

Title (en)
RUBBER BLENDS CONSISTING OF DIFFERENT NITRILE RUBBERS

Title (de)
KAUTSCHUKBLENDEN AUS VERSCHIEDENEN NITRILKAUTSCHUKEN

Title (fr)
MÉLANGES DE CAOUTCHOUCS CONSTITUÉS DE DIFFÉRENTS CAOUTCHOUCS NITRILES

Publication
EP 2611836 A1 20130710 (DE)

Application
EP 11748391 A 20110824

Priority
• EP 10174697 A 20100831
• EP 2011064536 W 20110824
• EP 11748391 A 20110824

Abstract (en)
[origin: EP2423234A1] Rubber blend comprises: a first nitrile rubber comprising repeating units derived from at least one conjugated diene, at least one alpha , beta -unsaturated nitrile and optionally at least one further copolymerizable monomers, and at least one structural element comprising e.g. dithioformic acid derivative (I) or methylsulfanylthiocarbonylsulfanyl; and a second nitrile rubber different from the first nitrile rubber comprising repeating units derived from at least one conjugated diene, at least one alpha , beta -unsaturated nitrile and optionally at least one further copolymerizable monomer. Rubber blend comprises: (a) a first nitrile rubber exhibiting a weight average molecular weight of not > 50000 g/mol, which comprises (i) repeating units derived from at least one conjugated diene, at least one alpha , beta -unsaturated nitrile and optionally at least one further copolymerizable monomers, and (ii) at least one structural element comprising dithioformic acid derivative of formula (Z-(M) n-(X) t-C(=S)-S-) (I), hydrocarbon compound of formula (- (M) m-R) (II) or (Z-(M) n-) (IV), methylsulfanylthiocarbonylsulfanyl or trithiocarbonic acid derivative of formula (-S-C(=S)-S-(M) m-R) (III); and (b) a second nitrile rubber different from the first nitrile rubber, which exhibits a weight average molecular weight of greater than 50000 g/mol and a Mooney viscosity of 20-150 at 100[deg] C, comprising repeating units derived from at least one conjugated diene, at least one alpha , beta -unsaturated nitrile and optionally at least one further copolymerizable monomer. Z : carbocyclic, heterocyclic (both optionally mono- or polyunsaturated), alkyl (optionally branched and optionally mono- or polyunsaturated), H, (hetero)aryl, (hetero)arylalkyl, alkoxy, (hetero)aryloxy, NH 2, amido, hydroxyimino, carbamoyl, alkoxy carbonyl, F, Cl, Br, I, OH, phosphonato, phosphinato, alkylthio, arylthio, sulfanyl, thiocarboxy, sulfinyl, sulfono, sulfino, sulfeno, sulfonic acid, sulfamoyl, silyl, silyloxy, nitrile, carbonyl, carboxyl, oxycarbonyl, oxysulfonyl, oxo, thiooxo, borate, selenate, epoxy, cyanate, thiocyanate, isocyanate, isothiocyanate or isocyanide; R : Z (when m is not equal to 0) or carbocyclic, heterocyclic (both optionally mono- or polyunsaturated), alkyl (optionally branched and optionally mono- or polyunsaturated), H, (hetero)aryl, (hetero)arylalkyl, alkoxy, (hetero)aryloxy, NH 2, amido, carbamoyl, alkylthio, arylthio, sulfanyl, thiocarboxy, sulfinyl, sulfono, sulfino, sulfeno, sulfonic acids, sulfamoyl, carbonyl, carboxyl, oxycarbonyl, oxysulfonyl, oxo, thiooxo, epoxy, cyanate, thiocyanate, isocyanate, isothiocyanate or isocyanides (when m = 0); M : repeating units of at least one mono- or polyunsaturated monomer, preferably dienes (optionally conjugated), alkynes or vinyl compounds, or structure element derived from polymers comprising polyether, preferably polyalkylene glycol ether or polyalkylene oxide, polysiloxane, polyol, polycarbonate, polyurethane, polyisocyanate, polysaccharide, polyester or polyamide; n, m : 0-10000; t : 0 or 1 (when n = 0) or 1 (when n is not equal to 0); and X : C((Z) 2), N(Z), P(Z), P(=O)(Z), O, S, S(=O) or S(=O) 2. Independent claims are also included for: (1) a vulcanizable mixture comprising the above rubber blend, at least one crosslinking agent, optionally at least one filler and optionally at least one further rubber additive; (2) producing vulcanizates, comprising crosslinking the above vulcanizable mixture, preferably by adding at least one crosslinking agent or by photochemical activation; and (3) vulcanizates, preferably molded parts obtainable by the above method.

IPC 8 full level
C08C 19/20 (2006.01); **C08F 220/44** (2006.01); **C08F 236/12** (2006.01); **C08L 9/02** (2006.01)

CPC (source: EP KR)
C08C 19/20 (2013.01 - EP KR); **C08F 220/44** (2013.01 - EP KR); **C08F 236/12** (2013.01 - EP KR); **C08L 9/02** (2013.01 - EP KR); **C08L 2205/02** (2013.01 - EP)

Citation (search report)
See references of WO 2012028506A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
EP 2423234 A1 20120229; CN 103080138 A 20130501; EP 2611836 A1 20130710; JP 2013538897 A 20131017; KR 20130050991 A 20130516; TW 201229140 A 20120716; WO 2012028506 A1 20120308

DOCDB simple family (application)
EP 10174697 A 20100831; CN 201180042097 A 20110824; EP 11748391 A 20110824; EP 2011064536 W 20110824; JP 2013526409 A 20110824; KR 20137008022 A 20110824; TW 100130979 A 20110830