CLAIMS

[Claim 1]. A biaxially oriented polypropylene film comprising a composition comprising a polypropylene and a beta-nucleating agent, wherein

- the biaxially oriented polypropylene film has a porosity calculated according to the following formula of less than 0.01, alternatively 0.001, alternatively 0.0001, alternatively 0.00001, alternatively about 0-0.00001,

  $$\text{Porosity} = [1-(d_1/d_0)] \bullet 100$$

  wherein d_1 is the density of the biaxially oriented polypropylene film after stretching, and

  d_0 is the density of the biaxially oriented polypropylene film before stretching; and

- the composition has a crystallization half-time at 136°C in the range of 1 to 10 min, preferably 2-6 min determined by differential scanning calorimetry under isothermal conditions; an MFR_2 in the range of 2-10 g/10 min, preferably 2-5 g/10 min, determined according to ASTM D-1238-13 at 230 °C 2.16 kg; and

- the polypropylene has a tacticity in the range of 93 to 99 %, preferably 94 to 98 %.

[Claim 2]. The biaxially oriented polypropylene film according to claim 1, wherein the beta-nucleating agent is selected from the group consisting of a metal phthalate, a metal salt, a metal hydrophthalate, or mixtures thereof.

[Claim 3]. The biaxially oriented polypropylene film according to claim 1 or 2, wherein the biaxially oriented polypropylene film has an OTR at 23 °C and 0 %RH of less than 10000 cc/m².day, preferably in the range of 500-5000 cc/m².day, most preferably 1000-3000 cc/m².day, according to ASTM D3985; and/or a WVTR at 38 °C and 90 %RH in the range of 1-20 g/m² · day, preferably 1-10 g/m² · day, according to ASTM F1249.

[Claim 4]. The biaxially oriented polypropylene film according to any of the preceding claims, wherein the biaxially oriented polypropylene film has a thickness of lamellar crystalline (Lc) of more than 22 nm, alternatively from 22 to 60 nm, preferably from 22 to 40 nm, most preferably 22-30 nm.

[Claim 5]. The biaxially oriented polypropylene film according to any of the preceding claims, wherein the biaxially oriented polypropylene film comprises the beta-nucleating agent in an amount from 250 to 1,500 ppm by weight,

alternatively 500 to 1,250 ppm by weight, preferably 700 to 1,200 ppm by weight, most preferably 900 to 1,100 ppm by weight, with respect to the total weight of the composition.

[Claim 6]. The biaxially oriented polypropylene film according to any of the preceding claims, wherein the biaxially oriented polypropylene film further comprises at least one additive selected from an antioxidant, a neutralizer, an inorganic filler, an organic filler or mixtures of two or more thereof.

[Claim 7]. The biaxially oriented polypropylene film according to any of the preceding claims, wherein the biaxially oriented polypropylene film has a thermal shrinkage by placing a 10x10 cm^2 sample of the biaxially oriented polypropylene film into hot-air oven at 120°C, 15 min in machine direction (MD) from 0 to 5 %, preferably 0-2% and transverse direction (TD) from 0 to 5 %, preferably 0-2%

[Claim 8]. The biaxially oriented polypropylene film according to any of the preceding claims, wherein the biaxially oriented polypropylene film has a thickness in the range from 10 to 70 μm, preferably 10 to 50 μm.

[Claim 9]. The biaxially oriented polypropylene film according to any of the preceding claims, wherein the composition has a melt flow rate in the range of 2-10 g/10 min, preferably 2 to 5 g/10 min determined according to ASTM D-1238-13 at 230 °C, 2.16 kg.

[Claim 10]. The biaxially oriented polypropylene film according to any of the preceding claims, wherein the biaxially oriented polypropylene film has a melt temperature (Tm) of film of at least 170°C, preferably 170-175°C.

[Claim 11]. The biaxially oriented polypropylene film according to any of the preceding claims, wherein the biaxially oriented polypropylene film has a haze of less than 7% according to ASTM D-1003 measured on thickness 20 μm, preferably has a haze of 1-6%, most preferably 1-3%.

[Claim 12]. Method for preparing the biaxially oriented polypropylene film according to any of the preceding claims, comprising the steps:

- mixing the polypropylene and the beta-nucleating agent to form pellets;
- extruding the pellets to form a film;
- casting the film with a chill roll temperature in the range of 30-70 °C, preferably 40-60 °C; and
- stretching and annealing the film in machine direction and transverse direction to form the biaxially oriented polypropylene film.

[Claim 13]. A multilayer film comprising the biaxially oriented polypropylene film according to any of the claims 1 to 11.

[Claim 14]. An article comprising the biaxially oriented polypropylene film according to any of the claims 1 to 11.

[Claim 15]. Use of the biaxially oriented polypropylene film according to any of the claims 1 to 11 in a packaging.