Claims

1. Process for manufacturing of a coloured moulding composition, wherein the process comprises the following steps:

a) providing a thermoplastic polymer; and
b) adding to the thermoplastic polymer from step a) a colouring preparation or a liquid composition or a masterbatch comprising said colouring preparation,

wherein the colouring preparation comprises a monoazo dye comprising at least one heteroaromatic moiety;
and the colouring preparation comprises
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.

2. Process according to Claim 1, wherein the liquid composition added in step b) comprises, based on the weight of the liquid composition:

from 1.0 to 30.0 wt.-% of a dispersing additive
from 0.5 to 50.0 wt.-% of the monoazo dye and
from 0.0 to 50.0 wt.-% of auxiliary additives and
liquid, preferably demineralized water, where the portions by weight of the components of the liquid composition add up to 100 wt.-%.

3. Process according to Claim 1, wherein the masterbatch added in step b) comprises, based on the weight of the masterbatch:

from 0.01 to 50.0 wt.-% of the monoazo dye
from 50.0 to 99.99 wt.-% of the thermoplastic polymer.
from 0.0 to 10.0 wt.-% of auxiliary additives,
from 0.0 to 10.0 wt.-% of further colourants
where the portions by weight of the components of the masterbatch add up to 100 wt.-%.

4. Process according to any of Claims 1 to 3, 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.

5. Process according to any of Claims 1 to 4, wherein the thermoplastic polymer is selected from the group consisting of polyalkyl (meth)acrylate, polymethylmethacrylimide, polymethyl methacrylate copolymer, polystyrene, polystyrene copolymer, acrylonitrile copolymers, polycarbonates, polyesters, polyamides, polyvinylidene fluoride or a mixture thereof.

6. Process according to any of Claims 1 to 5, 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 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.

7. Process according to any of Claims 1 to 6, wherein the thermoplastic polymer comprises an impact modifier selected from particulate impact modifier and thermoplastic impact modifier.

8. Process according to any of Claims 1 to 7, wherein the colouring preparation has a mass loss in dried form of not more than 15 wt.-%, preferably 0.0 to 10 wt.-%, more preferably 0.0 to 7.0 wt.-%, even more preferably 0.0 to 5.0 wt.-% and especially preferably from 0.0 to 4.0 wt.-% in isothermal thermogravimetric analysis at 260 °C for 15 min.

9. Process according to any of Claims 1 to 8, 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 to 300 °C.

10. Process according to any of Claims 1 to 9, 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:

(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 30.0 wt.-% of at least one further monomer copolymerizable with the monomers (i) and (ii).

11. Process according to any of Claims 1 to 10, wherein the masterbatch or the liquid composition added in step b) further comprises

- at least one further dye selected from perinone dye, quinophthalone dye and anthraquinone dye;
- at least one inorganic pigment;
- at least one phtalocyanine pigment; or
- any mixture of the above.

12. A process for the manufacturing of a moulded part, wherein the process comprises a step of manufacturing a coloured moulding composition according to any of claims 1 to 11, and a step of injection moulding of the coloured moulding composition at a temperature ranging from 200 °C to 320 °C, preferably from 230 °C to 300 °C, wherein the coloured moulding composition is injected into a mould which can produce the moulded part,

wherein the coloured moulding composition comprises a monoazo dye comprising at least one heteroaromatic moiety and

the coloured moulding composition comprises
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.

13. A process for the manufacturing of an extruded part, wherein the process comprises a step of manufacturing a coloured moulding composition according to any of claims 1 to 11, and an extrusion process of the coloured moulding composition at a temperature ranging from 200 °C to 320 °C, preferably from 230 °C to 300 °C, wherein the coloured moulding composition is melted and die-casted to the final part,

wherein the coloured moulding composition comprises a monoazo dye comprising at least one heteroaromatic moiety and
the coloured moulding composition comprises
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.

14. Process according to Claim 12, wherein the moulded part has different wall thicknesses, one or more perforations, at least one non-planar surface or a combination of these features.