

Patent claims

1. A thermoplastic resin composition prepared from:
 - (I) 0.01 to 2 parts by weight, based on 100 parts by weight of
5 components (I) and (II), of a liquid formulation comprising
 - (a) 20 to 99 parts by weight, based on 100 parts by weight of
components (a) and (b), of at least one liquid carrier selected from the
group consisting of fatty acid esters of polyfunctional alcohols,
10 synthetic oils, vegetable oils, animal oils, mineral oils, fatty acids,
polyalkylene glycols, esters of polyalkylene glycols, silicones,
polyolefins, modified rosin, alkyl esters of polyfunctional carboxylic
acids, polyesters and water; and
 - 15 (b) 1 to 80 parts by weight, based on 100 parts by weight of
components (a) and (b), of at least one additive, which is different from
(a); and
 - (II) 98 to 99.99 parts by weight, based on 100 parts by weight of
20 components (I) and (II) of a polymer containing repeating units derived from
at least one ethylenically unsaturated monomer.
2. The thermoplastic resin composition according to claim 1, wherein the
at least one liquid carrier (a) of the liquid formulation (I) is selected from the
25 group consisting of sorbitan monooleate, ethoxylated sorbitan monooleate,
sorbitan trioleate, ethoxylated sorbitan trioleate, polybutylene,
polyisobutylene, canola oil, grindsted oil, mineral oil, water, oleic acid,
soybean oil, modified rosin, polyethylene glycol, polyethylene glycol esters,
silicones, dioctyl terephthalate, 1,2-cyclohexane dicarboxylic acid diisononyl
30 ester, dioctyl adipate, polyethylene adipate and diethyl phthalate.
3. The thermoplastic resin composition according to claim 1 or 2, wherein
the at least one liquid carrier (a) of the liquid formulation (I) is used in an
amount of 90 to 99 parts by weight, based on 100 parts by weight of
35 components (a) and (b), and is selected from the group consisting of sorbitan
monooleate, ethoxylated sorbitan monooleate, sorbitan trioleate, ethoxylated
sorbitan trioleate, polybutylene, polyisobutylene, canola oil, grindsted oil,

mineral oil, oleic acid, soybean oil, modified rosin, silicones, dioctyl terephthalate, 1,2-cyclohexane dicarboxylic acid diisononyl ester, dioctyl adipate, and diethyl phthalate.

- 5 4. The thermoplastic resin composition according to any one of claims 1 to 3, wherein the at least one additive (b) of the liquid formulation (I) is selected from the group consisting of primary antioxidants, secondary antioxidants, polymer process aids (PPA), slip additives, antistatic additives, neutralizing agents, hindered amine light stabilizers (HALS), UV absorbers, chemical foaming agents, antifog additives, tackifying agents, surface modifiers and colorants.
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- 15 5. The thermoplastic resin composition according to any one of claims 1 to 4, wherein the at least one additive (b) in the liquid formulation (I) is used in an amount of 1 to 10 parts by weight, based on 100 parts by weight of components (a) and (b), and is selected from the group consisting of primary antioxidants, secondary antioxidants, polymer process aids (PPA), slip additives and chemical foaming agents.
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- 25 6. The thermoplastic resin composition according to any one of claims 1 to 5, wherein the repeating units derived from an ethylenically unsaturated monomer in the polymer (II) are selected from the groups consisting of ethylene, alpha-olefins and styrene.
- 30 7. The use of a liquid formulation component (I) as defined in any one of claims 1 to 6 as a liquid additive concentrate in a thermoplastic resin composition, comprising a polymer containing repeating units derived from at least one ethylenically unsaturated monomer.
- 35 8. The use according to claim 7, wherein the repeating units, derived from ethylenically unsaturated monomers, are selected from the group consisting of ethylene, alpha-olefins and styrene.
9. A method for improving the technical efficiency of an additive in a thermoplastic resin composition comprising the step of dispersing or dissolving the additive (b) in a liquid carrier component (a) as defined in any one of claims 1 to 3 prior to the introduction of the additive (b) into the thermoplastic resin composition.

10. A method for reducing the decomposition rate of an additive (b) in a thermoplastic resin composition due to thermal processing or ageing of the composition, comprising the step of dispersing or dissolving the additive (b)
5 in a liquid carrier component (a) as defined in any one of claims 1 to 3 prior to the introduction of the additive (b) into the thermoplastic resin composition.
11. The method according to claim 9 or 10, wherein the additive (b) is used in an amount of 1 to 10 parts by weight, based on 100 parts by weight of components (a) and (b), which are as defined in claims 3 and 4.
- 10 12. The method according to any one of claims 9 to 11, wherein the thermoplastic resin composition comprises the polymer (II) as defined in claim 1 to 6.
- 15 13. The use of a liquid carrier component (a) as defined in any one of claims 1 to 3 for improving the technical efficiency and/or for reducing the decomposition rate of an additive (b) due to thermal processing or ageing in a thermoplastic resin composition.
- 20 14. The use according to claim 13, wherein the thermoplastic resin composition comprises the polymer (II) as defined in claim 1 to 6.
15. A kit of parts suitable for preparing a thermoplastic resin composition according to any one of claims 1 to 6, containing
25 (I) a liquid formulation comprising
(a) 20 to 99 parts by weight, based on 100 parts by weight of components (a) and (b), of at least one liquid carrier selected from the group consisting of fatty acid esters of polyfunctional alcohols,
30 synthetic oils, vegetable oils, animal oils, mineral oils, fatty acids, polyalkylene glycols, esters of polyalkylene glycols, silicones, polyolefins, modified rosin, alkyl esters of polyfunctional carboxylic acids, polyesters and water;
and
35 (b) 1 to 80 parts by weight, based on 100 parts by weight of components (a) and (b), of at least one additive, which is different from (a); and

(II) a polymer containing repeating units derived from at least one ethylenically unsaturated monomer.