

CLAIMS

1. Optically transparent polymer film or extrudate product made of a polymer composition comprising a semi-crystalline polyamide (A) wherein the semi-crystalline polyamide (A) is a semi-crystalline semi-aromatic polyamide or a blend thereof with a semi-crystalline aliphatic polyamide, has a melting temperature (T_m -A) of at least 270 °C and is present in an amount of at least 60 wt.% ~~in case the semi-crystalline polyamide (A) consists of a semi-aromatic semi-crystalline polyamide or of a blend of a semi-aromatic semi-crystalline polyamide and an aliphatic semi-crystalline polyamide, or at least 75 wt.% the case the semi-crystalline polyamide (A) consists of an aliphatic semi-crystalline polyamide,~~ wherein the wt.% is relative to the total weight of the polymer composition, the polymer composition has a melting temperature (T_m -C) of at least 270°C, and the film or a part of the extrudate product has a haze of less than 12 % and a light transmittance of at least 88 %, measured with the method according to ASTM D1003A.
2. Film or product according to claim 1, wherein the polymer composition has a melting enthalpy, of at least 25 J/g, measured according to ASTM D3418-03 by DSC in the second heating run with a heating rate of 10°C/min.
3. Film or product according to claim 1 or 2, wherein the semi-crystalline polyamide (A) is a semi-crystalline semi-aromatic copolyamide comprising repeat units derived from:
 - (a) 25-45 mole % terephthalic acid,
 - (b) 5-25 mole % of an aromatic dicarboxylic acid different from terephthalic acid, and/or an aliphatic dicarboxylic acid,
 - (c) 5-30 mole% of an diamine chosen from the group consisting of ethylene diamine, trimethylene diamine, tetramethylene diamine and pentamethylene diamine,
 - (d) 20-45% of a diamine comprising at least 6 C-atoms, and optionally
 - (e) 0 - 10 mole % of one or more aminocarboxylic acids and or lactams
 - (f) 0-3 mole % of compounds being mono-functional or tri-functional in amino and /or carboxylic acid groups;wherein the mole % of each of a-f is relative to the total of a-f.
4. Film or product according to claim 1 or 2, wherein the semi-crystalline polyamide (A) is polytetramethylene adipamide, or a copolyamide thereof, comprising (i) repeat units derived from tetramethylene diamine and adipic acid and (ii) repeat units

derived from other diacids, diamines and/or amino carboxylic acids and/or lactams, wherein the repeat units (i) derived from tetramethylene adipamide are present in an amount of at least 75 wt.%, relative to the total weight of the copolyamide.

5. Film or product according to any of claims 1-4, wherein the polymer composition comprises at least one other polymer and/or at least one additive.
6. Film or product according to any of claims 1-5, wherein the polymer composition comprises an amorphous semi-aromatic polyamide and/or a semi-crystalline aliphatic or semi-aromatic polyamide having a melting temperature below 270°C.
7. Film or product according to any of claims 1-6, wherein the polymer composition consists of
 - (A) 60 – 100 wt.% of the semi-crystalline polyamide,
 - (B) 0 – 40wt.% of at least one other polymer
 - (C) 0 – 10 wt.% of the at least one additivewherein the wt.% are relative to the total weight of the polymer composition.
8. Film or product according to any of claims 1-7, wherein the film or a part of the product has a thickness of at most 500 µm.
9. Film or product according to any of claims 1-8, wherein the film or a part of the product has a haze of less than 5 % and a light transmittance of at least 90 % when measured according to ASTM D1003A.
10. Process for preparing a transparent polymer film, comprising steps wherein
 - (1) a polymer composition as according to claim 1 is heated and melt- extruded through a slit die to form an extruded polymer layer;
 - (2) the extruded polymer layer is led over a chilling role having a temperature below 40 °C, thereby forming a polymer film, and
 - (3) the polymer film is collected,wherein the polymer film has a haze of less than 12 % and a light transmittance of at least 88 % when measured according to ASTM D1003A.
- ~~11. Process according to claim 10, wherein the slit die and the chilling role are separated from each other by a distance of at most 1.3 cm and the chilling role has a surface temperature of at most 8°C, more preferably the chilling role is cooled with ice water.~~
- 12.11. Process for after-treatment of a polymer film, wherein a transparent polymer film according to any of claim 1-9 or obtained by the process according to claim 10 or 11, is subjected to a drawing step wherein the film is stretched, and/or a heat setting and/or an annealing step, wherein transparent polymer film, having a glass transition temperature (Tg) and a melting temperature (Tm), is heated to or kept for a certain period at a temperature between the Tg and Tm.

| ~~43.~~12. Process for preparing an extrudate product comprising steps wherein

- i. a polymer composition as according to claim 1 is melt extruded through a die;
- ii. the extruded polymer composition is led through a quenching liquid having a temperature below 40 °C, thereby forming a solid product, and
- iii. the solid product is collected,

wherein the solid product comprises a part having a haze of less than 12 % and a light transmittance of at least 88 % when measured according to ASTM D1003A.

| ~~44.~~13. Steam-sterilizable medical article comprising an extrudate product according to any of claims 1-9.

| ~~45.~~14. Use of a transparent polymer film according to any of claims 1-9 or obtainable by a process according to claim 12 or 13 in packaging materials or in electrical and electronic applications.