BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen
(D) [ ] No distribution

Datasheet for the decision of 16 July 2008

Case Number: T 0353/06 - 3.2.05

Application Number: 95931441.0

Publication Number: 0805009

IPC: B29B 9/06

Language of the proceedings: EN

Title of invention:
Method of manufacturing olefin resin particles and pre-expanded particles

Patentees:
KANEGAFUCHI KAGAKU KOGYO KABUSHIKI KAISHA
KANEGA Belgium N.V.

Opponent:
Coperion & Pfleiderer GmbH & Co.KG

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 111(1)
EPC R. 76(2)(c), 77

Relevant legal provisions (EPC 1973):
EPC R. 55(c)

Keyword:
"Admissibility of the opposition - yes"
"Prior use proved - apparatus (yes), method (no)"
"Lack of inventive step, fresh ground for opposition - no"
"Remittal to the first instance - no"
"Added subject-matter, fresh ground for opposition - yes"
"Novelty - yes (all requests)"
"Inventive step - no (all requests)"

Decisions cited:
G 0010/91, T 0131/01

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0353/06 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 16 July 2008

Appellants: (Patent Proprietors)	KANEGAFUCHI KAGAKU KOGYO KABUSHIKI KAISHA 2-4 Nakanoshima 3-chome Kita-ku Osaka-shi Osaka-fu 530 (JP) KANEGA Belgium N.V. BE-2431 Westerlo-Oevel (BE)
Representative:	Vossius & Partner Siebertstrasse 4 D-81675 München (DE)
Respondent: (Opponent)	Coperion & Pfleiderer GmbH & Co.KG Theodorstrasse 10 D-70469 Stuttgart (DE)
Representative:	Rau, Manfred Rau, Schneck & Hübner Patentanwälte Königstrasse 2 D-90402 Nürnberg (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 20 January 2006 revoking European patent No. 0805009 pursuant to Article 102(1) EPC 1973.**

Composition of the Board:

Chairman: W. Zellhuber
Members: H. Schram
M. J. Vogel
W. Widmeier
C. Rennie-Smith

Summary of Facts and Submissions

I. The appeal is against the decision of the Opposition Division posted 20 January 2006 revoking European patent No. 0 805 009 on the grounds that the subject-matter of independent claim 1 of the main request of the appellants (patent proprietors), ie claim 1 as granted, was not new, Article 54 EPC, with respect to the alleged prior use "Hüls AG" and that the subject-matter of the corresponding claim of the auxiliary request did not involve an inventive step, Article 56 EPC.

II. Oral proceedings were held before the Board of Appeal on 16 July 2008.

III. The appellants requested that the decision under appeal be set aside and the patent be maintained as granted (main request), or on the basis of claims 1 and 2 filed as "auxiliary request" on 30 May 2006 (hereinafter this request is denoted as first auxiliary request), or on the basis of either the second or third auxiliary request filed on 16 June 2008. If the Board should decide the subject-matter of the patent to be novel, the appellants requested that the case be remitted to the first instance for further prosecution.

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

IV. The following documents were *inter alia* referred to in the appeal proceedings:

E2 Offer of Werner & Pfleiderer GmbH to Hüls AG dated 10 March 1993 concerning "Modification parts and accessory aggregates for your ZSK 120 / UG 200 A for manufacturing polypropylene mini granules"

E3 Order No. 31 985 290 of Hüls AG to Werner & Pfleiderer GmbH dated 30 March 1993

E4 Order confirmation No. 545060 - 002 and 545060 - 003 of Werner & Pfleiderer GmbH to Hüls AG dated 25 June 1993

E8 *Reisebericht* (Service Report) of Mr Winkler dated 23/12/93 including "Maschinendatenblatt ZSK 120/UG200A, Hüls AG / Marl 1993"

E12 *Plastics Extrusion Technology*, Edited by Hensen, F. et al., Carl Hanser Verlag, München 1988, pages 430 to 433 (filed as "Anlage E13").

E14 *Unterwassergranulierung - Bauart Werner & Pfleiderer*, Pfaff, G., in "Granulieren von thermoplastischen Kunststoffen", VDI-Verlag GmbH, Düsseldorf, 1974, pages 171 to 181.

E16 *Lexikon Werkstofftechnik*, edited by Gräfen, H., VDI-Verlag GmbH, Düsseldorf, 1993, pages 779 to 785.

V. Claims 1 to 3 of the main request (ie of the patent as granted) read as follows:

"1. A method for producing polyolefin resin granules which comprises the steps of:

extruding by using a kneading extruder a polyolefin resin from a die nozzle into water, and

cutting the extrudate with a cutter blade in the water,

characterized in that

the kneading extruder is a homodirectional twin-screw kneading extruder,

the die nozzle has a die nozzle hole having a diameter of less than 2 mm and a discharge amount per die nozzle hole of 2 - 8 Kg/hr,

the water has a temperature of 5 - 90 °C which is lower than the temperature of the resin by 140 - 220 °C, and

the peripheral speed of the cutter blade is 13 - 27 m/sec."

"2. A method as claimed in Claim 1, wherein the polyolefin resin contains talc as a nucleating agent."

"3. A method for producing polyolefin pre-foamed beads, which comprises pre-foaming the resin granules obtained in Claim 1 or 2."

Claim 1 of the first auxiliary request differs from claim 1 of the main request in that the feature "wherein the polyolefin resin contains talc as a nucleating agent" is added at the end of the claim, ie said claim corresponds to claim 2 as granted.

Claim 1 of the second auxiliary request differs from claim 1 of the main request in that the expression "A method for producing polyolefin resin granules which comprises" is replaced by the expression "A method for producing polyolefin pre-foamed beads, which comprises

pre-foaming the resin granules obtained by the process comprising", ie said claim corresponds to the alternative of claim 3 as granted which refers to "obtained in Claim 1 ~~or 2~~".

Claim 1 of the third auxiliary request differs from claim 1 of the second auxiliary request in that the feature "wherein the polyolefin resin contains talc as a nucleating agent" is added at the end of the claim, ie said claim corresponds to the alternative of claim 3 as granted which refers to "obtained in Claim ~~1 or~~ 2".

VI. The relevant arguments of appellants, in writing and during the oral proceedings, were as follows:

Admissibility of the opposition

The Opposition Division held the opposition to be admissible on the ground that the respondent had indicated in its notice of opposition the date on which the alleged prior use occurred, what had been used and all the circumstances relating to the use, "ie that Werner & Pfleiderer had sold and delivered machine parts to Hüls AG for the modification of an extruder ZSK 120, and had done the modification and the start-up of the modified machine" (see Reasons 1.2, last paragraph, of the decision under appeal). However, claim 1 of the patent in suit was directed to a method, not to an apparatus. Werner & Pfleiderer had delivered hardware, not a method to produce granules using that hardware. A crucial piece of information was therefore missing in the notice of opposition, namely who had provided the process parameters used during the start-up test runs as indicated in document E8: Werner &

Pfleiderer, or Hüls AG. Without this information, the alleged prior use was not sufficiently substantiated. The opposition was therefore to be rejected as inadmissible, cf. Rule 55(c) EPC 1973.

Prior use "Hüls AG"

Hüls AG had taken the initiative in 1993 to contact Werner & Pfleiderer with a view to produce mini PP granules on its existing extruder of the type ZSK 120 which had to be modified for that purpose. Hüls AG had merely sub-contracted out the manufacture of machine parts, designed to their own specifications, to Werner & Pfleiderer. At best Hüls AG and Werner & Pfleiderer had to be considered as two companies jointly developing a new apparatus. According to the case law of the boards of appeal of the EPO an implicit secrecy obligation had to be assumed in such cases (sub-contractor or joint development). As regards the modified machine, Hüls AG was therefore not a member of the public.

The start-up test runs on the modified machine took place at the premises of Hüls AG. The polypropylene resin, which determined the process parameters for manufacturing granules from said resin, and the throughput were provided by Hüls AG. In other words, the method for producing polypropylene resin granules used during the start-up test runs was provided by Hüls AG. Since Werner & Pfleiderer did not "own" the inventive method to perform the test runs - Hüls AG did -, there was no "making available" of the method to Hüls AG, and there was no "public". The alleged prior

use "Hüls AG" was therefore not proved as far as it concerned the method.

Objection of lack of novelty

The objection of lack of novelty was raised only with respect to the alleged prior use "Hüls AG". Since the alleged prior use of the method was not proved, the subject-matter of claim 1 of the main request was novel.

Objection of lack of inventive step, a fresh ground for opposition?

The opposition had been solely based on an alleged prior use, and only the single legal ground for opposition "lack of novelty" had been substantiated in the notice of opposition. The objection of lack of inventive step was thus a fresh ground for opposition. No permission was given to the Board to examine this ground. The present case had to be distinguished from the case whereby an opposition was solely based on lack of novelty with respect to a prior document. In the latter case the opponent could switch to lack of inventive step with respect to the same prior document if the subject-matter of a claim was found to be novel after all, see T 131/01 (OJ EPO 2003, 115). In the former case, if the alleged prior use was not proved, the opponent should not be allowed to switch to lack of inventive step with respect to the same unproved prior use.

Remittal to the first instance?

The objection of lack of inventive step against claim 1 of the main request was never examined by the Opposition Division. A new objection under Article 100(a) EPC (lack of inventive step, Article 56 EPC) against said claim based on document E14 was raised by the respondent for the first time during the appeal proceedings. The case should be remitted to the first instance in order to allow the appellants to have their case decided at two instances.

Added subject-matter, a fresh ground for opposition?

All claims of the first to third auxiliary requests had exact counterparts in claims as granted. The "amendments" with respect to the claims as granted, which merely consisted in deleting certain claims from the set of claims as granted, were no substantive amendments in the sense of Article 123(2) EPC. The ground for opposition under Article 100(c) EPC had not been raised during the opposition proceedings against the granted claims. No consent was given to the Board to examine this fresh ground for opposition.

Objection of lack of inventive step

Main request (independent claims 1 and 3 as granted) and second auxiliary request (claim 3 as granted)

The problem the invention sought to solve was to provide a method for producing mini polyolefin resin granules (cf. claim 1) having a high homogeneity of the dispersed compounding agents and having a desired

shape, and a method for producing polyolefin pre-foamed beads (cf. claim 3) having a desired shape and an uniform cell density. Claim 1 of the main request listed four essential parameters each of which were necessary to obtain mini granules having the required properties, namely (i) a discharge amount per die nozzle hole of 2 - 8 Kg/hr, (ii) a water temperature of 5 - 90 °C, (iii) said water temperature being lower than the temperature of the resin by 140 - 220°C, and (iv) a peripheral speed of the cutter blade of 13 - 27 m/sec. The comparative Examples listed in Tables 1 and 2 of the patent in suit showed that small deviations of only one parameter outside its claimed range resulted in a failure to produce granules (eg clogging of nozzle) or in defective granules or pre-foamed beads. Document E14 was silent about the use of a homodirectional twin-screw kneading extruder and did not relate to a method for producing mini polyolefin resin granules, ie using die nozzle holes having a diameter of less than 2 mm. This document was also silent about the relative temperature of the water with respect to the resin temperature. The method claimed in claims 1 or 3 as granted was neither disclosed nor rendered obvious by the prior use machine "Hüls AG" and/or prior art documents.

First and third auxiliary requests

The use of a polyolefin resin containing talc as a nucleating agent with the method of claim 1 or 3 as granted was neither disclosed nor rendered obvious by the prior art. The combination of features according to the first auxiliary request was particularly advantageous due to the effects discussed, eg in

paragraphs [0012] to [0014] as well as [0020] of the patent in suit. The experiments performed by the appellants submitted on 30 May 2006 showed that foaming pre-foamed beads containing a small amount of talc produced more uniform cells when a homodirectional twin-screw kneading extruder was used for producing said pre-foamed beads, than when a single-screw extruder was used. Moreover, the average cell diameter was particularly large when talc was used, as compared to other kinds of nucleating agents. Document E12 related to the extrusion of foamed intermediate products with single-screw extruders. Talc was only disclosed in this document as a nucleating agent for use in single-screw extruders, not for twin screw extruders, and it was not obvious to the person skilled in the art to select a particular nucleating agent out of several possibilities.

VII. The respondent's arguments, in writing and during the oral proceedings, were as follows:

Admissibility of the opposition

In the notice of opposition it had been made credible that Werner & Pfleiderer had sold and delivered machine parts to Hüls AG for the modification of the extruder ZSK 120 without any secrecy obligation and that the method used during the subsequent start-up runs on the modified machine, which also were performed without any secrecy obligation, had become part of the prior art (see point 3 of the notice of opposition). Eight documents had been submitted as evidence for the alleged prior use. Whether these documents and the further submissions in the notice of opposition proved

the alleged prior use was a matter of merit, not of admissibility.

Prior use "Hüls AG"

Werner & Pfleiderer had sold and delivered machine parts to Hüls AG for the modification of an extruder ZSK 120 in 1993. The main modification was replacing the existing die plate with a die plate having 384 holes with a diameter of 0.8 mm. Werner & Pfleiderer was a leading manufacturer in the field of extruders for industrial use. The delivery of machine parts to Hüls AG was an ordinary sale of replacement parts. It was a normal sale from a seller to a customer, not a cooperation between the seller and the customer. According to the case law of the Boards of appeal of the EPO a single sale to a single customer not subject to a secrecy agreement sufficed to prove a public prior use.

The test runs were part of a normal (paid) after-sale service programme, whereby Hüls AG had an interest to learn from the revised start-up procedure in view of the fact that earlier start-up procedures had failed. Employees of Hüls AG had been present during the test runs. The machine parameters with which the test runs were performed were documented on the last page (titled "Maschinendatenblatt") of document E8. It followed that not only the modified apparatus but also the method of running that apparatus was made available to the public.

Objection of lack of novelty

The test runs, which were performed without any secrecy obligation, constituted the act of prior use of a method having all the features of claim 1 of the main request. Consequently, the claimed method was not new.

Objection of lack of inventive step, a fresh ground for opposition?

On the Standard form EPO 2300 (Notice of Opposition to a European Patent), page 2, point VI (Grounds for opposition), the boxes indicating that the subject-matter of the European patent opposed is not new and does not involve an inventive step had been marked with a cross. In the decision under appeal it was found that claim 1 of the first auxiliary request did not involve an inventive step, Article 56 EPC (see point 4.4 of the Reasons). Lack of inventive step was thus not a fresh ground for opposition, and had to be examined by the Board even if the appellants did not agree.

Remittal to the first instance?

The patent application that matured into the patent in suit was filed in 1995. If the case were to be remitted to the first instance a further appeal by one or both of the parties could not be excluded, so that the legal uncertainty with respect to the status of the patent could possibly exist up to the end of its term.

Added subject-matter, a fresh ground for opposition?

Claim 1 of the first and third auxiliary requests differed from claim 1 as granted and from claim 3 as granted, respectively, in that the following feature had been added: "wherein the polyolefin resin contains talc as a nucleating agent". However, talc had only been disclosed as a nucleating agent in the amount of 0.01 parts by weight and only for an ethylene-propylene random copolymer, see page 3, lines 19 to 21, and page 4, lines 56 and 57, of the application as filed (published version). The subject-matter of claim 1 of the first and third auxiliary requests therefore extended beyond the contents of the application as filed, Article 123(2) EPC. Amendments of the claims in the course of opposition or appeal proceedings had to be fully examined as to their compatibility with the requirements of the EPC.

Objection of lack of inventive step

Main request (independent claims 1 and 3 as granted) and second auxiliary request (claim 3 as granted)

The object of the invention as stated in paragraph [0009] of the patent in suit, ie to provide a method for producing polyolefin resin granules having a higher uniformity of the dispersed compounding agents, was based on the use of a single-screw kneading extruder. The kneading extruder of the modified machine "Hüls AG" was a homodirectional twin-screw extruder which already solved the problems mentioned in said paragraph. The range claimed for the discharge amount per die nozzle hole of 2 - 8 Kg/hr was broad, since the minimum and

maximum value differed by a factor of four, and encompassed all technically feasible throughputs. Document E14 disclosed a nozzle hole having a diameter of 2,2 mm, which was only 10% larger than the claimed maximum diameter of 2 mm, see page 179, last sentence. The given discharge amount per die nozzle hole of 6,8 Kg/hr was within the claimed range. The water temperature of an under water granulation cutter UG 200 was necessarily between 0 - 100°C, since outside this range water was either solid (ice), or gas (vapour), and no longer liquid water. The range claimed for the water temperature of 5 - 90°C was thus also broad. Document E14 disclosed a water temperature of 40 - 80°C, ie within the claimed range. The range claimed for the difference between the water and resin temperatures was also broad, since a difference 140 - 220°C meant that the resin temperature had to be in the range of 145 - 310°C in order to fulfil said requirement. Since polypropylene had a melting temperature of about 160 to 165°C (see eg document E16, page 781, upper Table, column "PP", row "Kristallitschmelztemp."), a person skilled in the art would select a temperature higher than the melting temperature and below the temperature at which the polypropylene was destroyed. The peripheral speed of the cutter blade for the under water granulation cutter UG 200 at 1500 rotations per minute was 15,7 m/s, ie within the claimed range. Producing pre-foamed beads of polyolefin resins for obtaining foamed articles was well-known in the art of extrusion of foamed products, see eg document E12, Section 13.2 on page 430, where *foaming* is mentioned as a consecutive production phase after *extrusion*, as is also acknowledged in eg paragraph [0002] and [0007] of the patent in suit. The

subject-matter of claims 1 and 3 of the main request thus lacked an inventive step.

First and third auxiliary requests

Talc was a well-known nucleating agent in the art of extrusion of foamed products, see eg document E12, page 433, penultimate paragraph. The subject-matter of claim 1 of the first and third auxiliary requests therefore lacked an inventive step.

Reasons for the Decision

1. *Admissibility of the opposition, Rules 76(2)(c) and 77 EPC*

1.1 The appellants have submitted that the opposition did not meet the requirements of Rule 55(c) EPC 1973 (now Rule 76(2)(c) EPC), because the notice of opposition of the respondent "*did not contain an indication of the facts and evidence*" presented in support of the grounds of opposition. The appellants have in particular argued that the notice of opposition failed to indicate which company had provided the process parameters as indicated in document E8, namely the discharge amount per hour, the water and (relative) resin temperatures, and the number of revolutions of the cutter blade, used during the start-up test runs performed on the modified machine from 21 to 23 December 1993. The notice of opposition thus failed to indicate how the method used during these test runs had been "made available" to Hüls AG.

1.2 In the opinion of the Board the arguments of the appellants concern the corroborative value of the facts and evidence, rather than a failure to indicate such facts and evidence in support of the grounds of opposition.

The respondent has alleged in the notice of opposition that the method used during the test runs on the modified machine as part of the start-up procedure was made available without any secrecy agreement to Hüls AG, ie the public, before the priority date of the patent in suit and thus had become part of the prior art. This indication, with the further evidence provided in the notice of opposition concerning the sale of machine parts to Hüls AG, is sufficient to meet the requirements of Rule 76(2)(c) EPC, last half-sentence.

It may be noted that establishing that the alleged prior use, viz. the method used during the start-up test runs on the modified machine, was indeed public, is a matter of proof (see point 2 below) and has little bearing on the admissibility of the opposition.

1.3 It has not been disputed that the notice of opposition filed by the respondent on 29 April 2002 meets all the requirements of Article 99(1) EPC and Rule 76(2)(a) and (b) EPC and that it contains a statement of the extent to which the European patent is opposed and of the grounds on which the opposition is based.

The opposition of the respondent is therefore admissible.

2. *Prior use "Hüls AG"*

2.1 The modified apparatus "Hüls AG"

The appellants no longer disputed that a homodirectional twin-screw kneading extruder of the type ZSK 120 and an under water granulation cutter UG 200 (henceforth referred to as "apparatus") were delivered to Hüls AG in 1969 and 1990 respectively, and that this apparatus was modified in 1993 to enable the production of mini-granulates with die plates having 384 holes with a diameter of 0.8 mm. However, it was disputed that Hüls AG was a member of the public.

Werner & Pfleiderer GmbH (the predecessor company of the respondent, Coperion Werner & Pfleiderer GmbH & Co. KG) sent a quote dated 10 March 1993 to Hüls AG regarding "Umbauteile bzw. Zubehöraggregate für Ihre ZSK 120 /UG 200 A zur Herstellung von PP-Minigranulat" (document E2). In response Hüls AG ordered on 26 March 1993 by telephone several machine parts: two heated nozzle plates, two extrusion screw tips and a blade wing with 18 blade knives (written confirmation dated 30 March 1993, see document E3). Werner & Pfleiderer GmbH sold and delivered the ordered machine parts to Hüls AG (order confirmation dated 25 June 1993, see document E4).

Werner & Pfleiderer offered a solution to Hüls AG to produce polypropylene mini granulate on their existing ZSK 120 /UG 200 apparatus. That apparatus was delivered by Werner & Pfleiderer in 1969 (ZSK 120) and in 1990 (UG 200), respectively. The technical know-how to modify said apparatus for that purpose was evidently in

the hands of Werner & Pfleiderer. The extent to which the offered solution was either customized or "off-the-shelf" is not relevant.

In the judgement of the Board, the sale of said machine parts was thus an ordinary sale to an ordinary customer. The modified apparatus was thus made available to the public at the latest on 21 December 1993 when the apparatus came into operation at the premises of Hüls AG, ie before the claimed priority date, 20 September 1994, of the patent in suit.

2.2 The start-up test runs "Hüls AG"

The main thrust of the appellants' case is that the process parameters during the start-up test runs were provided by Hüls AG, not by the supplier of the modified apparatus.

The respondent has argued that the test runs were part of a normal after-sale service programme of Werner & Pfleiderer.

However, there is no evidence that Werner & Pfleiderer supplied the process parameters to run the modified apparatus during the start-up to Hüls AG, or made these parameters publicly available, eg in the form of a manual. Even if Werner & Pfleiderer suggested to Hüls AG to run the apparatus with a particular resin, a specific throughput, water and resin temperatures and with a particular number of rotations per minute of the cutter blade, an implicit secrecy agreement must be assumed.

In the judgement of the Board, the start-up test runs "Hüls AG" were not made available to the public.

MAIN REQUEST

3. *Objection of lack of novelty*

The subject-matter of claim 1 of the main request is novel, since none of the prior art documents cited by the respondent and which have been made available to the public discloses a method for producing polyolefin resin granules having all the features of said claim. The modified apparatus itself does not disclose the method either. Since this was not disputed by the respondent, there is no need for further substantiation of this matter.

4. *Objection of lack of inventive step fresh ground for opposition?*

In decision T 131/01 (OJ EPO 2003, 115) it was held that (see Reasons 3.1) "*... in a case where a patent has been opposed under Article 100(a) EPC on the grounds of lack of novelty having regard to a prior art document and lack of inventive step having regard to the same prior art and the ground of lack of novelty has been substantiated pursuant to Rule 55(c) EPC* [1973 - added by this Board]*, a specific substantiation of the ground of lack of inventive step is neither necessary - given that novelty is a prerequisite for determining whether an invention involves an inventive step and such prerequisite is allegedly not satisfied - nor generally possible without contradicting the reasoning presented in support of lack of novelty. In*

such a case, the objection of lack of inventive step is not a fresh ground for opposition and can consequently be examined in the appeal proceedings without the agreement of the patentee".

This applies mutatis mutandis to the present case, since the fact that in case T 131/01 (loc. cit.) the prior art was a document, whilst in the present case the prior art is a prior use, cannot give rise to a different conclusion.

5. *Remittal to the first instance?*

Article 111(1) EPC, second sentence, provides that the Board of Appeal may either exercise any power within the competence of the department which was responsible for the decision appealed or remit the case to that department for further prosecution.

The respondent filed its reply to the statement setting out the grounds for appeal of the appellants on 9 December 2006. With its reply two new documents E14 and E16 together with an enlarged picture of the under water granulation cutter UG 300 shown on page 173 of document E14 were filed and it was submitted that claim 1 of the main request did not involve an inventive step having regard to documents E14 and E16. Document E14 contains *inter alia* information on the under water granulation cutter UG 200 and document E16 is an excerpt of a technical lexicon.

In exercising its discretion under Article 111(1) EPC, the Board comes to the conclusion that to remit the case to the first instance for further prosecution is

not justified. The appellants had had ample time, over a year and a half, to consider documents E14 and E16, and the relevant technical content of these documents is simple.

6. *Objection of lack of inventive step*

The invention according to claim 1 of the main request relates to a method for producing polyolefin resin granules on a particular apparatus, namely a homodirectional twin-screw kneading extruder with an under water granulation cutter, with process parameters within specific ranges.

The modified apparatus "Hüls AG" represents the most promising spring board to assess inventive step, since this apparatus, ie a homodirectional twin-screw kneading extruder with an under water granulation cutter UG 200 having a die plate with a diameter of 20 cm and 384 nozzle holes having a diameter of 0,8 mm, is suitable for producing polypropylene resin granules.

The process parameters to run said apparatus, namely the discharge amount per die nozzle hole, the water temperature, the resin temperature and the peripheral speed of the cutter blade must be set by the operator.

In document E14 (publication date 1974) it is disclosed (see Table 1, page 179) that the maximum number of rotations per minute of the under water granulation cutter UG 200 described therein is 1500/min, corresponding to a peripheral speed of the cutter blade of 15,7 m/s. The discharge amount per die nozzle hole having a diameter of 2,2 mm is given as 6,8 kg/nozzle

hole/hr, see page 179, last two lines. The range for the water temperature is indicated as 40 to 80°C in said Table. Polypropylene has a melting point of about 160 - 165°C, see document E16, page 781. In the judgement of the Board, the person skilled in the art would select, on the one hand, a polypropylene resin temperature which is sufficiently above the melting temperature of the polypropylene - but below the degradation temperature of the resin - in order to ensure a good extrusion flow, and, on the other hand, a water temperature that is sufficiently low in order to prevent the forming of agglomerations, see document E14, page 177, last two lines. Thus, selecting a gap of above 140°C between the water temperature and the polypropylene resin temperature falls within the customary practice of the person skilled in the art.

In the judgement of the Board, it was obvious for the person skilled in the art to select the four parameters mentioned above within the ranges claimed in claim 1 of the main request.

The subject-matter of claim 1 of the main request does therefore not involve an inventive step, Article 56 EPC.

AUXILIARY REQUESTS

7. *Added subject-matter a fresh ground for opposition?*

7.1 Claim 1 of the first auxiliary request corresponds to claim 2 as granted, viz. "2. A method as claimed in Claim 1, wherein the polyolefin resin contains talc as a nucleating agent." The amendment with respect to the

claims as granted consists in deleting claim 1 as granted, deleting the reference to claim 1 in claim 3 as granted, renumbering claim number 2 as granted and the reference to claim number 2 in claim 3 as granted into "1", and renumbering claim number 3 as granted as "2".

Claim 1 of the first auxiliary request is to be regarded as a substantively unamended claim. Claim 1 of the second and third auxiliary requests is likewise to be regarded as substantively unamended.

7.2 The ground of opposition under Article 100(c) EPC was neither mentioned in the notice of opposition of the respondent, nor raised by the respondent or the Opposition Division during the opposition proceedings.

The Enlarged Board of appeal ruled in its Opinion G 9/91 (31 March 1993, Power to examine / Rohm and Haas, OJ EPO 1993, 408) that "Fresh grounds for opposition may be considered in appeal proceedings only with the approval of the patentee" (see Opinion, point 3).

Since the appellants did not give their consent to consider the ground for opposition under Article 100(c) EPC, the Board has no power to examine this ground.

It may be noted that the statement in point 19 of the Reasons of Opinion G 9/91, namely that "*in case of amendments of the claims or other parts of a patent in the course of opposition or appeal proceedings, such amendments are to be fully examined as to their compatibility with the requirements of the EPC (eg with*

regard to the provisions of Article 123(2) and (3) EPC)" is not applicable to the first auxiliary request, since - on a proper interpretation of the expression "amendments of the claims" there are in the present case no such amendments, see point 7.1 above.

8. *Objection of lack of inventive step*

8.1 For sake of convenience, claim 1 of the second auxiliary request is examined first. This claim corresponds to claim 3 as granted, which relates to a method for producing polyolefin pre-foamed beads, which comprises pre-foaming the resin granules obtained with the method according to claim 1 or 2 as granted.

In the judgement of the Board, it was obvious to the person skilled in the art to pre-foam the resin granules obtained by the method according to claim 1 of the main request with a view to produce pre-foamed beads, since pre-foaming intermediate products and granules is well-known in the art of extrusion of foamed products, see eg document E12, Section 13.2 on page 430, where *foaming* is mentioned as a consecutive production phase after *extrusion,* and paragraphs [0002] and [0007] of the patent in suit.

The subject-matter of claim 1 of second auxiliary request does therefore not involve an inventive step, Article 56 EPC.

8.2 Claim 1 of the first auxiliary request differs from claim 1 of the main request in that the feature "wherein the polyolefin resin contains talc as a nucleating agent" is added at the end of the claim.

Nucleating agents influence the foam structure and the foam density, see document E12, page 433, Section 13.2.2, first line. Talc is a well-known nucleating agent in the art of extrusion of intermediate products, see document E12, page 433, penultimate paragraph.

The subject-matter of claim 1 of the first auxiliary request does therefore not involve an inventive step, Article 56 EPC.

The argument of the appellants that it could not be foreseen by the person skilled in the art that talc was particularly advantageous for twin screw extruders cannot lead to a different result. In the jurisprudence of the Board such advantages are considered merely a bonus effect, which cannot make obvious subject-matter non-obvious. The further argument of the appellants that document E12 merely taught that talc can be used as a nucleating agent for single-screw extruders and not for twin-screw extruders is not supported by Section 13.2.2. It is true that the title of Chapter 13 refers to single-screw extruders. This is not to say, however, that the thermoplastic resins mentioned in Section 13.2.1 and the nucleating agents and additives mentioned in Section 13.2.2 are restricted to single-screw extruders.

It may be noted that claim 1 of the first auxiliary request is silent about the amount of talc that is contained in the resin. The argument of the appellants that sufficient nucleation was already surprisingly achieved by a small quantity of talc has to be disregarded.

8.3 Claim 1 of the third auxiliary request is directed to a method for producing polyolefin pre-foamed beads, which comprises pre-foaming the resin granules obtained with the method according to claim 1 as granted, with the additional feature "wherein the polyolefin resin contains talc as a nucleating agent".

Adding talc as a nucleating agent to the resin is an obvious measure for the person skilled in the art of extrusion of intermediate products, see point 8.2 above. This applies in particular to intermediate products that are (pre-)foamed.

The subject-matter of claim 1 of third auxiliary request does not involve an inventive step, Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Meyfarth W. Zellhuber