Claims

1. A polymeric composition, comprising:

from 90.0 wt.-% to 99.9 wt.-%, based on the weight of the polymeric composition, of a polymeric matrix material which is substantially transparent and has a refractive index n_{Dm} of from 1.35 to 1.65;

from 0.05 wt.-% to 5.0 wt.-%, preferably from 0.5 wt.-% to 5.0 wt.-%, more preferably from 1.0 wt.-% to 4.0 wt.-%, based on the weight of the polymeric composition, of a plurality of first scattering particles being polybutylacrylate-based scattering particles which are uniformly dispersed in the polymeric matrix material, wherein the first scattering particles are substantially spherical crosslinked polymeric particles having an average particle size d_1 of from 5.0 µm to 20.0 µm and having a refractive index n_{D1},
wherein the refractive index n_{D1} is lower than the refractive index n_{Dm} and the absolute difference between the refractive index n_{D1} and the refractive index n_{Dm} is not lower than 0.04;

from 0.05 wt.-% to 5.0 wt.-%, based on the weight of the polymeric composition, of a plurality of second scattering particles chemically different from the first scattering particles which are uniformly dispersed in the polymeric matrix material, wherein the second scattering particles are substantially spherical crosslinked polymeric particles having an average particle size d_2 of from 1.0 µm to 50.0 µm and having a refractive index n_{D2},
wherein the absolute difference between the refractive index n_{D2} and the refractive index n_{Dm} is from 0.005 to 0.1,

wherein the refractive indexes n_{Dm}, n_{D1}, and n_{D2} are measured at the Na D-line at 589 nm at 23 °C, and
the average particle size of the first scattering particles and of the second scattering particles is a volume averaged d_{50} value and is measured in accordance with the standard for laser diffraction measurements ISO 13320-1 (2009).

2. The polymeric composition according to Claim 1, wherein

the absolute difference between the refractive index n_{D1} and the refractive index n_{Dm} is from 0.05 to 0.16, preferably from 0.05 to 0.10.

3. The polymeric composition according to Claim 1 or 2, wherein

the absolute difference between the refractive index n_{D2} and the refractive index n_{Dm} is from 0.01 to 0.15, preferably from 0.01 to 0.1, more preferably from 0.02 to 0.09.

4. The polymeric composition according to any of Claims 1 to 3, wherein the absolute difference between the refractive index n_{D1} and the refractive index n_{D2} is from 0.001 to 0.15.

5. The polymeric composition according to any of Claims 1 to 4, wherein the polymeric matrix material is selected from polyalkyl(meth)acrylates, polycarbonates, polystyrenes, poly(meth)acrylalkylimides, polyacrylonitriles, polyamides, polyester, polyolefines as well as copolymers and/or mixtures thereof.

6. The polymeric composition according to any of Claims 1 to 4, wherein the polymeric matrix material is polyalkyl(meth)acrylate being a copolymer comprising from 80.0 wt.-% to 100.0 wt.-%, preferably from 90.0 wt.-% to 99.9 wt.-%, more preferably from 95.0 wt.-% to 99.8 wt.-%, of methyl methacrylate units and from 0.0 wt.-% to 20.0 wt.-%, preferably from 0.1 wt.-% to 10.0 wt.-%, more preferably from 0.2 wt.-% to 5.0 wt.-% of C1-C10-alkyl acrylate units, based on the weight of the copolymer.

7. The polymeric composition according to any of Claims 1 to 6, wherein the second scattering particles comprise a crosslinked polysiloxane and the polymeric composition comprises from 0.07 wt.-% to 3.0 wt.-%, preferably from 0.09 wt.-% to 1.5 wt.-%, more preferably from 0.1 wt.-% to 1.0 wt.-% of the second scattering particles, based on the weight of the polymeric composition.

8. The polymeric composition according to any of Claims 1 to 6, wherein the second scattering particles comprise at least one of crosslinked polyalkyl(meth)acrylate and polystyrene and the polymeric composition comprises from 0.5 wt.-% to 5.0 wt.-%, preferably from 1.0 wt.-% to 5.0 wt.-%, more preferably from 2.0 wt.-% to 5.0 wt.-% of the second scattering particles, based on the weight of the polymeric composition.

9. The polymeric composition according to any of Claims 1 to 8, wherein the half-value angle of the polymeric composition, measured with a specimen having a thickness of 2.0 mm according to the standard DIN 5036 (1980), is at least 5°, preferably at least 8°, more preferably at least 10°.

10. The polymeric composition according to any of Claims 1 to 9, wherein the yellowness index Y.I. of the polymeric composition, as defined in the standard ISO 17223 (2014)

(transmission, optical geometry 0:di, CIE standard illuminant D65, colour system $X_{10}Y_{10}Z_{10}$), measured with a specimen having a thickness of 2.0 mm, is not more than 5.0, preferably not more than 4.0, more preferably not more than 3.5.

11. The polymeric composition according to any of Claims 1 to 10, wherein the transmittance (D_{65}) of the polymeric composition is at least 50%, preferably at least 55%, more preferably at least 60%, determined on a specimen with a thickness of 2.0 mm according to the standard ISO 13468-2.

12. The polymeric composition according to any of Claims 1 to 11, wherein the scattering impact of the polymeric composition is at least 5.0°, preferably at least 10.0°, wherein the scattering impact is defined as a product of the optical transmittance T D_{65} and the half-value angle.

13. A light scattering article comprising the polymeric composition according to any of Claims 1 to 12.

14. Process for the manufacturing of a light scattering article according to Claim 13 from the polymeric composition according to any of Claims 1 to 11, wherein the process comprises a process step selected from extrusion, injection moulding and cast moulding.