

Claims

1. A thermoplastic moulding composition comprising:
 - a) from 90.0 to 99.99989 wt.-% of a thermoplastic polymer;
 - b) from 0.0001 to 5.0 wt.-% of carbon black; and
 - c) from 0.00001 to 5.0 wt.-% of a monoazo dye comprising at least one heteroaromatic moiety.
2. Thermoplastic moulding composition according to Claim 1, wherein the monoazo dye is selected from the list consisting of

5-[(3,4-dichlorophenyl)azo]-1,2-dihydro-6-hydroxy-1,4-dimethyl-2-oxonicotinonitrile,
 2,3-dihydro-2,2-dimethyl-6-((4-(phenylazo)-1-naphthyl)azo)-1*H*-perimidin,
 cyano-5-[[5-cyano-2,6-bis[(3-methoxypropyl)amino]-4-methylpyridin-3-yl]azo]-3-methyl-2-thiophenecarboxylic acid methyl ester,
 5-methyl-2-phenyl-4-phenylazo-4*H*-pyrazol-3-one,
 4-[(2,4-dimethylphenyl)azo]-2,4-dihydro-5-methyl-2-phenyl-3*H*-pyrazol-3-one,
 3-[(1-oxonaphthalen-2-ylidene)methylhydrazinylidene]-1-prop-2-enylindol-2-one,
 4-((*o*-methoxyphenyl)azo)-3-methyl-1-phenyl-2-pyrazolin-5-one, and
 5-methyl-2-phenyl-4-phenylazo-4*H*-pyrazol-3-one.
3. Thermoplastic moulding composition according to Claim 1 or 2, wherein the carbon black has a weight average particle size of from 5.0 to 100.0 nm, preferably from 7.0 to 60.0 nm and a specific surface area, determined by BET method, of from 50 to 500 m² / g.
4. Thermoplastic moulding composition according to any of Claims 1 to 3 further comprising
 - at least one further dye selected from perinone dye, quinophthalone dye and anthraquinone dye;
 - at least one phthalocyanine pigment; or
 - any mixture of the above.
5. Thermoplastic moulding composition according to any of Claims 1 to 4, wherein the thermoplastic polymer is selected from the group consisting of polyalkyl (meth)acrylate, polymethylmethacrylimide, polyalkyl (meth)acrylate copolymers, polystyrene, polystyrene copolymer, acrylonitrile copolymers, polycarbonates, polyesters, polyvinylidene fluoride or a mixture thereof.

6. Thermoplastic moulding composition according to any of Claims 1 to 5, wherein the thermoplastic polymer is polymethyl methacrylate having a weight average molecular weight Mw of from 80 000 g/mol to 180 000 g/mol and is obtainable by polymerization of a composition whose polymerizable constituents comprise, based on the weight of the polymerizable composition:
- 5
- (i) from 50.0 to 99.9 wt.-%, preferably from 80.0 to 99.9 wt.-% of methyl methacrylate
 - (ii) from 0.1 to 50.0 wt.-%, preferably from 0.1 to 20.0 wt.-% of an acrylic acid ester of a C1-C4 alcohol
 - (iii) from 0.0 to 35.0 wt.-% of at least one further monomer copolymerizable with the
- 10 monomers (i) and (ii).
7. Thermoplastic moulding composition according to any of Claims 1 to 6, wherein the thermoplastic polymer comprises a polymer matrix and scattering particles dispersed in said polymer matrix, wherein the scattering particles have a weight average particle diameter of from
- 15 0.01 μm to 100.0 μm and refractive index of the scattering particles differs from that of the polymer matrix by at least 0.01.
8. Thermoplastic moulding composition according any of Claims 1 to 7, wherein the thermoplastic polymer is polymethyl methacrylate and the thermoplastic moulding composition has
- 20 a melt flow rate from 0.5 to 10.0 g / 10 min, measured at 230 °C with a load of 3.8 kg.
9. Process for the manufacturing of a thermoplastic moulding composition according any of Claims 1 to 8, wherein the process comprises the following steps:
- 25
- a) providing a thermoplastic polymer; and
 - b) adding to the thermoplastic polymer from step a) at least one colouring composition, comprising carbon black and a monoazo dye comprising at least one heteroaromatic moiety, wherein said colouring composition is preferably a liquid composition or a masterbatch.
- 30
10. Process according to Claim 9, wherein the colouring composition is a liquid composition comprising:
- 35
- from 1.0 to 30.0 wt.-% of a dispersing additive
 - from 0.05 to 10.0 wt.-% of carbon black
 - from 0.5 to 50.0 wt.-% of the monoazo dye and
 - from 0.0 to 50.0 wt.-% of an auxiliary additive and
 - a liquid, being preferably demineralized water or an organic solvent, where the portions by weight of the components add up to 100 wt.-%.

11. Process according to Claim 9, wherein the colouring composition is a masterbatch comprising:
- 5 from 0.01 to 40.0 wt.-% by weight of the monoazo dye
from 0.01 to 10.0 wt.-% by weight of carbon black
from 50.0 to 99.98 wt.-% by weight thermoplastic polymer.
from 0.0 to 10.0 wt.-% of an auxiliary additive
12. Process according to any of Claims 9 to 11, wherein the colouring composition comprises
- 10 less than 100 ppm, preferably less than 50 ppm of aluminium or a compound thereof and
less than 300 ppm, preferably less than 200 ppm of silicon or a compound thereof; and/or
- the colouring composition has a mass loss in dried form of not more than 15 wt.-%, preferably from
- 15 0.0 to 10 wt.-%, more preferably from 0.0 to 7 wt.-%, even more preferably from 0.0 to 5 wt.-% and
especially preferably from 0.0 to 4 wt.-% in isothermal thermogravimetric analysis at 260 °C for
60 min.
13. Process according to any of Claims 9 to 12, wherein the step b) is carried out in an
- extruder, preferably at a temperature ranging from 200 °C to 320 °C, more preferably from 230 °C
- 20 to 300 °C.
14. A process for the manufacturing of a moulded part, wherein the process comprises a step
- of injection moulding of a thermoplastic moulding composition according to any of Claims 1 to 8 at
- a temperature ranging from 200 °C to 320 °C, preferably from 230 °C to 300 °C, wherein the
- 25 thermoplastic moulding composition is injected into a mould which can produce the moulded part,
wherein the thermoplastic moulding composition comprises
- a) from 90.0 to 99.99989 wt.-% of a thermoplastic polymer;
- b) from 0.0001 to 5.0 wt.-% of carbon black; and
- 30 c) from 0.00001 to 5.0 wt.-% of a monoazo dye comprising at least one heteroaromatic
moiety.
15. A process for the manufacturing of an extruded part, wherein the process comprises an
- extrusion process of a thermoplastic moulding composition according to any of Claims 1 to 8 at a
- 35 temperature ranging from 200 °C to 320 °C, preferably from 230 °C to 300 °C, wherein the
thermoplastic moulding composition is melted and die-casted to the final part,
- wherein the thermoplastic moulding composition comprises

- a) from 90.0 to 99.99989 wt.-% of a thermoplastic polymer;
- b) from 0.0001 to 5.0 wt.-% of carbon black; and
- c) from 0.00001 to 5.0 wt.-% of a monoazo dye comprising at least one heteroaromatic moiety.

5

16. Process according to Claim 15, wherein the moulded part has different wall thicknesses, one or more perforations, at least one non-planar surface or a combination of these features.

17. A moulded part or an extruded part obtainable by the process according to any of

10 Claims 14 to 16.