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**Datasheet for the decision
of 19 June 2018**

Case Number: T 0219/16 - 3.3.03

Application Number: 09752955.6

Publication Number: 2356175

IPC: C08L23/10, H01B3/44, C08L23/12

Language of the proceedings: EN

Title of invention:
MULTIPHASE POLYMERIC COMPOSITION USEFUL FOR PREPARING CABLE
INSULATION

Patent Proprietor:
Union Carbide Chemicals & Plastics Technology LLC

Opponent:
Borealis AG

Relevant legal provisions:
RPBA Art. 12(4)
EPC Art. 54, 56

Keyword:
Late-filed evidence
Novelty - (yes)
Inventive step - (no)



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Case Number: T 0219/16 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 19 June 2018

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 30 November
2015 rejecting the opposition filed against
European patent No. 2356175 pursuant to Article
101(2) EPC.**

Composition of the Board:

Chairman F. Rousseau
Members: D. Marquis
C. Brandt

Summary of Facts and Submissions

- I. The appeal by the opponent lies against the decision of the opposition division posted on 30 November 2015 to reject the opposition against the European patent EP-B-2 356 175.
- II. The patent was opposed on the grounds that its subject matter extended beyond the content of the application as originally filed, that it was not sufficiently disclosed and that it lacked novelty and inventive step.

Claim 1 of the patent as granted read:

"1. An insulation layer for cables comprising a composite, the composite comprising a heterophasic polymer composition, the composition comprising (A) a polypropylene matrix, and (B) a propylene copolymer dispersed within the matrix, the propylene copolymer comprising (1) more than 85 weight percent (wt%) of units derived from propylene, and (2) having a weight average particle size of less than 1 micron (μm)."

Claims 2 to 9 were dependent claims of claim 1. The patent as granted also contained a claim 10 directed to a cable comprising at least one conductor and at least one insulation layer according to any one of claims 1 to 9.

- III. The following documents that were, *inter alia*, relevant to the appeal proceedings formed part of the decision of the opposition division:

D1: EP 1 619 217 B1

D4: EP 1 889 873 A1

D10: Brochure Vistamaxx™ Specialty Elastomers and Resins, Exxon Mobil Chemicals

D12: Lilli Manolis Sherman, "Clear Road Ahead for TPOs, TPVs", Plastics Technology, June 2008

D12a: Data provided in items 21 to 31 of the letter dated 1 April 2014 filed by the patent proprietor

D12b: Data provided in the letter dated 12 October 2015 filed by the patent proprietor

IV. As far as relevant to the appeal, the decision of the opposition division can be summarized as follows:

- (a) D12a was prima facie relevant and was therefore admitted into the proceedings. The documents D10 and D12 were not more relevant than the documents already on file and were therefore not admitted into the proceedings.
- (b) Novelty of the main request was acknowledged.
- (c) An inventive step was acknowledged, D1 being considered as the closest prior art. The claimed subject matter differed from D1 in that the propylene copolymer comprised more than 85 wt% of units derived from propylene. The data contained in D12a were not relevant because the energy to break disclosed therein was not mentioned in the original documents and its measurement method was not described. Also the comparative example contained in D12a was not representative of the closest prior art D1.
- (d) The technical problem was thus to provide an alternative insulation layer for cables which exhibited at least the same mechanical and electrical properties as the insulation layers

according to D1. D1 taught away from the use of a propylene copolymer comprising more than 85 wt% of units derived from propylene.

(e) Document D4 used in combination with D1 was not relevant because it did not relate to insulation layers or cables. That document could thus not render the claimed subject matter obvious.

V. The opponent (appellant) lodged an appeal against that decision. With the statement setting out the grounds of appeal the appellant submitted D13 (Declaration of Dr. Gahleitner dated 15 March 2016) and D14 (Declaration of Mr. Hagstrand dated 4 April 2016). It was furthermore requested that documents D10 and D12 be admitted into the proceedings.

VI. In its reply to the statement of grounds of appeal, the patent proprietor (respondent) submitted arguments for the main request (corresponding to the patent as granted) and for auxiliary requests 1 and 2 (as submitted on 12 October 2015). In addition auxiliary requests 3 to 5 were filed and corresponding arguments submitted.

Claim 1 of auxiliary request 1 differed from claim 1 of the main request in that the propylene copolymer (1) was defined as "consisting of more than 85 weight percent (wt%) of units derived from propylene and from more than 1 wt% and less than 15 wt% of units derived from ethylene and/or C4-8 alpha-olefin and/or diene".

Claim 1 of auxiliary request 2 differed from claim 1 of auxiliary request 1 in that the comonomer of the propylene copolymer (1) was defined as "consisting of more than 85 weight percent (wt%) of units derived from

propylene and from more than 1 wt% and less than 15 wt% of units derived from ethylene".

Claims 1 of auxiliary requests 3 to 5 were directed to a cable comprising at least one conductor and at least one insulation layer as defined in claim 1 of the main request and auxiliary requests 1 and 2 respectively.

The following documents were *inter alia* mentioned in the reply to the statement of grounds of appeal:

D15: Experimental report

D16: Technical information on Versify 3000 plastomers

VII. With letter of 11 January 2017, the appellant filed further arguments regarding the main request and the auxiliary requests 1 to 5. The following documents were also submitted:

D17: Datasheet Versify plastomers dated March 2007

D18: Printout from archive "dow.com" at <http://web.archive.org/web/20050404113629/http://dow.com/versify/prod/index.htm> of 4 April 2005

D19: Experimental report on Versify 2300 and Vistamaxx 1100

D20: Standard ASTM D638-08

D21: P. Steve Chum, Kurt W. Swogger, "Olefin polymer technologies—History and recent progress at The Dow Chemical Company", *Progress in Polymer Science*, 2008, 33, pages 797-819

VIII. In a communication sent in preparation of the oral proceedings, the Board summarised the points to be dealt with and provided a preliminary view on the disputed issues.

- IX. With letter of 22 May 2018, the appellant provided further arguments relative to novelty of the claims in view of D4 and submitted D22 (Peter Poelt, Elisabeth Ingolic, Markus Gahleitner, Klaus Bernreitner, Wolfgang Geymayer, "Characterization of Modified Polypropylene by Scanning Electron Microscopy", Journal of Applied Polymer Science, 2000, Vol. 78, pages 1152-1161) into the proceedings.
- X. Oral proceedings were held on 19 June 2018.
- XI. As far as they are relevant to the present decision, the appellant's arguments may be summarised as follows:

Admittance of documents

- (a) The opposition division did not admit D10 and D12 into the proceedings. These documents had to be admitted into the appeal proceedings since they were relevant to the question of novelty and inventive step.
- (b) D12a and D12b were filed late during the first instance proceedings. Since these documents should not have been admitted into the proceedings by the opposition division, they should be disregarded during the appeal proceedings.
- (c) D15, a summary of the data contained in D12a and D12b, was not relevant and should therefore not be admitted into the proceedings.

Main request

Novelty in view of D1

- (d) D1 disclosed an insulation layer for cables comprising a composite obtained from a heterophasic polymer composition comprising a polypropylene matrix and dispersed therein a propylene copolymer having a weight average particle size of less than 1 μm (claim 1). Copolymers comprising more than 85 wt% units derived from propylene were encompassed by D1. Thus, D1 disclosed all the features of the subject matter of claim 1. Claim 1 lacked novelty in view of D1.

Inventive step

- (e) D1 was the closest prior art. Claim 1 of the patent in suit differed from D1 in that the propylene propylene content in the propylene copolymer was defined as being more than 85 wt%.
- (f) The patent lacked any evidence of an improvement or effect over the insulation layers of the closest prior art D1. None of the experimental evidence submitted in D12a, D12b, or D15 was relevant to the question of inventive step since it had not been established therein that an heterophasic composition with a dispersed phase having a particle size smaller than 1 μm had been obtained. Besides, the composition based on ethylene octene copolymer was not relevant to the claimed composition since it was not based on propylene.
- (g) The objective problem underlying the claimed subject matter was to provide further insulation

layer for cables.

- (h) The general teaching of D1 concerned insulation layer for cables based on heterophasic compositions with propylene copolymers. The ranges of amounts of propylene disclosed in D1 were merely preferred ranges which did not exclude amounts higher than 80 wt%. In addition, D1 taught that substantially amorphous copolymers were particularly preferred to improve impact strength and flexibility of the insulation layers. These copolymers corresponded to those disclosed in the patent in suit. The skilled person when looking for further propylene copolymers for insulation layers was already guided by D1 to use propylene copolymers having any amount of propylene unit, thus also more than 85 wt%.
- (i) Moreover, D4 disclosed the use of propylene copolymers having 80 to 92 wt% of ethylene in order to improve the impact strength of heterophasic compositions. It would have thus been obvious to use these copolymers in D1. The claimed subject matter lacked therefore an inventive step in view of D1 combined with D4.

Auxiliary requests

- (j) With regard to inventive step, the arguments provided for the main request also applied to the auxiliary requests 1 to 5.

XII. As far as they are relevant to the present decision, the respondent's arguments may be summarised as follows:

Admittance of documents

- (a) It had not been shown that the opposition division improperly exercised its discretion not to admit D10 and D12 into the proceedings. There was thus no reason to admit them into the appeal proceedings.
- (b) There was no legal basis to disregard D12a and D12b during the appeal proceedings since these documents were already part of the discussion before the first instance.
- (c) The only additional information contained in D15 was the reference to the ASTM standard that was used to measure the tensile properties and determine the energy to break of the composites disclosed in D12a. D15 should be admitted into the proceedings.

Main request

Novelty

- (d) D1 did not directly and unambiguously disclose an amount of more than 85 wt% propylene units. The claimed subject matter was novel over D1.

Inventive step

- (e) D1 was the closest prior art. The energy to break mentioned in D12a, D12b and D15 related to the mechanical properties, in particular tensile

strength and impact strength, that were mentioned in the patent in suit. That effect could thus be taken into account when discussing inventive step. The data contained in D12a, D12b and D15 showed a trend towards an improved energy to break as the propylene content of the disperse phase increased above 85 wt%. While the particle sizes relating to the compositions containing 88.6 wt% and 95.5 wt% of propylene could be expected to be different, this as such was not relevant to the discussion of inventive step since the particle sizes were within the scope of claim 1 anyway. The composition with the lowest amount of propylene in the disperse phase, namely 88.6 wt%, was representative of the lower limit of 85 wt% set forth in claim 1 of the main request. A composition having an amount of propylene lower than 80 wt% would display even lower values of energy to break. This was also apparent from the energy to break reported for the ethylene/octene copolymer with 70% ethylene. D12a and D15 established that the claimed composites had improved energy to break properties over compositions in which the propylene content of the disperse phase was less than 85 wt%.

- (f) The problem solved over D1 was to provide an insulation layer having enhanced mechanical properties, in particular improved energy to break.
- (g) D1 taught the use of ethylene propylene rubbers with 30 to 70 wt% of propylene units. The passage of D1 otherwise describing the general amount of comonomer in the propylene copolymer further defined the preferred range to be 60-65 wt%. D1 therefore taught away from the claimed range of more than 85 wt% of units derived from propylene.

There was no incentive in D1 to use more than 80 wt % of propylene in the copolymer. The problem posed had therefore been solved in an unexpected manner. The claims of the main request involved an inventive step over D1.

- (h) D4 related to transparent polypropylene compositions for packaging applications. Consequently one skilled in the art would not have considered D4 to be of any relevance to the claimed subject matter. D4 would therefore not have been consulted by the skilled person of D1 faced with the posed problem.

Auxiliary requests

- (i) With regard to inventive step, the arguments provided for the main request also applied to the auxiliary requests 1 to 5.

XIII. The appellant requested that the decision under appeal be set aside and that the European patent No. 2356175 be revoked.

XIV. The respondent requested that the appeal be dismissed, or, alternatively, that the patent be maintained on the basis of either auxiliary requests 1 or 2 filed with letter dated 12 October 2015 or on the basis of any of auxiliary requests 3 to 5 filed with the reply to the statement of grounds of appeal.

Reasons for the Decision

1. Admittance of documents
 - 1.1 D10 and D12 were filed by the opponent (now appellant) after the summons to attend oral proceedings had been dispatched by the opposition division (D10 with letter of 12 May 2015 and D12 with letter of 9 November 2015). It was not disputed by the parties that the admission of D10 and D12 into the proceedings was, under Article 114(2) EPC, at the discretion of the opposition division. The opposition division took these documents into account but decided not to admit them into the proceedings (item 2 on page 4 of the contested decision) on the grounds that these documents were not more relevant than any of the other documents on file. The appellant did not show in which respect the opposition division incorrectly exercised its discretion under Article 114(2) EPC not to admit D10 and D12 into the proceedings and the Board does not see any procedural error in the approach of the opposition division either. Under these circumstances, the Board does not see a reason to reverse the decision of the opposition division with respect to the non admittance of D10 and D12.
 - 1.2 The admittance into the proceedings of the data contained in the letter dated 1 April 2014 (D12a) forms part of the decision of the opposition division (item 2 on page 4 of the contested decision). The content of D12a also formed part of the decision regarding inventive step (first paragraph of page 6 of the contested decision). By virtue of Article 12(4) RPBA, the data filed on 1 April 2014 is in the appeal proceedings. The Board finds no legal basis to

disregard it.

1.3 The appellant also requested the non admittance of the data filed with the letter dated 12 October 2015 (D12b) and more specifically of the data reported in the table of page 5 of that letter. That data was filed during the first instance written procedure and its admittance was then not contested before the opposition division. D12b was even part of the discussion of inventive step before the opposition division (see letter of the opponent of 9 November 2015, items 3.1 to 3.7) and was relied upon by the respondent in the rejoinder to the statement of grounds of appeal. By virtue of Article 12(4) RPBA, the Board finds no reason why D12b, which was discussed by the parties in the first instance proceedings, should not be taken into account in the appeal proceedings.

1.4 The experimental report D15 was filed by the respondent with the rejoinder to the statements setting out the grounds of appeal. D15 reports the data corresponding to the compositions 1 and 2, the propylene content of the propylene copolymer of these compositions as well as the energy to break measured for these two compositions. That data was already part of D12a (page 7). D15 further contains general information on the preparation of the samples and the measurement method used to determine the energy to break of the compositions 1 and 2. That part of D15 was clearly filed as a response to the objection concerning the absence of the test method of the energy to break raised by the appellant in point 7.6 of the statement of grounds of appeal. D15, which was therefore filed at the earliest stage by the respondent, is not late filed. There is thus no reason not to admit D15 into

the proceedings.

1.5 In view of the conclusion reached by the Board on inventive step of the main request and of the auxiliary requests 1 to 5, there is no need to consider the admittance of D16 to D22 and of the objection of lack of novelty and inventive step over D4.

2. Novelty in view of D1

2.1 EP 1 619 217 B1, referred to as D1 in the notice of opposition (page 1 of the letter filed on 17 June 2013) as well as in the decision of the opposition division (page 1) and in the statement setting out the grounds of appeal (page 1, filed on 8 April 2016) is a patent document which publication and mention of the grant of the patent is dated 15 September 2010, that is after the filing date of the patent in suit, on 4 November 2009. The B1 publication of EP 1 619 217 is thus not a document according to Article 54 EPC for the patent in suit. However, the A1 publication of EP 1 619 217 is dated 25 January 2006, that is before the priority date of the patent in suit, on 19 November 2008. EP 1 619 217 A1 is thus a document according to Article 54(2) EPC for the patent in suit.

2.2 The few differences between the A1 publication and the B1 publication of EP 1 619 217 were clarified with the parties at the oral proceedings and it was acknowledged by the parties that these differences did not make a difference in their arguments, so that it was agreed to use of EP 1 619 217 A1 in place of EP 1 619 217 B1 in the appeal proceedings. It is therefore EP 1 619 217 A1 that will be referred to as D1 hereafter.

- 2.3 Document D1 concerns insulation layers for cables comprising a composite, whereby the composite comprises a heterophasic polymer composition (A) comprising a polypropylene matrix (1) and dispersed therein a propylene copolymer (2) having a weight average particle size of less than 1 μm (claim 1).
- 2.4 D1 discloses that the propylene copolymer (2) dispersed in the polypropylene matrix (1) is preferably substantially amorphous (paragraph 30) and that its comonomer content is preferably 20-80 wt%, more preferably 30-70 wt-% and most preferably 60-65 wt% (paragraph 32). These preferred ranges describing the comonomer content of the propylene copolymer (2) ultimately correspond to preferred ranges of propylene in the propylene copolymer (2) of 20-80 wt%, 30-70 wt% and 40-45 wt%. Beyond these preferred ranges, a maximum content of propylene in the propylene copolymer (2) is otherwise not disclosed in document D1.
- 2.5 With respect to the objection of lack of novelty of the claimed subject matter in view of D1, the appellant considered that since D1 encompassed propylene copolymers having more than 85 wt% of propylene units, that specific range was anticipated by D1.
- 2.5.1 According to the boards' established case law however, a prior art document anticipates the novelty of a claimed subject matter if the latter is directly and unambiguously derivable from that document, including any features implicit to a person skilled in the art. In that respect, an alleged disclosure can only be considered "implicit" if it is immediately apparent to the skilled person that nothing other than the alleged implicit feature forms part of the subject matter disclosed (Case Law of the Boards of Appeal, 8th

Edition, 2016, I.C.4.3).

2.5.2 With regard to the propylene content of the propylene copolymer (2), the ranges unambiguously derivable from D1 (20-80 wt%; 30-70 wt% and 40-45 wt%) do not anticipate or even overlap the range of more than 85 wt % as defined in claim 1 of the main request. Also, the array of ranges disclosed in D1 do not make immediately apparent that the specific range of more than 85 wt% was disclosed in D1. There is also no indication that the maximum content of propylene should be above 85% so that it cannot be held that the amount of propylene defined in claim 1 as granted overlaps with that disclosed in D1. In addition, the fact that the propylene content of the propylene copolymer (2) is not limited in D1 does not mean that any value of less than 100 wt% is disclosed. Under these circumstances, claim 1 of the main request is novel over D1.

3. Inventive step in view of D1

3.1 Closest prior art

3.1.1 In line with the contested decision, it was not disputed by the parties that the insulation layer for cables of D1 constitutes an appropriate starting point for assessing inventive step. The Board has no reason to take a different view, since D1 addresses the same technical problem than that of the patent in suit, namely to provide an environmental friendly insulation layer allowing an operation temperature of at least 90°C and simultaneously having enhanced mechanical properties in particular a high impact strength and a good tensile strength (D1, paragraph 8; patent in suit, paragraph 8).

3.1.2 The insulation layers according to D1 and the patent in suit both rely on a composite comprising a heterophasic polymer composition (A) comprising a polypropylene matrix (1) and dispersed therein a propylene copolymer (2) having a weight average particle size of less than 1 μm (D1, claim 1; patent in suit, claim 1). As shown in above section 2.5.2, the insulation layers according to claim 1 of the main request however differ from the insulation layers of D1 solely in that the propylene copolymer (2) dispersed in the polypropylene matrix (1) contains more than 85 wt% of units derived from propylene.

3.2 Problem successfully solved and solution

3.2.1 Having regard to the disclosure of D1 representing the closest prior art, the respondent submitted that the technical problem solved by the subject matter of claim 1 was to provide insulation layers having enhanced mechanical properties. That problem is meant to have been solved by the use of more than 85 wt% of units derived from propylene in the propylene copolymer (2) dispersed in the polypropylene matrix (1), as defined in claim 1 of the main request.

3.2.2 The fact that the patent in suit does not contain examples showing compositions according to the claimed subject matter was not in dispute. As to whether evidence was provided that the claimed subject matter provided a successful solution to the problem mentioned above, the respondent referred to the experimental reports D12a (items 31 and 32), D12b (Table on page 5) and D15. D12a concerns three heterophasic compositions for which either a propylene/ethylene copolymer having 88.6 wt% propylene or a propylene/ethylene copolymer having 95.5 wt% propylene or an ethylene/octene

copolymer comprising 70 wt% of ethylene was dispersed in a polypropylene matrix. The energy to break measured by the method described in D15 on samples obtained from the above described compositions is reported, and further physical properties (density, melt mass-flow rate, melting temperature, total crystallinity and viscat softening temperature) pertaining to these compositions are indicated in D12b. The question that had to be answered in view of these experimental reports was whether it had been shown that the claimed insulation layers had enhanced mechanical properties and in particular improved energy to break in comparison to the insulation layers of the closest prior art D1.

3.2.3 In that regard, the experimental data reported in D12a, D12b and D15 only provide examples of two propylene copolymers having a propylene content in the claimed range of more than 85 wt% (88.6 wt% and 95.5 wt% respectively) and an example of a copolymer that is not a propylene copolymer (octene ethylene copolymer). It is clear that the experimental data relied upon by the respondent contains two examples of compositions according to the claimed subject matter but does not contain an example of a composition based on a propylene ethylene copolymer having a propylene content outside the claimed range. As a result, the experimental data does not provide a direct comparison of the claimed insulation layers with insulation layers otherwise encompassed by the closest prior art D1.

3.2.4 In that respect, it was submitted that the respondent had attempted to obtain a propylene ethylene copolymer sample having a propylene content of 80 wt% for a comparative example but that the respondent had found that such a propylene ethylene copolymer was a

substantially amorphous rubbery material that was too sticky to recover during manufacturing. It had therefore not been possible to obtain comparative data with a propylene ethylene copolymer containing 80 wt% units derived from propylene, which was the highest limit referred to in D1. However, the respondent did not provide any evidence regarding the preparation of that propylene ethylene copolymer with 80 wt% of propylene that could have established that the preparation of heterophasic compositions containing such a copolymer could not have been performed by a skilled person. Further examples of heterophasic compositions based on propylene ethylene copolymers having a propylene content outside the claimed range were not provided either.

- 3.2.5 The respondent further submitted that even if the data reported in D12a or D15 did not allow a direct comparison with the compositions according to D1, the data nevertheless established that the claimed subject matter resulted in enhanced mechanical properties because a clear trend was shown in that the composition with the lower propylene content in the dispersed phase of 88.6 wt% had a lower energy to break value (16 in-lbf) than the composition containing the propylene/ethylene copolymer with 95.5 wt% propylene in the dispersed phase (64 in-lbf). The data provided in D12a, D12b and D15, however, does not disclose the particle size of the propylene copolymers dispersed in the propylene matrix phase. It can thus not be established in how far the particle sizes of the dispersed phases of these heterophasic compositions differed from one another. Since it is known from D1 (paragraphs 13 and 21) and is also acknowledged in the patent in suit (paragraph 27), that the particle size of the dispersed phase in these compositions influences the formation of

crazes and cracks, it is reasonable to expect that a difference in particle size will also affect the energy at break of test samples obtained from these compositions. As a result, in the absence of the particle size of the disperse phase of the compositions provided in D12a, D12b and D15, it is not possible to establish a causal link between the values of energy at break reported and the content in propylene in the propylene ethylene copolymer of the dispersed phase. That conclusion is not changed by the fact that the particle sizes of both compositions may be in the claimed range of less than 1 μm , since there is also no evidence that any change of particle size in this range would not affect the formation of crazes and cracks and the energy at break. Accordingly, the experimental data submitted by the respondent cannot demonstrate a causal link between the purported enhanced mechanical properties, in particular enhanced values of the energy at break and the feature distinguishing the claimed insulation layers from those of the closest prior art.

3.2.6 Any alleged effect referred to, without offering sufficient evidence to support the comparison with the closest prior art, cannot be taken into consideration in determining the problem underlying the invention and therefore in assessing inventive step. The problem that can only be formulated on the basis of the information made available by the respondent is the provision of further insulation layers for cables.

3.3 Obviousness

3.3.1 It remains to be decided whether or not the proposed solution to the above problem is obvious in view of the state of the art. As already indicated in relation to novelty, D1 discloses insulating layers for cables

comprising a composite based on a propylene copolymer having a weight average particle size of less than 1 μm . The propylene content of the propylene copolymer is not strictly limited in D1 but its preferred ranges, as derived from the ranges of comonomer disclosed in paragraph 32, are 20-80 wt%, more preferably 30-70 wt% and most preferably 40-45 wt% (see above section 2.4). D1, however, does not explicitly disclose a propylene content of more than 85 wt% in the propylene copolymer of the heterophasic composition. In that respect, the question posed is whether the skilled person would have considered a content of more than 85 wt% in the propylene copolymer of the heterophasic composition to be a solution to the problem of providing further insulation layers for cables.

3.3.2 D1 teaches that the propylene copolymer dispersed in the polypropylene matrix is preferably substantially amorphous since amorphous copolymers, also called "rubbers", are especially suitable for improving the impact strength and flexibility of the insulation layer when incorporated into the polypropylene matrix (1) (paragraph 30). In that regard, the skilled person considering the use of propylene copolymers within the broad disclosure of D1 would have been prompted to use amorphous propylene copolymers.

3.3.3 Although D4 is not concerned with insulating layers for cables as such, that document discloses polypropylene compositions comprising a propylene copolymer (A) and an ethylene propylene rubber (B) as impact modifier dispersed in the matrix of propylene copolymer (A) that are similar to the compositions of D1 and those of the patent in suit. The impact modifiers disclosed in D4 are therefore well known to the skilled person concerned with the reinforcement of

polypropylene compositions. With respect to ethylene propylene rubbers, D4 discloses propylene ethylene copolymers containing between 80 to 92 wt% of propylene, e.g. VMX 1100 and VMX 1120 (paragraphs 30 and 71). It can be derived from D4 that these propylene copolymers having a propylene content between 80 and 92 wt% are amorphous since they have a crystallinity of 2 to 6% only (page 6, lines 27-28). Also, the values of the melting enthalpy (see ΔH_m (PE) in Table 1a) of the copolymers VMX 1100 and VMX 1120 in a polypropylene matrix is largely below 10 J/g, which is in line with the enthalpy of propylene copolymers considered as being "substantially amorphous" in paragraph 30 of D1. D4 therefore provides the information that ethylene propylene copolymers having a propylene content of 80 to 92 wt% are substantially amorphous copolymers in the sense provided in document D1.

- 3.3.4 The Board concludes from the above that the skilled person considering the use of amorphous propylene copolymers within the broad disclosure of D1 would have expected that any ethylene propylene copolymers with a content of propylene of between 80 and 92 wt% to be a solution of the problem posed. Under these circumstances, the selection of an ethylene propylene copolymer with a content of propylene of more than 85 wt% which is not associated with any unexpected effect constitutes an arbitrary and therefore obvious solution to the problem solved over the closest prior art. Claim 1 of the main request lacks therefore an inventive step.

Auxiliary requests 1 to 5

4. Inventive step in view of D1
- 4.1 Claim 1 of the auxiliary requests 1 and 2 were amended so as to define the comonomer units of the propylene copolymer more specifically. Claim 1 of auxiliary request 1 defined the comonomer as being a unit derived from ethylene and/or C4-8 alpha-olefin and/or diene and its amount as being from more than 1 wt% and less than 15 wt%, whereas in claim 1 of auxiliary request 2 the comonomer unit was limited to ethylene.
- 4.2 The parties submitted that the argumentation they had submitted for the main request equally applied to the auxiliary requests 1 and 2. Indeed, it was not argued that the selection of specific comonomer units in the content specified in claim 1 resulted in a different formulation of the problem than that put forward for the main request. As shown in above sections 3.3.3 and 3.3.4, the selection of an ethylene propylene copolymer with a content of propylene of more than 85 wt% constitutes an obvious solution to the problem effectively solved by the subject matter of the main request request. Under these circumstances, the same reasoning and the same conclusion regarding inventive step of the main request apply to claim 1 of the auxiliary requests 1 and 2.
- 4.3 Auxiliary requests 3 to 5 corresponded to the main request and auxiliary requests 1 and 2 in which claim 1 was further amended in that it was directed to a cable instead of to insulating layers. The closest prior art D1 however already pertained to a cable comprising an insulation layer (paragraph 47, claim 21) so that no distinguishing feature over the closest prior art has

been introduced into auxiliary request 3 to 5. Again, the parties submitted that the argumentation they had submitted for the main request equally applied to the auxiliary requests 3 to 5. Under these circumstances, the same reasoning and the same conclusion regarding inventive step of the main request apply to claim 1 of the auxiliary requests 1 and 3 to 5.

4.4 The Board concludes from the above that claim 1 of any of auxiliary requests 1 to 5 lacks an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. European patent No. 2356175 is revoked.

The Registrar:

The Chairman:



I. Aperribay

F. Rousseau

Decision electronically authenticated