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Datasheet for the decision of 6 March 2014

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Language of the proceedings: EN

Title of invention:
FLEXIBLE RESIN PELLET AND PROCESS FOR PRODUCING THE SAME

Patent Proprietor:
Mitsui Chemicals, Inc.

Opponent:
Evonik Degussa GmbH

Headword:

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
Inventive step - main request and auxiliary requests 1 to 5 (no)
Amendments - auxiliary requests 6 to 8 - added subject-matter (yes)

Decisions cited:
T 0686/99, T 0872/01

Catchword:

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Case Number: T 0429/11 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 6 March 2014

Appellant: (Patent Proprietor)	Mitsui Chemicals, Inc. 5-2, Higashi-Shimbashi 1-Chome Minato-ku Tokyo (JP)
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Representative:	Dittmar, Kersten Evonik Degussa GmbH DG-IPM-PAT Bau 1042 / PB 15 Paul-Baumann-Straße 1 45764 Marl (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 3 December 2010 revoking European patent No. 1403313 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

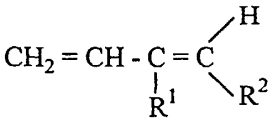
Chairman: B. ter Laan
Members: O. Dury
C. Vallet

Summary of Facts and Submissions

I. The appeal by the patent proprietor lies against the decision of the opposition division posted on 3 December 2010 revoking European patent No. EP 1 403 313, based on application No. 01 921 911.2 filed on 19 April 2001 as international application PCT/JP2001/003352 published as WO 2002/085979.

II. The application as filed contained 12 claims, of which claim 1 read as follows:

"1. A soft resin pellet comprising;
at least one liquid (B) having a kinematic viscosity at 25°C ranging from 0.5 to 100,000 cSt (centistokes) and a surface tension at 25°C ranging from 10 to 50 dyn/cm, and
at least one kind of fine powder (C) of an average particle diameter of not more than 50 μm,
which adhere to the surface of pellets of at least one soft resin (A) selected from the group consisting of the resins (i)-(v) below and having a tensile modulus (YM: ASTM D-658) not higher than 1600 MPa:
(i) ethylene/ α-olefin copolymers produced by copolymerizing ethylene and at least one α-olefin of 3-20 carbon atoms,
(ii) propylene/ α-olefin copolymers produced by copolymerizing propylene and at least one α-olefin of 2 or 4-20 carbon atoms,
(iii) unsaturated olefin copolymers produced by copolymerizing randomly ethylene, at least one α-olefin of 3-20 carbon atoms, and at least one monomer selected from the group consisting of conjugated diene monomers represented by the chemical formula below and nonconjugated polyene monomers:



(in the chemical formula, R^1 and R^2 denoting independently a hydrogen atom, an alkyl group of 1-8 carbon atoms, or an aryl group, and at least one of R^1 and R^2 is a hydrogen atom)
(iv) ethylene/vinyl acetate copolymers containing vinyl acetate at a content ranging from 5 to 40% by weight, and
(v) cycloolefin resins."

III. The granted patent was based on 12 claims, of which claim 1 corresponded to claim 1 as originally filed in which the determination methods of the kinematic viscosity and of the surface tension were additionally specified.

IV. An opposition against the patent was filed, requesting revocation of the patent in its entirety on the grounds of Art. 100 (a) EPC (lack of novelty and of inventive step) and Art. 100(b) EPC.

V. The following documents have been *inter alia* cited in the opposition proceedings:

D1: WO 01/12716
D5: US 4 027 067
D7: Product Data Sheet of 200® Fluid 50cs, 100cs, 200cs, 350cs, 500cs, 1000cs, Dow Corning Corporation, 2000
D10: Experimental data filed by the patent proprietor with letter of 6 August 2010

VI. In the appealed decision, the invention was held to be sufficiently disclosed (Art. 83 EPC). The pending main and auxiliary requests were further considered to be novel, in particular over D1. However, claim 1 of each of the requests was found not to be inventive over D1, in particular its Sample 7, in combination with D5 and/or D7.

VII. On 3 February 2011, the patent proprietor (appellant) lodged an appeal against the above decision. The prescribed fee was paid on the same day. In its statement of grounds of the appeal filed on 13 April 2011 the appellant requested that the decision of the opposition division be set aside and that the patent be maintained in amended form according to either the main request or any of auxiliary requests 1-5 filed therewith.

VIII. By letter dated 22 August 2011 the opponent (respondent) requested that the appeal be dismissed. The following document was also filed:

D9: Product Data Sheet of 200® Fluid 60,000 cs, 100,000 cs, Dow Corning Corporation, 2000

IX. In a communication accompanying the summons to oral proceedings issued on 17 January 2014 the Board set out its preliminary view of the case.

X. By letter dated 6 February 2014, the appellant requested that the patent be maintained on the basis of a new main request or, alternatively, any of auxiliary requests 1-8 filed therewith in replacement of all previous requests.

Claim 1 of the main request read as follows (as compared to claim 1 of the application as filed, additions are indicated in **bold**, deletions in ~~strikethrough~~):

"1. A soft resin pellet comprising;
at least one liquid (B) **which is a silicone oil and has** ~~having~~ a kinematic viscosity at 25 °C **(measured according to JIS K-2283)** ranging from 0.5 to 100,000 cSt (centistokes) and a surface tension at 25°C **(measured by the capillary-rise method)** ranging from 10 to 50 dyn/cm, and
at least one kind of fine powder (C) **which is a fatty acid or a fatty acid derivative and has** ~~of~~ an average particle diameter of not more than 50 µm,
which adhere to the surface of pellets of at least one soft resin (A) selected from the group consisting of the resins (i)-(v) below and having a tensile modulus (YM: ASTM D-658) **of 1 to 150 MPa** ~~not higher than 1600 MPa~~:
(i) ... (v)."

To facilitate the reading of the present decision the nature of polymers (i) to (v) will not be indicated hereinafter when no change was made in comparison to claim 1 of the application as filed.

Claim 1 of auxiliary request 1 corresponded to claim 1 of the main request wherein alternatives (iv) and (v) for the soft resin (A) were deleted.

Claim 1 of auxiliary request 2 read as follows:

"1. A soft resin pellet comprising;
at least one liquid (B) **which is a silicone oil and has** ~~having~~ a kinematic viscosity at 25 °C **(measured**

according to JIS K-2283) ranging from **200 to 1,000 cSt** ~~0.5 to 100,000 cSt~~ (centistokes) and a surface tension at 25°C **(measured by the capillary-rise method)** ranging from 10 to 50 dyn/cm, and
at least one kind of fine powder (C) **which is a calcium stearate having** ~~of~~ an average particle diameter of not more than 50 µm,
which adhere to the surface of pellets of at least one soft resin (A) selected from the group consisting of the resins (i)-(v) below and having a tensile modulus (YM: ASTM D-658) **of 1 to 150 MPa** ~~not higher than 1600 MPa~~:
(i) ... (v)."

Claim 1 of auxiliary request 3 corresponded to claim 1 of auxiliary request 2 wherein alternatives (iv) and (v) for the soft resin (A) were deleted.

Claim 1 of auxiliary request 4 read as follows:

"1. A soft resin pellet comprising;
at least one liquid (B) **which is a dimethyl polysiloxane and has** ~~having~~ a kinematic viscosity at 25 °C **(measured according to JIS K-2283)** ranging from 0.5 to 100,000 cSt (centistokes) and a surface tension at 25°C **(measured by the capillary-rise method)** ranging from 10 to 50 dyn/cm, and
at least one kind of fine powder (C) **which is a calcium stearate having** ~~of~~ an average particle diameter of not more than 50 µm,
which adhere to the surface of pellets of at least one soft resin (A) selected from the group consisting of the resins (i)-(v) below and having a tensile modulus (YM: ASTM D-658) **of 1 to 150 MPa** ~~not higher than 1600 MPa~~:
(i) ... (v)."

Claim 1 of auxiliary request 5 corresponded to claim 1 of auxiliary request 4 wherein alternatives (iv) and (v) for the soft resin (A) were deleted.

Claim 1 of auxiliary request 6 read as follows:

"1. A soft resin pellet comprising;
at least one liquid (B) **which is a silicone oil and has** ~~having~~ a kinematic viscosity at 25 °C **(measured according to JIS K-2283)** ranging from 0.5 to 100,000 cSt (centistokes) and a surface tension at 25°C **(measured by the capillary-rise method)** ranging from 10 to 50 dyn/cm, and
at least one kind of fine powder (C) **which is a calcium stearate having** ~~of~~ an average particle diameter of not more than 50 µm,
which adhere to the surface of pellets of at least one soft resin (A) selected from **ethylene/α-olefin copolymers produced by copolymerizing ethylene and at least one α-olefin of 3-20 carbon atoms** ~~the group consisting of the resins (i) - (v) below~~ and having a tensile modulus (YM: ASTM D-658) **of 1 to 9.5 MPa** ~~not higher than 1600 MPa:~~
~~(i) ... (v)~~."

Claim 1 of auxiliary request 7 read as follows:

"1. A soft resin pellet comprising;
at least one liquid (B) **which is a silicone oil and has** ~~having~~ a kinematic viscosity at 25 °C **(measured according to JIS K-2283)** ranging from 0.5 to 100,000 cSt (centistokes) and a surface tension at 25°C **(measured by the capillary-rise method)** ranging from 10 to 50 dyn/cm, and

at least one kind of fine powder (C) **which is a calcium stearate having** ~~of~~ an average particle diameter of not more than 50 µm,
which adhere to the surface of pellets of at least one soft resin (A) selected from **ethylene/α-olefin copolymers produced by copolymerizing ethylene and at least one α-olefin of 3-20 carbon atoms** ~~the group consisting of the resins (i) - (v) below~~ and having a tensile modulus (YM: ASTM D-658) **of 1 to 150 MPa** ~~not higher than 1600 MPa~~ **and a density of 0.855 to 0.915 g/cm^3**:
~~(i) ... (v)~~."

Claim 1 of auxiliary request 8 corresponded to claim 1 of auxiliary request 7 wherein the range for the tensile modulus was further amended to **"of 1 to 9.5 MPa"**.

XI. The appellant's arguments relevant for the present decision may be summarised as follows:

Main request

a) D1 failed to disclose the specific combination of components (A), (B) and (C) according to claim 1. Regarding the components used in the examples of D1, it had neither been shown that the resins had a tensile modulus, nor that the calcium stearate had an average particle diameter as defined in claim 1.

It was also not apparent when D7 and D9 had been published and there was no evidence that the materials disclosed in D1 corresponded to those referred to in either D7 or D9. It had also not been shown that D7 and D9 had been available to

the public at the filing/priority date of D1. Therefore, no information concerning products disclosed in D1 could be derived from D7 and/or D9.

Therefore, novelty over D1 was given.

b) Starting from Sample 7 of D1 as the closest prior art, the problem to be solved was to provide soft olefin copolymer rubbers having improved anti-blocking properties as compared to those of D1.

The solution to that problem resided in the pellets according to claim 1. The subject-matter of claim 1 differed from D1 at least in the specific combination of components (A), (B) and (C), which was not disclosed in D1.

Regarding the question whether the problem had been solved by the claimed subject-matter, D10 showed that calcium stearate as fine powder (C) led to improved anti-blocking properties compared to talc, when used in combination with a dimethyl polysiloxane as silicone oil (B). In that respect, the examples of D10 in which calcium stearate was used, had been carried out in accordance with example 1 of the patent in suit. The fact that the calcium stearate and the talc used in D10 had a different particle size was irrelevant because the pellets were completely covered by the fine powder (C).

In the absence of any evidence to the contrary, achieving the effect shown in D10 had to be held plausible for the whole scope of the claim.

D1 did not address the problem to be solved identified above and did not even mention very soft pellets having a tensile modulus according to claim 1 of the main request. For that reason, D1 could not provide a solution to the problem solved.

Considering that Sample 7 of D1 already provided "free-flowing" pellets, i.e. pellets that did not stick at all, the skilled person would not have been motivated to look for other alternatives. In the examples of D1, the silicone oil and the fatty acid were used in much higher amounts than in claim 1 of the main request.

Under these circumstances, the subject-matter claimed was not obvious over D1.

c) D5 was directed to an anti-blocking treatment of polymeric particles using a combination of polyhydrocarbylsiloxane and alkali metal salts of higher carboxylic acids. D5 was neither directed to very soft resin particles nor did it provide a hint to replace the calcium stearate of D1 by other fatty acid derivatives in order to improve the anti-blocking properties.

D7 referred to components only disclosed in D5 (not in D1) and could not be used on its own in combination with D1, as done by the opposition division.

Hence, an inventive step was also present in view of D1 in combination with either D5 or D7.

Auxiliary requests 1 to 5

d) The same reasoning as for the main request was also valid for each of auxiliary requests 1 to 5.

Auxiliary request 6

e) Claim 1 corresponded to a limitation of original claim 1 to soft resins according to embodiment (i) and further having a tensile modulus of 1 to 9.5 MPa, silicone oils as liquid (B) and calcium stearate as fine powder (C). The silicone oil and calcium stearate were both disclosed as preferred embodiments for components (B) and (C) in the application as filed. In that respect, silicone oils were the only components (B) that had been specified in great detail in the application as filed and all examples illustrative of the invention had been performed using dimethyl polysiloxane. Regarding the fine powder (C), it was indicated in the last line of page 39 and in line 5 of page 40 of the application as filed that fatty acid (derivatives) were preferably used. Calcium stearate was further used in all the examples illustrative of the invention of the application as filed. Finally, the value of 9.5 MPa for the soft resin (A) corresponded to the higher one of both values disclosed in examples 1 and 4 of the application as filed, which were the only ones that had been carried out using a resin corresponding to embodiment (i) according to original claim 1.

Therefore, the requirements of Art. 123(2) EPC were satisfied.

Auxiliary request 7

f) Claim 1 corresponded to a limitation of original claim 1 to soft resins (i) having a tensile modulus of 1 to 150 MPa and a specific density, silicone oils as liquid (B) and calcium stearate as fine powder (C). Support for the amendments concerning the soft resin was provided on page 10, third paragraph of the application as filed. Regarding components (B) and (C), the same argumentation as for auxiliary request 6 could be followed. Therefore, the subject-matter of claim 1 was directly and unambiguously derivable from the original application as a whole.

Auxiliary request 8

g) Claim 1 was a limitation of claim 1 according to auxiliary request 7 in terms of the tensile modulus in the same manner as claim 1 of auxiliary request 6. The requirements of Art. 123(2) EPC were met for the same reasons as for auxiliary requests 6 and 7.

XII. The respondent's arguments relevant for the present decision may be summarised as follows:

Main request

a) D1 disclosed polymer particles comprising an anti-blocking agent and a binder. The polymer could be an ethylene copolymer resin according to operative claim 1 and it was preferred that the polymer exhibited a modulus below 345 MPa at 25°C. The binding agent generally had a viscosity of 50 to 60,000 centistokes and was preferably dimethyl

polysiloxane, e.g. available from Dow. D7 and D9 showed that such oils had a kinematic viscosity and a surface tension according to claim 1 of the main request. The preferred anti-blocking agents disclosed in D1 were calcium stearate and talc. In the examples of D1, pellets were prepared that comprised a combination of dimethyl polysiloxane and calcium stearate. Under these circumstances the specific combination of features according to operative claim 1 was directly derivable from D1.

b) The subject-matter of claim 1 differed from Sample 7 of D1, which was the closest prior art, at most in that it required a specific combination of resin (A), binder (B) and anti-blocking agent (C). However, each of these components was encompassed by the teaching of D1. The combination dimethyl polysiloxane and calcium stearate was even disclosed amongst the best embodiments of D1 (Tables 1 and 2). The tensile modulus range mentioned in operative claim 1 was encompassed by that disclosed in D1. In addition, the appellant had not shown that any of the ranges of kinematic viscosity, surface tension, average particle diameter and/or tensile modulus specified in operative claim 1 was related to any technical effect.

The appellant had further not provided any evidence to reverse the conclusion drawn in the contested decision that D10 did not demonstrate a surprising effect in relation to the specific combination of components specified in claim 1. On the contrary, following the argumentation of the appellant that the examples of D10 illustrative of the invention were made in accordance with

example 1 of the patent in suit, the comparison made in D10 was not fair, so that no conclusion could be drawn from D10. In that respect, it was obvious that the particle size of the fine powder (C) that was used to cover the surface of the sticky polymer particles had an impact on the anti-sticking properties.

In the absence of any surprising technical effect, the subject-matter of operative claim 1 was an obvious combination of features within the ambit of D1.

c) Operative claim 1 was directed to fine powders (C) which were fatty acids and derivatives thereof in general, not limited to calcium stearate. Considering that the opposition division had concluded that an inventive step was lacking, it would have been the duty of the appellant to render credible that the technical problem relied upon was effectively solved over the whole scope of the claim, i.e. in the present case also for other fine powders (C) different from calcium stearate. In the absence of such evidence, an inventive step should not be acknowledged.

d) For these reasons, the subject-matter of at least claim 1 was not inventive.

Auxiliary requests 1 to 5

e) The same reasoning as for the main request was also valid for each of auxiliary requests 1 to 5.

Auxiliary request 6

f) No preference for either silicone oil and/or calcium stearate and/or a soft resin according to embodiment (i) of original claim 1 could be derived from the original application. The value of tensile modulus of 9.5 MPa was only disclosed in relation to a specific example and could not be generalised to the subject-matter now being defined in claim 1.

Therefore, the specific combination of technical features according to claim 1 was not directly and unambiguously derivable from the application as filed, contrary to the requirements of Art. 123(2) EPC.

Auxiliary request 7

g) The selection of the tensile modulus and density ranges specified in operative claim 1 amounted to additional selections to the non-allowable combination of soft resin (i), silicone oil and calcium stearate of auxiliary request 6 having regard to the original description. Considering that there was no support in the application as filed for that specific combination of features, the requirements of Art. 123(2) EPC were not met.

Auxiliary request 8

h) The requirements of Art. 123(2) EPC were not satisfied for the same reasons as given in respect of auxiliary requests 6 and 7.

XIII. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request or, alternatively, on the basis of one of the auxiliary requests 1 to 8, all requests filed with letter dated 6 February 2014.

The respondent (opponent) requested that the appeal be dismissed.

XIV. The Board announced its decision at the end of the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. Novelty

2.1 Claim 1 of the main request is directed to soft resin pellets characterised in that they comprise:

(1) pellets of a soft resin component (A)
  (1-1) of at least one of the resins (i)—(v), and
  (1-2) having a tensile modulus of 1-150 MPa;
(2) a liquid component (B) which
  (2-1) is a silicone oil,
  (2-2) has a kinematic viscosity at 25°C of 0.5 to 100,000 cSt, and
  (2-3) has a surface tension at 25°C of 10 -50 dyn/cm; and

(3) a powder component (C) adhering to the surface of the pellets of resin (A), that

(3-1) is a fatty acid or a fatty acid derivative, and

(3-2) has an average particle diameter of not more than 50 µm.

The novelty objection against that claim was raised only in respect of D1.

2.2 Claim 1 of D1 discloses a composition comprising:
(a) polymer particles having
(1) a one millimeter penetration temperature of less than 75°C as determined by thermal mechanical analysis; or
(2) an unconfined yield strength of greater than about 15 Pounds per square foot (73 kilograms per square meter); or
(3) both (1) and (2);
(b) an effective amount of an anti-blocking agent; and
(c) an effective amount of a binding agent capable of binding the anti-blocking agent to the polymer particles.

2.2.1 The polymer particles (a) have a tendency to stick or block and are not substantially free-flowing (D1: page 1, second paragraph; page 5, lines 13-14). The polymers can be polymers comprising polymer units derived from ethylene and may further comprise units derived from a C_3-C_8 alpha-olefin, in particular propylene, 1-butene, 1-pentene, 1-hexene, 1-heptene and 1-octene, or units derived from a vinyl acetate (claims 9-12). Those polymers fall within the definition according to embodiments (i), (iii) and (iv) of claim 1 of the present main request. Such polymers are also disclosed e.g. on page 6, line 30 to page 7,

line 2; page 7, lines 6-7 (without indication of the nature of the comonomer); page 7, lines 3-4 (without indication of the amounts of the monomers) of D1, respectively. However, in D1 styrene containing polymers (i.e. not according to operative claim 1) are particularly preferred (page 10, lines 4-6).

Although it is indicated in D1 that polymer (a) is usually characterised by a modulus at 25°C of less than 345 MPa (page 6, lines 17-18), polymer resins having a tensile modulus comprised in the range of 1 to 150 MPa as specified in claim 1 of the main request are not explicitly disclosed. It has also neither been shown that the resins used in the examples of D1 fulfilled that requirement, nor that the parameters "one millimeter penetration temperature" or "unconfined yield strength" used in D1 to characterise the polymer particles were in any manner related to tensile modulus. Therefore, there is no evidence on file that D1 unambiguously discloses soft resins having a tensile modulus as defined in claim 1 of the main request.

2.2.2 The anti-blocking agent (b) of D1 may be organic or inorganic. Specific agents, in particular organic acids and metal organic esters, are mentioned in claim 18 and on page 16, lines 22-29 of D1. Calcium stearate and talc are specifically described in claims 19 and 20 and on page 16, lines 22-23 of D1. Although the anti-blocking agents of D1 may be in the form of particles, flakes or pellets, powders are preferred, in particular powders having a mean particle size of less than 100 µm, preferably less than 10 µm, more preferably less than 5 µm and generally 0.5 µm (D1: page 1, line 8; page 16, line 31 to page 17, line 4; page 20, lines 2-3). Fatty acids or derivatives thereof in the form of fine powders having an average particle

diameter of not more than 50 µm, as in operative claim 1 are, however, not specifically disclosed in D1.

2.2.3 The binding agent (c) of D1 is a product having a viscosity that is not too high, preferably a non-penetrating liquid with a viscosity of 50-60,000 cSt (D1: page 17, lines 26-31). Specific examples are listed in claims 22-25 and on page 18, lines 1-13 of D1 and include silicon oils. Siloxane polymers are preferred, dimethyl polysiloxane being most preferred (D1: claim 25; page 18, lines 9-13). However, silicone oils having a viscosity and a surface tension according to component (B) of operative claim 1 are not specifically disclosed in D1.

2.2.4 Under these circumstances, a number of selections within the ambit of the claims and/or the description of D1 have to be made in order to arrive at the specific combination of technical features according to claim 1 of the main request, in particular regarding the combination of features (1-1), (1-2), (2-1), (2-2), (2-3), (3-1) and (3-2) defined above (point 2.1).

2.3 The examples of D1 also do not disclose the subject-matter of present claim 1. The most relevant examples of D1 are example 1/Samples 4-5 and 7-8 (Table 1) and example 2/Samples 10-11 (Table 2).

2.3.1 In Samples 4-5, the polymer does not correspond to any of those specified in features (i)-(v) of claim 1 and there is no indication of the tensile modulus. Besides, the nature as well as the physical properties of the siloxane used as a binding agent are unclear. It is in particular not necessary for the siloxane to be dimethyl polysiloxane (definition on page 18, lines 9-13 of D1). Since the data given in D7 and D9

only concern dimethyl polysiloxanes they can, therefore, not provide any information relating to the silicone oils used in Samples 4-5 of D1. Also the surface tension of the siloxane is not given. Apart from that, the publication date and/or public availability of those documents is not clear. Finally, the particle diameter of the calcium stearate actually used in the examples is not disclosed in D1 and though not preferred, the use of calcium stearate having a particle size outside of the range specified in claim 1 of the main request cannot be excluded.

2.3.2 In Samples 7-8, the polymers used correspond to embodiment (i) according to claim 1 of the main request but D1 fails to disclose the tensile modulus of those polymers. Although D1 in general describes the use of polymers having a tensile modulus lower than 345 MPa, there is no evidence that the polymer employed in Samples 7-8 actually had a modulus of 1-150 MPa, as specified in claim 1 of the main request. The siloxane used is the same as in Samples 4-5 i.e. its nature is not unambiguously disclosed and there is no information regarding its surface tension. The anti-blocking agent used is talc, which is not a fatty acid (derivative) according to feature (C) of operative claim 1.

2.3.3 In Samples 10-11, the polymer used does not correspond to any of those specified in features (i)-(v) of operative claim 1 and there is no indication of the tensile modulus. Besides, there is also no indication of the particle size of the calcium stearate.

2.3.4 Therefore, none of the examples of D1 anticipates the subject-matter of operative claim 1.

2.4 For these reasons, the subject-matter of claim 1 of the main request is novel over D1 and the sole novelty objection raised by the respondent against claim 1 of the main request cannot be followed.

3. Inventive step

3.1 Closest prior art

The patent in suit concerns flexible resin pellets having excellent stick-resistance and external appearance (paragraph [0001]). Such particles are, as explained above, known from D1, in particular Sample 7 which is directed to pellets prepared from a polymeric resin according to embodiment (i) of operative claim 1. The Board sees no reason to depart from the view of both parties as well as the opposition division, according to which Sample 7 of D1 represents the closest prior art.

3.2 Problem to be solved

According to the patent in suit, the problem to be solved was to prevent the blocking of pelletized soft olefin copolymer rubbers (paragraphs [0001], [003]-[0005] and [0011]-[0013]). During the appeal proceedings the appellant formulated the problem to be solved in view of D1 as to improve the anti-blocking properties of pelletized soft olefin copolymer rubbers. In view of the patent in suit, that formulation of the problem is acceptable. In that respect, it is considered that, in the present case, the softness of the resin particle indicated in claim 1 of the main request in the form of a tensile modulus of 1 to 150 MPa, does not form part of the solution of the problem, but merely serves to define those particles

that, due to their softness, are particularly prone to blocking, which, by the measures defined in claim 1, should be prevented or improved over D1.

3.3 Solution

The solution to the problem identified above resides in the pellets as defined in claim 1, which, as shown in section 2.4.2 above, differ from those according to Sample 7 of D1 in that

- the surface tension and the kinematic viscosity of the silicone oil have to be in specific ranges, both of which are not specifically disclosed in D1;
- the anti-blocking agent used is a fatty acid (derivative), not talc, and must have a specific particle size, which is not explicitly disclosed in D1.

3.4 Success of the solution - Problem effectively solved

3.4.1 While examples 1 to 4 of the patent in suit are directed to pellets prepared from soft resins (A) according to embodiments (i), (ii) and (iii) in combination with dimethyl polysiloxane as liquid (B) and calcium stearate as fine powder (C), comparative examples 1-7 of the patent in suit are related to similar compositions comprising either no liquid (B) and/or no fine powder (C). None of those comparative examples illustrates the closest prior art (Sample 7 of D1). They differ from the examples illustrative of claim 1 of the main request in aspects that are not related to the distinguishing features over D1 identified in section 3.3 above. Therefore, these data cannot demonstrate that an effect is achieved related to the distinguishing feature(s) of claim 1 of the main

request over the closest prior art.

3.4.2 In D10, soft resin pellets were prepared according to example 1 of the patent in suit using an ethylene/1-butene copolymer having a tensile modulus of 5 MPa as soft resin (A), dimethyl polysiloxane as silicone oil (B) and calcium stearate as fine powder (C). The appellant indicated during the oral proceedings before the Board that the calcium stearate used in D10 was the same as in example 1 of the patent in suit, which has an average particle diameter of 20 µm (paragraph [0194] of the patent in suit).

For comparison, similar pellets were also prepared in the same manner but using talc with an average particle size of 3 µm as fine powder (C).

Under these circumstances, the pellets compared in D10 do not only differ in the nature (calcium stearate or talc) but also in the particle size of the anti-blocking agent used. Considering that the anti-blocking agent is used to cover the surface of the - initially - sticky pellets, its effect is to separate physically the pellets and so to avoid that they stick to each other. Therefore, the particle size of the anti-blocking agent has a direct impact on the anti-sticking properties of the resin pellets. In view of that well-known phenomenon and for lack of evidence of the contrary, it cannot be accepted that the particle size would not influence the anti-blocking properties of the agent used.

Considering that in D10 pellets were prepared using calcium stearate and talc having significantly different average particle diameters (20 µ and 3 µm, respectively), no fair comparison can be made. It

cannot be established that any difference is due to the use of a different anti-blocking agent and not to the different particle size. Therefore, the argument of the appellant according to which D10 showed that anti-blocking properties were improved when using calcium stearate instead of talc cannot be followed.

3.4.3 Moreover, in paragraph [0168] of the patent in suit preferred embodiments for the fine powder (C) are listed, including inorganic fillers such as talc (specifically indicated in the following paragraph [0169]) and fatty acid (derivatives). The same passages can be found in the original application. In paragraphs [0170] and [0171] of the patent in suit it is further indicated which fatty acids are preferably used. In view of the foregoing paragraph [169], in which suitable inorganic fillers are described in more detail, it cannot be read so as to imply that fatty acids are preferred over inorganic fillers. Paragraphs [0170] and [0171] rather indicate which compounds are preferred amongst the fatty acids. In those paragraphs a number of preferred salts (including calcium salts) of a number of higher fatty acids (including stearates) is listed. Calcium stearate *per se* is however not specifically mentioned. The examples of the patent in suit also do not illustrate any improvement related to the use of calcium stearate as fine powder (C) over the use of e.g. talc. Under these circumstances, neither the patent in suit nor the original application can be considered to disclose the use of calcium stearate as a preferred embodiment, in particular not in comparison to talc.

3.4.4 For these reasons, no improvement over the closest prior art D1 can be acknowledged so that the technical problem effectively solved by the subject-matter of

claim 1 of the main request can only be seen as to provide further soft resin pellets having anti-blocking properties.

3.4.5 The examples of the patent in suit and of D10 render credible that that problem has effectively been solved by pellets according to claim 1 of the main request, which was not contested by the respondent.

3.5 Obviousness

3.5.1 It remains to be decided whether it was obvious to solve that problem by modifying the teaching of Sample 7 of D1 in such a way as to arrive at the subject-matter of claim 1 of the main request.

3.5.2 The nature of the siloxane resin used in Sample 7 of D1 is not specified, but D1 teaches that binding agents having a viscosity in the range of 50 to 60,000 centistokes, i.e. within the range specified in operative claim 1, are useful (D1: page 17, lines 26-31). In that respect, dimethyl polysiloxanes are further particularly preferred and those commercially available from Dow Corning are explicitly mentioned (D1: page 18, lines 9-13). D5 refers to "a commercially available polydimethylsiloxane, Dow Corning 200 fluid, 1000 centistokes viscosity" (col. 7, lines 18-19). D7, which is a product information leaflet, describes the properties of a "200 Fluid 50cs, 100cs, 350cs, 500cs and 1000cs", indicating surface tensions of from 20,8 to 21,1 dynes/cm. D9 concerns "200 Fluid 60,000 cs, 100,000 cs", indicating a surface tension of 21,5 dynes/cm for the 60,000 cs product. In view of the disclosure of D5, D7 and D9, it can be accepted that dimethyl polysiloxane oils having a kinematic viscosity and a surface tension according to

claim 1 of the main request were commercially available at the filing date of the international application corresponding to the patent in suit. Therefore, the choice of silicone oil (B) as defined in claim 1 of the main request has to be considered as an arbitrary selection within the ambit of D1.

3.5.3 Regarding the anti-blocking agent, D1 discloses talc and calcium stearate as two equivalent preferred embodiments: this is derivable from the fact that they are the only two anti-blocking agents b) according to D1 that are specifically individualised in claims 19 and 20 of D1, in that they are the only two anti-blocking agents used in the examples of D1 and in that they both provide "free-flowing" pellets (D1: Table 1). Although D1 provides no indication regarding the particle size of the anti-blocking agent used in its examples, it is stated in the paragraph bridging pages 16 and 17 of D1 that powders having a mean particle size in the same range as that specified in claim 1 of the main request are suitable. Therefore, the fine powder (C) defined in claim 1 of the main request is also regarded as an arbitrary selection within the ambit of D1.

3.5.4 Regarding the soft resin (A), D1 teaches that useful polymeric materials are those based on polymers which have a tendency to block and aggregate (page 5,lines 13-14). They have a low crystallinity and are exemplified by a modulus below 345 MPa (page 6, lines 17-19). There is no indication on file that pellets in the lower half (1-150 MPa) of the range mentioned in D1, as claimed in present claim 1, would pose any particular difficulty when undergoing anti-blocking treatment. Therefore, in the absence of any effect related to the specific range of the tensile modulus

mentioned in claim 1 of the main request, that feature is considered to be an arbitrary selection within the ambit of D1. For that reason, the appellant's argument relying on the the fact that D1 did not specifically disclose very soft pellets cannot be followed.

3.5.5 Considering that claim 1 of the main request does not specify any amount for components (A), (B) and (C), the argument of the appellant according to which the pellets claimed were prepared using lower amounts of silicone oil (B) and anti-blocking agent (C) cannot be taken into account.

3.5.6 Under these circumstances, the subject-matter of claim 1 of the main request represents a non purposive selection within the ambit of D1, which, in the absence of any technical effect related to the selection made - and the consequential formulation of the problem actually solved as to provide further soft resin pellets having anti-blocking properties -, is not inventive.

3.6 Therefore, the main request does not fulfil the requirements of Art. 56 EPC.

Auxiliary request 1

4. Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that embodiments (iv) and (v) for the soft resin (A) have been deleted. That modification cannot change the definition of the problem effectively solved by the claimed subject-matter. Considering that Sample 7 of D1 was carried out using a resin corresponding to embodiment (i) of claim 1 of auxiliary request 1, the same reasoning as for the main request

is valid so that auxiliary request 1 is not inventive.

Auxiliary requests 2 and 3

5. Claim 1 of auxiliary request 2 corresponds to claim 1 of the main request amended by further limiting the viscosity of the silicone oil (B) to 200 to 1,000 cSt.

Claim 1 of auxiliary request 3 differs in addition from claim 1 of the main request in that embodiments (iv) and (v) for the soft resin (A) have been deleted.

No effect has been demonstrated due to the use of silicone oils having the restricted viscosity range so that the problem effectively solved remains to provide further soft resin pellets having anti-blocking properties further to those of D1.

Silicone oils having a viscosity of 200 to 1,000 cSt are within the ambit of D1 (page 17, lines 30-31) and were known in the art at the filing date of the international application corresponding to the patent in suit (D5, D7, D9). Therefore, the same reasoning as for the main request is valid and auxiliary requests 2 and 3 are not inventive.

Auxiliary requests 4 and 5

6. Claim 1 of auxiliary request 4 corresponds to claim 1 of the main request amended by further specifying that the silicone oil (B) is a dimethyl polysiloxane.

Claim 1 of auxiliary request 5 additionally differs from claim 1 of the main request in that embodiments (iv) and (v) for the soft resin (A) have been deleted.

Since no effect has been demonstrated due to the use of dimethyl polysiloxane as silicone oil, the problem effectively solved remains to provide soft resin pellets having anti-blocking properties further to those of D1.

Dimethyl polysiloxane oils are specifically mentioned in D1 and even represent a preferred embodiment (claim 25; page 18, lines 9-12). Also, they were known in the art (D5, D7, D9) at the filing date of the international application corresponding to the patent in suit. Therefore, the same reasoning as for the main request is valid, so that auxiliary requests 4 and 5 are not inventive.

Auxiliary request 6

7. Amendments: Art. 123(2) EPC

7.1 Claim 1 corresponds to claim 1 as originally filed amended *inter alia* by specifying that:

(a) resin (A) is limited to embodiment (i);
(b) the tensile modulus of the soft resin (A) should be of 1 to 9.5 MPa;
(c) liquid (B) is limited to silicone oils;
(d) fine powder (C) is limited to calcium stearate.

7.2 The value of "9.5 MPa" corresponds to the tensile modulus disclosed in the application as filed in respect of the ethylene/1-butene copolymer resin having an ethylene content of 82 mol%, a density of 0.865 g/cm^3 and a melt flow rate of 4 g/10min (ASTM D 1238, 190°C, 2.16 kg) used in example 1. Therefore, said modulus value is only disclosed in relation to a specific copolymer resin that is defined in a much more specific

manner than the resins now encompassed by claim 1 of auxiliary request 6.

Besides, in example 1 of the application as filed said resin is further used in combination with a specific silicone oil (Dow Corning SH 200 having a kinematic viscosity at 20°C of 500 centistokes and a surface tension at 20°C of 20 dyn/cm) and a specific calcium stearate having an average particle diameter of 20 µm. Those features, too, are not reflected in claim 1 of auxiliary request 6.

7.3 According to established case law of the Boards of Appeal of the EPO, the content of the application as filed may not be regarded as a reservoir from which individual features pertaining to separate sections can be combined at random in order artificially to create a particular combination. In general, the requirements of Art. 123(2) EPC are only met if it can be established that there is at least a pointer to that particular combination of features, so that the combined selection of features emerges clearly and unambiguously from the content of the application as filed (e.g. T 686/99: section 4.3.3 of the reasons; T 872/01: section 2.2.3 of the reasons).

In the present case, the application as filed provides no pointer to the combination of soft resin (A), liquid (B) and fine powder (C) defined at the level of generality according to claim 1 of auxiliary request 6.

7.4 Under these circumstances, the subject-matter of claim 1 is not directly and unambiguously disclosed in the application as filed and the requirements of Art. 123(2) EPC are not met.

Auxiliary request 7

8. Amendments: Art. 123(2) EPC

8.1 Claim 1 corresponds to claim 1 as originally filed amended *inter alia* by specifying that:

(a) resin (A) is limited to embodiment (i);

(b) the tensile modulus of the soft resin (A) should be of 1 to 150 MPa;

(c) the density of the soft resin (A) is of 0.855 to 0.915 g/cm^3;

(d) liquid (B) is limited to silicone oils;

(e) fine powder (C) is limited to calcium stearate.

8.2 The only basis for the density range corresponding to above amendment (c) is on page 10, third full paragraph of the application as filed, however only in combination with a specific melt flow rate range, which is not reflected in claim 1 of auxiliary request 7.

8.3 In addition, as for auxiliary request 6, there is no direct and unambiguous disclosure in the application as filed for the specific combination of said passage with the selection of silicone oil as liquid (B) and calcium stearate as fine powder (C) as defined, at this level of generality, in claim 1 of auxiliary request 7.

8.4 Therefore, the requirements of Art. 123(2) EPC are not met.

Auxiliary request 8

9. Amendments: Art. 123(2) EPC

9.1 Claim 1 corresponds to claim 1 as originally filed amended *inter alia* by specifying that:

(a) resin (A) is limited to embodiment (i);
(b) the tensile modulus of soft resin (A) is of 1 to 9.5 MPa;
(c) the density of soft resin (A) is of 0.855 to 0.915 g/cm^3;
(d) liquid (B) is limited to silicone oils;
(e) fine powder (C) is limited to calcium stearate.

9.2 Considering that claim 1 contains the same amendments as claim 1 of each of auxiliary request 6 and 7, the same objections are valid. Therefore, the subject-matter of claim 1 is not directly and unambiguously disclosed in the application as filed so that the requirements of Art. 123(2) EPC are not satisfied.

10. As none of the appellant/patent proprietor's requests is allowable, the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

E. Goergmaier B. ter Laan

Decision electronically authenticated