CLAIMS

1. Process for producing of a capacitor film comprising the steps of

(a) polymerizing propylene and optionally ethylene and/or at least one C_4 to C_{10} α-olefin in the presence of a catalyst comprising a solid catalyst system (SCS) obtaining a polypropylene (PP),

(b) subjecting said polypropylene (PP) to a film forming process obtaining a capacitor film,

wherein during the polymerization step (a) said catalyst comprising the solid catalyst system (SCS) fragments into nanosized catalyst fragments (F) being distributed in said polypropylene (PP), said solid catalyst system (SCS) comprises

(i) a compound of a transition metal which metal is preferably selected from one of the groups 4 to 6, in particular of group 4, like Ti, of the periodic table (IUPAC),

(ii) a compound of a metal which metal is selected from one of the groups 1 to 3 of the periodic table (IUPAC), and

(iii) an electron donor (E).

2. Process according to claim 1, wherein the solid catalyst system (SCS) is obtained by a process comprising contacting

(c) a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof,

with

(d) a liquid transition metal compound (CT) or a solution of a transition metal compound (CT).

3. Process for producing of a capacitor film comprising the steps of

(a) polymerizing propylene and optionally ethylene and/or at least one C_4 to C_{10} α-olefin in the presence of a catalyst comprising a solid catalyst system (SCS) to produce a polypropylene (PP),

(b) subjecting said polypropylene (PP) to a film forming process obtaining thereby a capacitor film,

wherein said solid catalyst system (SC) of step (a) is obtained by a process comprising contacting

(c) a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof,

with

(d) a liquid transition metal compound (CT) or a solution of a transition metal compound (CT),

wherein said catalyst comprising the solid catalyst system (SCS) fragments during the polymerization step (a) into nanosized catalyst fragments (F), said nanosized catalyst fragments (F) are distributed in the polypropylene (PP).

4. Process according to claim 3, wherein the solid catalyst system (SCS) comprises

(i) a compound of a transition metal which metal is preferably selected from one of the groups 4 to 6, in particular of group 4, like Ti, of the periodic table (IUPAC),

(ii) a compound of a metal which metal is selected from one of the groups 1 to 3 of the periodic table (IUPAC), and

(iii) an (internal) electron donor (E).

5. Process according to one of the preceding claims, wherein the polypropylene (PP)

(a) has <2,1> erythro regiodefects of equal or below 0.4 mol.-% determined by ^{13}C-NMR spectroscopy,

and/or

(b) has a breakdown voltage at 100°C of at least 350 AC /µm measured on a biaxially oriented polypropylene (BOPP) film made from said polypropylene (PP) at a draw ratio in machine direction and in transverse direction of 4.5 x 9.5

and/or

(c) fulfils the equation $\frac{(P75-P110)}{P75} \times 100 \leq 6.0$;

wherein

P75 is the permittivity measured at 50 Hz and 75 °C,

P110 is the permittivity measured at 50 Hz and 110 °C;

and/or

(d) fulfils the equation $\frac{(P75-P120)}{P75} \times 100 \leq 12.0$;

wherein

P75 is the permittivity measured at 50 Hz and 75 °C,

P120 is the permittivity measured at 50 Hz and 120 °C;

and/or

(e) fulfils the equation $\frac{(D75-D110)}{D75} \times 100 \geq -10.0$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C,

D110 is the dissipation (tan delta) measured at 50 Hz and 110 °C;

and/or

(f) fulfils the equation $\frac{(D75-D120)}{D75} \times 100 \geq 10.0$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C;

D120 is the dissipation (tan delta) measured at 50 Hz and 120 °C.

6. Process for producing of a capacitor film comprising the steps of subjecting a polypropylene (PP) with <2,1> erythro regiodefects of equal or below 0.4 mol.-% determined by ^{13}C-NMR spectroscopy to a film forming process, wherein said polypropylene (PP)

(a) has a breakdown voltage at 100°C of at least 350 AC /µm measured on a biaxially oriented polypropylene (BOPP) film made from said polypropylene

(PP) at a draw ratio in machine direction and in transverse direction of 4.5 x 9.5

and/or

(b) fulfils the equation $\frac{(P75-P110)}{P75} \times 100 \leq 6.0$;

wherein

P75 is the permittivity measured at 50 Hz and 75 °C,

P110 is the permittivity measured at 50 Hz and 110 °C;

and/or

(c) fulfils the equation $\frac{(P75-P120)}{P75} \times 100 \leq 12.0$;

wherein

P75 is the permittivity measured at 50 Hz and 75 °C,

P120 is the permittivity measured at 50 Hz and 120 °C;

and/or

(d) fulfils the equation $\frac{(D75-D110)}{D75} \times 100 \geq -10.0$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C,

D110 is the dissipation (tan delta) measured at 50 Hz and 110 °C;

and/or

(e) fulfils the equation $\frac{(D75-D120)}{D75} \times 100 \geq 10.0$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C;

D120 is the dissipation (tan delta) measured at 50 Hz and 120 °C.

7. Process according to claim 6, wherein the polypropylene (PP) is obtained by polymerizing propylene and optionally ethylene and/or at least one C_4 to C_{10} α-olefin in the presence of a catalyst comprising a solid catalyst system (SCS), wherein

(a) during the polymerization step said catalyst comprising the solid catalyst system (SCS) fragments into nanosized catalyst fragments (F) being distributed in said polypropylene (PP), said solid catalyst system (SCS) comprises

(i) a compound of a transition metal which metal is preferably selected from one of the groups 4 to 6, in particular of group 4, like Ti, of the periodic table (IUPAC),

(ii) a compound of a metal which metal is selected from one of the groups 1 to 3 of the periodic table (IUPAC), and

(iii) an (internal) electron donor (E),

and/or

(b) said solid catalyst system (SCS) is obtained by a process comprising contacting

(b1) a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof,

with

(b2) a liquid transition metal compound (CT) or a solution of a transition metal compound (CT).

8. Process according to one of the preceding claims, wherein the solid catalyst system (SCS)

(a) has a specific surface area measured according to ASTM D 3663 of less than 20 m^2/g

and/or

(b) comprises catalytically inactive solid material, wherein said material optionally has

(b1) a specific surface area below 500 m^2/g,

and/or

(b2) a mean particle size (d50) below 200 nm.

9. Process according to one of the preceding claims, wherein the polypropylene (PP) is

(a)

(i) a propylene homopolymer,

or

(ii) a random propylene copolymer with a comonomer content of equal or below 1.0 wt.-%, the comonomers are ethylene and/or at least one C_4 to C_{10} α-olefin,

and/or

(b) not subjected to a washing step.

10. Process according to one of the preceding claims, wherein the film forming process is a drawing process in which the polypropylen (PP) is drawn in machine direction and in transverse direction, wherein preferably the draw ratio in both directions is at least 4.0.

11. Process according to one of the preceding claims 1 to 4, 7 and 8, wherein the solid catalyst system (SCS) is obtained by

(a) preparing a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof in an organic solvent,

(b) mixing said solution of complex (C) with a liquid transition metal compound (CT),

(c) obtaining thereby an emulsion of a continuous phase and an dispersed phase, said dispersed phase is in form of droplets and comprises the complex (C) and the transition metal compound (CT),

(d) solidifying the droplets of the dispersed phase obtaining thereby the solid catalyst system (SCS).

12. Process according to claim 11, wherein

(a) a surfactant is used to form and/or stabilize the emulsion,

and/or

(b) the temperature during formation of the emulsion is equal or below 60 °C.

13. Process according to one of the preceding claims 1 to 4, 7 and 8, wherein the solid catalyst system (SCS) is obtained by

(a) preparing a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof in an organic solvent,

(b) combining said solution of complex (C) with a liquid transition metal compound (CT) or a solution of a transition metal compound (CT) resulting in a precipitation of said catalyst system (SCS) in the form of solid particles.

14. Process according to claim 13, wherein

(a) the temperature during precipitation is at least 50 °C,

and/or

(b) no emulsion is formed during the preparation of the solid catalyst system (SCS).

and/or

(c) either the solution of complex (C) or the liquid transition metal compound (CT) and the solution of a transition metal compound (CT), respectively contains solid material.

15. Process according to one of the preceding claims 1 to 4, 7, 8, and 11 to 14, wherein

(a) the solvent for preparing a solution of complex (C) comprises, preferably is, an aromatic hydrocarbon,

and/or

(b) the solvent for preparing a solution of the transition metal compound (CT) comprises, preferably is, a C_5 to C_{10} hydrocarbon.

16. Process according to one of the preceding claims, wherein after film forming the obtained capacitor film is metalized.

17. Propylene homopolymer (H-PP) with <2,1> erythro regiodefects of equal or below 0.4 mol.-% determined by ^{13}C-NMR spectroscopy, wherein said propylene homopolymer (H-PP) fulfils the equation

$$\frac{(P75-P110)}{P75} \times 100 \leq 6.0;$$

wherein

P75 is the permittivity measured at 50 Hz and 75 °C;

P110 is the permittivity measured at 50 Hz and 110 °C.

18. Propylene homopolymer (H-PP) according to claim 17, wherein further said propylene homopolymer (H-PP) additionally

(a) fulfils the equation

$$\frac{(P75-P120)}{P75} \times 100 \leq 12.0;$$

wherein

P75 is the permittivity measured at 50 Hz and 75 °C;

P120 is the permittivity measured at 50 Hz and 120 °C;

and/or

(b) fulfils the equation

$$\frac{(D75-D110)}{D75} \times 100 \geq -10.0$$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C,

D110 is the dissipation (tan delta) measured at 50 Hz and 110 °C;

and/or

(c) fulfils the equation

$$\frac{(D75-D120)}{D75} \times 100 \geq 10.0$$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C,

D120 is the dissipation (tan delta) measured at 50 Hz and 120 °C;

(d) has an ash content of below 5 ppm up to to 500 ppm;

and/or

(e) contains nanosized catalyst fragments (F) with a mean particle size d50 below 1 µm, preferably of 20 to 600 nm;

and/or

(f) has a melting temperature (T_m) of at least 155 °C;

and/or

(g) has crystallization temperature (T_c) of at least 110 °C;

and/or

(h) has an breakdown voltage at 100°C of equal or more than 350 AC /µm measured on a biaxially oriented polypropylene (BOPP) film of thickness of 6,5 to 7 µm made from said propylene homopolymer (H-PP) at a draw ratio in machine direction and in transverse direction of 4.5 x 9.5;

and/or

(i) has a field strength at breakdown being at least 550 VDC/µm measured on a biaxially oriented polypropylene (BOPP) film of thickness of 6,5 to 7 µm made from said propylene homopolymer (H-PP) at a draw ratio in machine direction and in transverse direction of 4.5 x 9.5.

19. Capacitor film comprising a propylene homopolymer (H-PP) according to claim 17 or 18.

20. Capacitor film comprising a polypropylene (PP), said polypropylene (PP) contains catalyst fragments (F), wherein

(a) the polypropylene (PP) has <2,1> erythro regiodefects of equal or below 0.4 mol.-% determined by ^{13}C-NMR spectroscopy

and/or

(b) the catalyst fragments (F) have a mean particle size (d50) of below 1 µm.

21. Capacitor film according to one of the preceding claims 19 or 20, wherein the polypropylene (PP) or the propylene homopolymer (H-PP) is obtained in the presence of a catalyst comprising a solid catalyst system (SCS) as defined in one of the claims 1 to 4, 7, 8, and 11 to 15.

22. Capacitor comprising a capacitor film according any one of the preceding claims 19 to 21.

CLAIMS

1. Process for producing of a capacitor film comprising the steps of
   (a) polymerizing propylene and optionally ethylene and/or at least one C_4 to C_{10} α-olefin in the presence of a catalyst comprising a solid catalyst system (SCS) obatining a polypropylene (PP),
   (b) subjecting said polypropylene (PP) to a film forming process obtaining a capacitor film,
   wherein during the polymerization step (a) said catalyst comprising the solid catalyst system (SCS) fragments into nanosized catalyst fragments (F) being distributed in said polypropylene (PP), said solid catalyst system (SCS) comprises
   (i) a compound of a transition metal which metal is preferably selected from one of the groups 4 to 6, in particular of group 4, like Ti, of the periodic table (IUPAC),
   (ii) a compound of a metal which metal is selected from one of the groups 1 to 3 of the periodic table (IUPAC), and
   (iii) an electron donor (E).

2. Process according to claim 1, wherein the solid catalyst system (SCS) is obtained by a process comprising contacting
   (c) a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof,
   with
   (d) a liquid transition metal compound (CT) or a solution of a transition metal compound (CT).

3. Process for producing of a capacitor film comprising the steps of
   (a) polymerizing propylene and optionally ethylene and/or at least one C_4 to C_{10} α-olefin in the presence of a catalyst comprising a solid catalyst system (SCS) to produce a polypropylene (PP),
   (b) subjecting said polypropylene (PP) to a film forming process obtaining thereby a capacitor film,
   wherein said solid catalyst system (SC) of step (a) is obtained by a process comprising contacting

(c) a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof,

with

(d) a liquid transition metal compound (CT) or a solution of a transition metal compound (CT).

4. Process according to claim 3, wherein said catalyst comprising the solid catalyst system (SCS) fragments during the polymerization step (a) into nanosized catalyst fragments (F), said nanosized catalyst fragments (F) are distributed in the polypropylene (PP).

5. Process according to claim 3 or 4, wherein the solid catalyst system (SCS) comprises

(i) a compound of a transition metal which metal is preferably selected from one of the groups 4 to 6, in particular of group 4, like Ti, of the periodic table (IUPAC),

(ii) a compound of a metal which metal is selected from one of the groups 1 to 3 of the periodic table (IUPAC), and

(iii) an (internal) electron donor (E).

6. Process according to one of the preceding claims, wherein the polypropylene (PP)

(a) has <2,1> erythro regiodefects of equal or below 0.4 mol.-% determined by ^{13}C-NMR spectroscopy,

and/or

(b) has a breakdown voltage at 100°C of at least 350 AC /µm measured on a biaxially oriented polypropylene (BOPP) film made from said polypropylene (PP) at a draw ratio in machine direction and in transverse direction of 4.5 x 9.5

and/or

(c) fulfils the equation $\frac{(P75-P110)}{P75} \times 100 \leq 6.0$;

wherein

P75 is the permittivity measured at 50 Hz and 75 °C,
P110 is the permittivity measured at 50 Hz and 110 °C;

and/or

(d) fulfils the equation $\frac{(P75-P120)}{P75} \times 100 \leq 12.0$;

wherein
P75 is the permittivity measured at 50 Hz and 75 °C,
P120 is the permittivity measured at 50 Hz and 120 °C;

and/or

(e) fulfils the equation $\frac{(D75-D110)}{D75} \times 100 \geq -10.0$

wherein
D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C,
D110 is the dissipation (tan delta) measured at 50 Hz and 110 °C;

and/or

(f) fulfils the equation $\frac{(D75-D120)}{D75} \times 100 \geq 10.0$

wherein
D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C;
D120 is the dissipation (tan delta) measured at 50 Hz and 120 °C.

7. Process for producing of a capacitor film comprising the steps of subjecting a polypropylene (PP) with <2,1> erythro regiodefects of equal or below 0.4 mol.-% determined by ^{13}C-NMR spectroscopy to a film forming process, wherein said polypropylene (PP)

(a) has a breakdown voltage at 100°C of at least 350 AC /µm measured on a biaxially oriented polypropylene (BOPP) film made from said polypropylene (PP) at a draw ratio in machine direction and in transverse direction of 4.5 x 9.5

and/or

(b) fulfils the equation $\frac{(P75-P110)}{P75} \times 100 \leq 6.0$;

wherein
P75 is the permittivity measured at 50 Hz and 75 °C,
P110 is the permittivity measured at 50 Hz and 110 °C;

and/or

(c) fulfils the equation $\frac{(P75-P120)}{P75} \times 100 \leq 12.0$;

wherein

P75 is the permittivity measured at 50 Hz and 75 °C,

P120 is the permittivity measured at 50 Hz and 120 °C;

and/or

(d) fulfils the equation $\frac{(D75-D110)}{D75} \times 100 \geq -10.0$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C,

D110 is the dissipation (tan delta) measured at 50 Hz and 110 °C;

and/or

(e) fulfils the equation $\frac{(D75-D120)}{D75} \times 100 \geq 10.0$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C;

D120 is the dissipation (tan delta) measured at 50 Hz and 120 °C.

8. Process according to claim 7, wherein the polypropylene (PP) is obtained by polymerizing propylene and optionally ethylene and/or at least one C_4 to C_{10} α-olefin in the presence of a catalyst comprising a solid catalyst system (SCS), wherein

(a) during the polymerization step said catalyst comprising the solid catalyst system (SCS) fragments into nanosized catalyst fragments (F) being distributed in said polypropylene (PP), said solid catalyst system (SCS) comprises

(i) a compound of a transition metal which metal is preferably selected from one of the groups 4 to 6, in particular of group 4, like Ti, of the periodic table (IUPAC),

(ii) a compound of a metal which metal is selected from one of the groups 1 to 3 of the periodic table (IUPAC), and

(iii) an (internal) electron donor (E),

and/or

(b) said solid catalyst system (SCS) is obtained by a process comprising contacting

(b1) a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof,

with

(b2) a liquid transition metal compound (CT) or a solution of a transition metal compound (CT).

9. Process according to one of the preceding claims, wherein the solid catalyst system (SCS)

(a) has a specific surface area measured according to ASTM D 3663 of less than 20 m^2/g

and/or

(b) comprises catalytically inactive solid material, wherein said material optionally has

(b1) a specific surface area below 500 m^2/g,

and/or

(b2) a mean particle size (d50) below 200 nm.

10. Process according to one of the preceding claims, wherein the polypropylene (PP) is

(a)

(i) a propylene homopolymer,

or

(ii) a random propylene copolymer with a comonomer content of equal or below 1.0 wt.-%, the comonomers are ethylene and/or at least one C_4 to C_{10} α-olefin,

and/or

(b) not subjected to a washing step.

11. Process according to one of the preceding claims, wherein the film forming process is a drawing process in which the polypropylen (PP) is drawn in machine direction and in transverse direction, wherein preferably the draw ratio in both directions is at least 4.0.

12. Process according to one of the preceding claims 1 to 5, 8 and 9, wherein the solid catalyst system (SCS) is obtained by

(a) preparing a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof in an organic solvent,

(b) mixing said solution of complex (C) with a liquid transition metal compound (CT),

(c) obtaining thereby an emulsion of a continuous phase and an dispersed phase, said dispersed phase is in form of droplets and comprises the complex (C) and the transition metal compound (CT),

(d) solidifying the droplets of the dispersed phase obtaining thereby the solid catalyst system (SCS).

13. Process according to claim 12, wherein

(a) a surfactant is used to form and/or stabilize the emulsion,

and/or

(b) the temperature during formation of the emulsion is equal or below 60 °C.

14. Process according to one of the preceding claims 1 to 5, 8 and 9, wherein the solid catalyst system (SCS) is obtained by

(a) preparing a solution of a complex (C) of a metal which is selected from one of the groups 1 to 3 of the periodic table (IUPAC) and an electron donor (E), said complex (C) is obtained by reacting a compound (CM) of said metal with said electron donor (E) or a precursor (EP) thereof in an organic solvent,

(b) combining said solution of complex (C) with a liquid transition metal compound (CT) or a solution of a transition metal compound (CT) resulting in a precipitation of said catalyst system (SCS) in the form of solid particles.

15. Process according to claim 14, wherein

(a) the temperature during precipitation is at least 50 °C,

and/or

(b) no emulsion is formed during the preparation of the solid catalyst system (SCS).

and/or

(c) either the solution of complex (C) or the liquid transition metal compound (CT) and the solution of a transition metal compound (CT), respectively contains solid material.

16. Process according to one of the preceding claims 1 to 5, 8, 9, and 12 to 15, wherein

(a) the solvent for preparing a solution of complex (C) comprises, preferably is, an aromatic hydrocarbon,

and/or

(b) the solvent for preparing a solution of the transition metal compound (CT) comprises, preferably is, a C_5 to C_{10} hydrocarbon.

17. Process according to one of the preceding claims, wherein after film forming the obtained capacitor film is metalized.

18. Propylene homopolymer (H-PP) with <2,1> erythro region defects of equal or below 0.4 mol.-% determined by ^{13}C-NMR spectroscopy, wherein said propylene homopolymer (H-PP) fulfils the equation

$$\frac{(P75-P110)}{P75} \times 100 \leq 6.0;$$

wherein

P75 is the permittivity measured at 50 Hz and 75 °C;

P110 is the permittivity measured at 50 Hz and 110 °C.

19. Propylene homopolymer (H-PP) according to claim 18, wherein further said propylene homopolymer (H-PP) additionally

(a) fulfils the equation

$$\frac{(P75-P120)}{P75} \times 100 \leq 12.0;$$

wherein

P75 is the permittivity measured at 50 Hz and 75 °C;

P120 is the permittivity measured at 50 Hz and 120 °C;

and/or

(b) fulfils the equation

$$\frac{(D75-D110)}{D75} \times 100 \geq -10.0$$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C,

D110 is the dissipation (tan delta) measured at 50 Hz and 110 °C;

and/or

(c) fulfils the equation

$$\frac{(D75-D120)}{D75} \times 100 \geq 10.0$$

wherein

D75 is the dissipation (tan delta) measured at 50 Hz and 75 °C,

D120 is the dissipation (tan delta) measured at 50 Hz and 120 °C;

(d) has an ash content of below 5 ppm up to to 500 ppm;

and/or

(e) contains nanosized catalyst fragments (F) with a mean particle size d50 below 1 μm, preferably of 20 to 600 nm;

and/or

(f) has a melting temperature (T_m) of at least 155 °C;

and/or

(g) has crystallization temperature (T_c) of at least 110 °C;

and/or

(h) has an breakdown voltage at 100°C of equal or more than 350 AC /μm measured on a biaxially oriented polypropylene (BOPP) film of thickness of

6,5 to 7 µm made from said propylene homopolymer (H-PP) at a draw ratio in machine direction and in transverse direction of 4.5 x 9.5;

and/or

(i) has a field strength at breakdown being at least 550 VDC/µm measured on a biaxially oriented polypropylene (BOPP) film of thickness of 6,5 to 7 µm made from said propylene homopolymer (H-PP) at a draw ratio in machine direction and in transverse direction of 4.5 x 9.5.

20. Capacitor film comprising a propylene homopolymer (H-PP) according to claim 18 or 19.

21. Capacitor film comprising a polypropylene (PP), said polypropylene (PP) contains catalyst fragments (F).

22. Capacitor film according to claim 21, wherein

(a) the polypropylene (PP) has <2,1> erythro region defects of equal or below 0.4 mol.-% determined by ^{13}C-NMR spectroscopy

and/or

(b) the catalyst fragments (F) have a mean particle size (d50) of below 1 µm.

23. Capacitor film according to one of the preceding claims 20 to 22, wherein the polypropylene (PP) or the propylene homopolymer (H-PP) is obtained in the presence of a catalyst comprising a solid catalyst system (SCS) as defined in one of the claims 1 to 5, 8, 9, and 12 to 16.

24. Capacitor comprising a capacitor film according any one of the preceding claims 20 to 23.