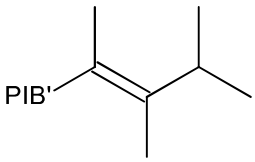
- optionally at least one solvent,
- treating the optionally dissolved polyisobutene composition
-- in the presence of at least one acidic solid state catalyst, optionally treated with at least one Brønsted-base
-- for a period of from 10 minutes to 36 hours
-- at a temperature of from 40 °C to 250 °C.

In another aspect, there is provided a polyisobutene composition as defined above, wherein the content of halogen, preferably fluorine or chlorine, more preferably chlorine, is more than 5 ppm by weight, preferably at least 10, more preferably at least 15, even more preferably at least 20, especially at least 30, and even at least 50 or 70 ppm by weight.

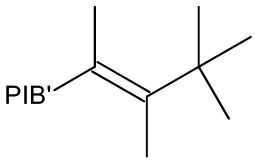
Subject matter of the present invention is a polyisobutene composition comprising at least 5% (in sum) of at least one isomer bearing a tetra-substituted double bond, preferably selected from the group consisting of



(C3)



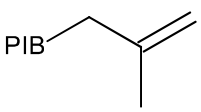
(C4)



(C5)

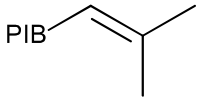
in which PIB, PIB' and PIB'' refer to appropriately shortened polymeric backbones of the polyisobutene.

Further isomers which may be present in the polyisobutene composition are

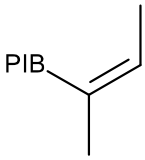
-- (A) 

bearing an alpha-double bond,

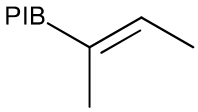
4b

-- (B) 

bearing a beta-double bond,



(C1)



(C2)