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D E C I S I O N
of 14 November 1997

Case Number: T 1082/93 - 3.3.3

Application Number: 87904098.8

Publication Number: 0273059

IPC: B65D 65/40

Language of the proceedings: EN

Title of invention:
Heat shrinkable cylindrical laminated film

Patentee:
Asahi Kasei Kogyo Kabushiki Kaisha

Opponent:
W. R. Grace & Co.

Headword:
-

Relevant legal provisions:
EPC Art. 56, 84, 87(1), 113(1), 114(2), 123(2)

Keyword:
"Basis of decision - opportunity to comment - (yes)"
"Amendments - added subject-matter - (yes) (Reasons 5.1)"
"Claims - support by description - (no) (Reasons 5.2 & 5.3)"
"Right of priority entitlement - (no) (Reasons 7.1)"
"Inventive step - (no) - closest prior art - common general knowledge - prejudice (no) (Reasons 7.2)"

Decisions cited:
G 0009/92, G 0001/93, G 0004/95, T 0094/82, T 0073/88, T 0873/94

Catchword:
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Case Number: T 1082/93 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 14 November 1997

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 2 November 1993 revoking European patent No. 0 273 059 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: C. Gérardin
Members: P. Kitzmantel
J. A. Stephens-Ofner

Summary of Facts and Submissions

I. European patent application No. 87 904 098.8 in the name of ASAHI KASEI KOGYO KABUSHIKI KAISHA which had been filed on 18 June 1987 as International application PCT/JP87/00401, claiming priority from a JP application filed on 19 June 1986, resulted in the grant of European patent No. 273 059 on 11 September 1991, on the basis of 16 claims, independent Claims 1, 13 and 14 reading as follows:

"1. A heat shrinkable cylindrical laminated film, comprising:

(1) a polyvinylidene chloride resin layer (I) providing an oxygen-barrier core layer;

(2) a cross-linked polyolefin resin layer (II) disposed on one side of said polyvinylidene chloride resin layer (I);

(3) an adhesive shrinkable resin layer (III) disposed on the other side of said polyvinylidene chloride resin layer (I); and

(4) a sealing resin layer (IV) disposed on said adhesive shrinkable resin layer (III);

characterised in that

(a) said layer (II) is cross-linked to the extent that said layer (II) has a gel fraction (X) at an outer portion (remote from (I)) of 25-70% by weight, a gel fraction (Y) at an inner portion (adjacent (I)) of 0.5-40% by weight and a gradient of gel fraction represented by (Y/X) of 0.6 or less,

(b) the joint between said layer (II) and said layer (I) is denatured by irradiation with electrons,

(c) said layer (III) and said layer (IV) are substantially uncross-linked."

"13. The use of a film according to any one of claims 1 to 12 as heat shrinkable packaging for irregularly shaped fatty food."

"14. A process for producing a cross-linked laminated film as claimed in claim 1 which comprises

(a) forming a laminate by disposing at least one polyolefin resin layer (II) on one side of oxygen barrier core layer (I), and then disposing an adhesive shrinkable resin layer (III) and a sealing resin layer (IV) in this order on the other side of said core layer (I),

(b) irradiating said laminate with an electron beam from the surface side of the layer (II), the energy and dose of irradiation being each that the electrons do not substantially penetrate beyond the core layer (II) so that the outer portion of the layer (II) is cross-linked due to a more severe dosage level than that of the inner portion of the layer (II), and that the joint portion of the layer (I) and the layer (II) is denatured without cross-linking the layers (III) and (IV), and

(c) stretching the irradiated laminate."

Claims 2 to 12 were dependent on Claim 1; Claims 15 and 16 were dependent on Claim 14.

II. Notice of Opposition requesting revocation of the patent in its entirety on the grounds of Article 100(a), (b) and (c) EPC was filed by W. R. GRACE & CO on 11 June 1992.

The opposition was i.a. based on the following citations:

D1: US-A-4 246 297,

D2: US-A-3 780 308 and

D3: EP-A-022 184.

Reference was also made to US-A-3 741 253 (D6 in the appeal) and JP-A-23752/87 corresponding to EP-A-202 814 (D7 in the appeal), both cited in the prior art discussion of the specification of the patent in suit.

III. By its decision of 29 September 1993, issued in writing on 2 November 1993, the Opposition Division revoked the patent.

That decision, which was based on the claims as granted, except for the insertion into Claim 1 after "characterised in that" of the statement "said layer (II) is an exterior surface layer, and", held that Claim 1 met the provisions of Articles 123, 83 and 54 EPC, but, for the following reasons, did not comply with the requirement of Article 56 EPC.

(i) In the Opposition Division's opinion, for the assessment of inventive step, feature (a) of Claim 1 was to be disregarded, because it was insufficiently disclosed. Moreover, this feature was not entitled to the claimed priority.

(ii) The nearest state of the art was represented by the multi-layer films disclosed in D6, which films comprised a cross-linked layer positioned on the inside of the package.

(iii) It was obvious, in the Opposition Division's view, to provide films where the crosslinked layer was on the outside, because this was the immediate consequence of the making of such films by coextrusion, a method which (1) was known from D3, (2) was more economical than the extrusion coating method used according to D6, and (3) only permitted irradiation from the outside of the film.

(iv) In the Opposition Division's view, it was furthermore obvious to provide a denatured joint between the outer layer and the sandwiched polyvinylidene chloride (PVDC) barrier layer, because it was known, i.a. from D7 that the interlayer adhesion could be improved by denaturing with electrons. It was, thus, evident that the radiation energy had to be confined to the interlayer region by the use of techniques that provided an appropriate energy profile, for example the technique known from D1. As an immediate consequence of this energy profile the PVDC barrier layer received only minimal energy and the inner layers remained substantially uncross-linked.

(v) Hence, in the Opposition Division's opinion, Claim 1 as well as process Claim 14, which contained the same features, were obvious.

IV. On 23 December 1993 the Patentee (Appellant) lodged an appeal against the decision of the Opposition Division after payment of the appeal fee on 22 December 1997. The Statement of Grounds of Appeal was submitted on 10 March 1994. Further submissions of the Appellant dated from 2 May 1994, 13 October 1997 and 14 October 1997.

V. The Respondent (Opponent) defended his case in submissions dated 22 November 1994 and 27 August 1997.

VI. In an annex to the summons to attend oral proceedings dated 14 July 1997 the Rapporteur summarized the case.

VII. Oral proceedings were held on 14 November 1997.

1. The following issues were discussed successively:

(i) Article 113(1) EPC, including the right of the Respondent to present certain arguments,

(ii) Article 114(2) EPC, in relation to the admissibility of late-filed documents and expert evidence,

(iii) wording of the claims in relation to both Article 123(2) and 84 EPC,

(iv) priority right,

(v) inventive step.

2. The following intermediate decisions were taken after discussion of the respective issues:

ad(i) The issue arising under Article 113(1) EPC not having been pursued by the Appellant, the Board decided that G 9/92 (OJ EPO 94, 875) relied upon by the Appellant was irrelevant to these appeal proceedings (see point VIII-(i) below).

ad(ii) The late-filed documents D4, D5, D8 and D10 were excluded from the appeal.

The evidence of the technical expert accompanying the Respondent's representative would be admitted into the appeal provided it was limited to technical matters relevant to issues already in the case.

ad(iii) Claim sets A to C inclusive and the main request of set D did not meet the requirements of Article 123(2) and/or 84 EPC. The Board made no decision upon the issue of Article 83 EPC brought forward by the Respondent during the oral proceedings in connection with Article 84 EPC.

ad(iv) The three auxiliary requests of set D were not entitled to the claimed priority.

VIII. The Appellant's written and oral submissions may be summarized as follows:

(i) In preparation of the oral proceedings he submitted on 13 October 1997 four claim sets ("A", "B", "C" and "D"), each of which comprising four sub-sets of claims, a so-called "Main Request" and three "Auxiliary Requests".

The "Main Request" of claim set "A" was the sole request underlying the appealed decision. Claim set "B" (all sub-sets) is different from claim set "A" by deletion from the claims, where applicable, of the word "substantially" used in connection with the cross-linking degree of layers (III) and (IV). Claim set "C"

(all sub-sets) is different from claim set "A" by insertion into the claims, where applicable, of the word "coextruded" in connection with the manufacture of the claimed film. Claim set "D" (all sub-sets) represents a combination of claim sets "B" and "C".

The auxiliary requests of sets "A", "B", "C" and "D" are all structured in the same way: auxiliary request 1 differs from the respective main request by the insertion into Claim 1 of the method of determination of the gel fractions (X) and (Y); auxiliary request 2 differs from the respective auxiliary request 1 by insertion of a product-by-process feature ("obtained by forming by coextrusion ... cooling and solidifying ... irradiating ... and stretching ...": see point 7.2.11.1 below) and by not comprising a separate process claim; and auxiliary request 3 does not comprise a product claim, but contains a process claim as main claim which combines the features of Claims 1 and 14 of its respective auxiliary request 1.

Claim 1 of auxiliary request 1 of set "D" reads as follows:

"1. A heat shrinkable cylindrical coextruded laminated film, comprising:
(1) a polyvinylidene chloride resin layer (I) providing an oxygen-barrier core layer;
(2) a cross-linked polyolefin resin layer (II) disposed on one side of said polyvinylidene chloride resin layer (I);

171

(3) an adhesive shrinkable resin layer (III) disposed on the other side of said polyvinylidene chloride resin layer (I); and

(4) a sealing resin layer (IV) disposed on said adhesive shrinkable resin layer (III);

characterised in that said layer (II) is an exterior surface layer, and

(a) said layer (II) is cross-linked to the extent that said layer (II) has a gel fraction (X) at an outer portion (remote fom (I)) of 25-70% by weight, a gel fraction (Y) at an inner portion (adjacent (I)) of 0.5-40% by weight and a gradient of gel fraction represented by (Y/X) of 0.6 or less, said gel fractions (X) and (Y) being determined on samples obtained by cutting respective about 20µm thickness layers from the outer and inner surfaces of a layer (II) peeled from a layer (I) either while the laminate is in an unstretched parison state or after the laminate has been returned to a parison state by heating a stretched film,

(b) the joint between said layer (II) and said layer (I) is denatured by irradiation with electrons,

(c) said layer (III) and said layer (IV) are uncross-linked."

Set "D", auxiliary request 1 furthermore comprises Claims 2 to 11, dependent on Claim 1, independent Claims 12 ("The use of a film according to any one of Claims 1 to 11")

and 13 ("A process for producing a cross-linked coextruded laminated film as claimed in claim 1"), as well as Claims 14 and 15, dependent on Claim 13.

(ii) In the Appellant's view, the appealed decision, contrary to the provisions of Article 113(1) EPC, was based on two conclusions upon which the Patentee had had no opportunity to comment, namely the denial of the claimed priority to feature (a), and the disregarding of the same feature (a) for the purpose of assessing inventive step in view of the alleged absence in the patent in suit of an enabling disclosure for its determination.

In the oral proceedings the Appellant withdrew his original request that in view of these substantial procedural violations, the case should be remitted to the first instance.

(iii) In application of the principles set out in G 9/92 (cf. supra) the Respondent, who had not himself filed an appeal, was barred from raising any objections, which related to matters which had been decided by the Opposition Division in the Patentee's (Appellant's) favour.

(iv) The technical expert accompanying the Respondent's representative should not be allowed to present new facts and/or evidence.

(v) Although not literally disclosed, the feature that the layers (III) and (IV) "are *substantially* uncross-linked" did not extend beyond the original disclosure; the word

"substantially" did only take account of possible minor cross-linking. In this respect the Appellant cited T 873/94 (OJ EPO 97, 456) and G 1/93 (OJ EPO 94, 541).

(vi) From the fact that the feature "co-extruded" originally appeared only in Claim 14 it resulted, that this feature was not essential for the claimed invention.

(vii) The method for determining feature (a) of Claim 1 was disclosed in the specification of the patent in suit and this feature must therefore be taken into account for the assessment of inventive step. Considering T 94/82 (OJ EPO 84, 075), there was no need to introduce this method into Claim 1.

(viii) The Respondent's attack under Articles 100(b) and 83 EPC, alleging that - in view of the problems encountered when samples have to be taken from films re-shrunk to the parison state - it was impossible to correctly measure the gel fractions (X) and (Y) of layer (II), was for the first time submitted during the oral proceedings, was thus raised too late and should not be admitted in the appeal.

(ix) In view of the decision T 73/88 (OJ EPO 92, 557) it could not be denied that the patent in suit was entitled to the claimed priority. In particular, the introduction of feature (a) into Claim 1 did not change the essential character of the invention which was disclosed in the priority document. The Appellant did not specifically comment during the oral proceedings on observations made by the Board, and endorsed by the Respondent, with respect

to several further differences between the disclosures of the priority document and of the patent in suit as originally filed. By referring to Figures 2 and 4 of the patent in suit the Appellant argued that as a matter of substance the claimed invention was "basically foreshadowed" in the priority document.

(x) In his written submissions the Appellant set out that the problem underlying the subject-matter of the patent in suit was to provide a shrinkable, cylindrical, laminated film having good oil and temperature resistance, which was suitable for the production of leakproof meat packages at the rough conditions of modern high speed packaging machines for meat products. During the oral proceedings the Appellant stated, however, that it was not appropriate here, in assessing inventive step, to rely on the problem-solution method, especially when this uncorrectly implied the taking into account of elements of the solution (here prevention of PVDC discoloration by excessive irradiation). In his view, the only question to answer was whether, when starting from the comprehensive knowledge of the prior art, it was **immediately** obvious to arrive at the claimed subject-matter.

(xi) Document D7 taught the electron beam irradiation over the entire cross-section of a laminate comprising a sandwiched PVDC layer and would not suggest that in order to prevent deterioration of the PVDC layer it was useful to use low energy radiation. Document D9, which referred to the radiation sensitivity of PVDC, arrived at a different solution, namely

the substitution of hydrolyzed ethylene vinylacetate polymer (HEVA) for PVDC. There was thus a prejudice in the art to cross-link a film comprising a PVDC layer by irradiation with electron beams.

(xii) Documents D1, D2 and D3 did not relate to films comprising a PVDC barrier layer and could not, therefore, suggest the use of low energy irradiation for the purpose of preventing discoloration of a PVDC layer.

(xiii) The **Declaration of Mr Matsumura**, filed together with the Statement of Grounds of Appeal, showed that, although the Electrocurtain(R) irradiation device (which was used according to the patent in suit) was known for different purposes, it was not obvious, especially in view of the unexpectedly improved sealing properties in the presence of folds of the so irradiated films, to use this device for the irradiation of the instant multilayer films comprising a sandwiched PVDC barrier layer. The person skilled in the art would not have expected that by using this device one would be successful and would therefore not have considered this major investment.

(xiv) Document

D10: US-A-3 821 182,

which had been cited in the Respondent's submission of 27 August 1997 for the first time, although containing a reference to irradiated multilayer films comprising a PVDC layer, did not suggest the graded cross-

linking required by the patent in suit and, furthermore, did not provide good adhesion of the exterior layers to the PVDC layer.

(xv) Concerning the issue of inventive step, the same arguments applied to the subject-matter of all sets of claims, particularly to all requests of set "D".

IX. The Respondent's written and oral submissions may be summarized as follows:

(i) The Patentee had had an opportunity, during the first instance opposition procedure, to comment upon the question of entitlement to priority and also upon the distinguishing character of feature (a), and, hence, the appealed decision did not offend Article 113(1) EPC.

(ii) G 9/92 (cf. supra) was i.a. concerned with the right of a non-appealing opponent to challenge the maintenance of a patent as amended in accordance with an interlocutory decision. This case was not relevant here, where the patent was revoked and, consequently, the Opponent was not entitled to appeal, because he was not adversely affected.

(iii) The word "substantially" in connection with the cross-linking degree of layers (III) and (IV) implied that these layers would indeed be cross-linked to some extent, which was contrary to the entire teaching of the patent in suit, according to which the cross-linking

inducing radiation should not go beyond the sandwiched PVDC layer. Also, thermally induced cross-linking would go against the required extrudability.

(iv) The only method which was disclosed in the patent in suit to manufacture the claimed laminated films was by coextrusion. This was clearly an essential feature that had to be incorporated into Claim 1.

(v) Correct sampling to determine the gel fraction (X) and (Y) of layer (II) was not possible, because the stretched film could not be 100% re-shrunk to its parison state and because the re-shrunk film was not sufficiently flat for precise slicing. Thus feature (a) of Claim 1 could not be determined.

(vi) The patent in suit was not entitled to the claimed priority, because features (a) and (b) were not part of the priority document. The absence of these features from the priority document caused loss of priority, because, contrary to T 73/88 (cf. supra), they were related to the nature and character of the invention. Moreover, essential features of the invention of the priority document, i.a. the thickness of the film and the minimum solution viscosity of the PVDC, were not within the definition of the present claims, thus extending the scope of the claimed invention beyond that of the invention according to the priority document.

(vii) The problem to be solved by the patent in suit was to find an irradiation technique which provided cross-linking of an outside layer of a coextruded laminate film without deteriorating the PVDC layer underneath. The claimed solution, i.e. the attenuated electron beam irradiation, left the sealing layer (IV) uncross-linked, thus accepting the drawbacks of reduced grease resistance and the necessity of an adhesion layer for bonding the sealing layer.

(viii) The conclusions drawn in the **Declaration of Mr Matsumura** as to the importance of the complete sealing of a folded portion of a bag made from the present films would be irrelevant. It was not admissible to change the problem correctly stated in the patent in suit, to the "new", previously unrecognized problem of "poor sealing due to folds". Moreover, this "new" problem was already solved by documents D3, D4, D5, D9 and D10, all of which disclosed an outer cross-linked layer and an inner uncross-linked heat sealable layer.

(ix) Although the radiation sensitivity of PVDC was not mentioned in D7, one skilled in the art was aware, e.g. from D9, of this property of PVDC. No prejudice could be construed from the fact that D9 used HEVA, in lieu of PVDC, as material for the barrier layer, because the younger document D7 again used PVDC.

The fact that according to D7 the entire cross-section of the laminated film, including the PVDC layer, was irradiated, thus providing improved interlayer adhesion, was a further

incentive for a skilled practicioner to follow the teaching of this document. In doing so one skilled in the art would readily recognize that the special PVDC polymer (vinylidene chloride methylacrylate copolymer) used according to D7 was relatively resistant against degradation by electron beam irradiation.

(x) In view of the fact that low energy electron beam irradiation devices had been known from D1 to be applicable to the selective irradiation of laminates comprising a radiation sensitive substrate, it was obvious to the skilled person that such devices represented the solution to the existing problem, because they allowed cross-linking of the top layer by irradiation without damage to the sandwiched PVDC layer. A similar teaching concerning the control of the penetration depth of electron beam radiation could also be derived from D2.

X. The Appellant requested that the decision under appeal be set aside, and, after having been informed of the Board's intermediate decisions (see point VII-2 supra), that the patent be maintained on the basis of one of the three auxiliary requests comprised in claim set "D" as filed on 13 October 1997.

The Respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

2. *Article 113(1) EPC*

The Appellant's contention that the appealed decision contravened Article 113(1) EPC, because he was not given an opportunity to comment upon the Opposition Division's intention (i) to disregard, for the assessment of inventive step, feature (a) of Claim 1 and (ii) to deny to this feature the claimed priority, is not in agreement with the facts. As to the afore-mentioned issue (i), this matter was raised in the opposition brief of 9 June 1992 (page 4, 3rd paragraph and page 7, last paragraph), in Opponent's letter dated 29 July 1993 (pages 1 and 2, bridging paragraph) and was again raised during the oral proceedings before the Opposition Division (Minutes 3.1); moreover, the Patentee in his letter dated 21 January 1993 (page 2, 3rd paragraph) even presented comments on this matter. The priority issue was also raised by the Opponent in his letter dated 29 July 1993 (page 2, last paragraph).

In compliance with Article 113(1) EPC the Patentee therefore had had an opportunity to comment on these grounds of the appealed decision. There was, thus, no procedural violation, which would have justified the immediate remittal of the case to the first instance.

3. *The right of the Respondent to present certain arguments*

The Appellant wanted to rely on G 9/92 (cf. supra) in order to prevent the Respondent from presenting arguments in relation to matters decided in the appealed decision in the Appellant's favour. In G 9/92 (cf. supra) it was held: "If the patent proprietor is the sole appellant against an interlocutory decision maintaining a patent in amended form, neither the Board of Appeal nor the non-appealing opponent as a party to the proceedings as of right under Article 107, second sentence, EPC, may challenge the maintenance of the patent as amended in accordance with the interlocutory decision."

The present case is different in that the appeal of the proprietor lies against the decision of the Opposition Division to revoke the patent and, consequently, G 9/92 (cf. supra) does not apply.

In the instant situation the Respondent was not adversely affected and, under the provisions of Article 107 EPC, was therefore not entitled to appeal himself. He must, thus, have the possibility to defend his case to the full extent argued before the first instance, because otherwise he would be denied a second instance.

4. *Article 114(2) EPC*

4.1 Documents D4, D5, D8 and D10, which have been cited only in the appeal, do not add anything of relevance to the prior art already on file. In application of Article 114(2) EPC they are thus excluded from the appeal.

4.2 It was held in G 4/95 (OJ EPO 96, 412) that during oral proceedings under Article 116 EPC a person accompanying the professional representative may be allowed to make oral submissions on specific legal or technical issues, not as a matter of right, but only with the permission of and under the discretion of the EPO. Requests for such oral submissions should state the name and qualifications of the accompanying person, and should specify the subject-matter of the proposed oral submissions. It was furthermore held, that a request to make oral submissions, which is made shortly before or at the oral proceedings, should in the absence of exceptional circumstances be refused, unless the opposing party agrees to their making (cf. Reasons for the decision, point 10).

In the present case the Respondent, with his facsimile of 24 October 1997, i.e. three weeks before the oral proceedings, announced that his representative will be accompanied by two persons. He did not specify the subject-matter of their proposed oral submissions.

During the oral proceedings the Respondent did not assert the existence of any exceptional circumstances.

In these circumstances the Board, with the consent of the Appellant, decided to admit evidence from the Respondent's technical expert only to the extent as it was limited to technical matters relevant to the issues already in the case.

5. *Article 123(2) and 84 EPC*

5.1 In all Claims 1 of all sub-sets of the claim sets "A" and "C" the cross-linking degree of the layers (III) and (IV) is qualified by the term "substantially uncross-linked". The original application of the patent in suit does not explicitely specify the cross-linking status of these layers, but makes clear that the radiation applied to cross-link the outer layer (II) is attenuated while passing that layer, penetrates into the PVDC layer (I) with considerably reduced energy, and does not go beyond that layer into the adhesive and sealing layers (III) and (IV) (see original application: Figure 2 in combination with page 12, line 9 to page 13, line 23: the curves "c", "b" and "m" are those according to the claimed invention).

It follows that these layers are not subjected to any radiation that might induce cross-linking.

5.1.1 In the absence of any suggestion in the original application as to the use as material for the layers (III) and (IV) of cross-linked resins, there is thus no basis for the Appellant's contention that the original disclosure comprised the possibility that these layers are cross-linked to a certain extent, i.e. are "substantially" uncross-linked.

5.1.2 This conclusion takes account of the statement in the original application (page 18, lines 5 to 9), namely that (Y) "does not include the gel fraction of less than 0.5% by weight and having *substantially* no difference with that of uncrosslinked article" [emphasis by the Board]. This statement is not related to the layers (III) and (IV), nor does it imply any general teaching from which it could be

concluded that these layers might indeed be cross-linked to an extent to make them "substantially" uncross-linked. Rather such an interpretation would be at variance with the statement on page 17, lines 9 to 23 of the original application (see particularly page 17, lines 13 to 14), where it is stressed that the laminated film has not been cross-linked prior to lamination.

5.1.3 There is also no basis in the original application for the argument in the appealed decision, point 3.1 - nor can this argument be inferred from the common general knowledge of one skilled in the art - that some cross-linking "can't be avoided completely", because, on the one hand "it can't be avoided that some electrons penetrate into layers (III) and (IV)", and on the other hand some thermally induced cross-linking will also occur. Even if "some" electrons penetrated into layers (III) and (IV) - which is against the teaching of the patent in suit - their energy would not necessarily suffice to bring about cross-linking, and the use of materials for layers (III) and (IV) which are susceptible to thermal cross-linking at the conditions used according to the claimed invention is again not in line with the teaching of the patent in suit, which requires very good extrudability, which would be impaired by cross-linking.

5.1.4 The word "substantially" in the discussed context, therefore, lacks a basis in the original application and all claims comprising this word in relation to the cross-linking degree of layers (III) and (IV) do, thus, not comply with the requirement of Article 123(2) EPC. This conclusion applies to claim sets "A" and "C".

5.1.5 The question referred to in G 1/93 (cf. supra) whether or not a feature that, in contravention of Article 123(2) EPC, had been added during examination can be removed without offending Article 123(3) EPC is not at stake here because the present appeal against the revocation of the patent in suit is dismissed on the issue of inventive step.

Insofar the Appellant's reference to T 873/94 (cf. supra), commenting on the issue raised in G 1/93 (cf. supra) as to the possible allowability of an undisclosed feature that does not provide a technical contribution to the subject-matter of the claimed invention, is irrelevant.

5.2 It was argued by the Respondent that the absence of the feature "coextruded" from the independent claims (sets "A" and "B") amounted to a contravention of Article 123(2) EPC, because in the original application this feature was disclosed as essential, with the consequence that its omission led to subject-matter extending beyond the original disclosure.

5.2.1 There are indeed several statements in the original application, which qualify the coextrusion method as the sole production technique for manufacturing the claimed films. **Inter alia**, it is set out in the paragraph bridging pages 5 and 6 of the original application that the film "is obtained by coextrusion" (see particularly last two lines on page 5). The manufacture of the claimed films by coextrusion is expanded at the following locations of the original application: page 7, lines 11 to 14; Figure 5 in combination with page 15, last line to page 16, line 5; page 29, lines 16 to page 30, line 20; page 31, lines 5 to 10 and in all Experimental Examples.

There is no hint in the original application at any other manufacturing method and, indeed, no other method is conceivable if the claimed advantages are to be attained. The fact that in the original application the feature "coextruded" appeared only in Claim 14 is therefore not a sufficient basis for the Appellant's contention that the original disclosure encompassed such hypothetical "other" methods. Rather the original application as a whole was in practice restricted to the coextrusion method as only suitable technique for manufacturing the claimed films, with the consequence that this method must be regarded as an essential feature of the claimed invention.

5.2.2 However, the Respondent's objection under Article 123(2) EPC is based on a purely formalistic interpretation of the EPC and does not take account of Article 69, according to which for determining the protection conferred by a patent the description (and drawings) have to be used to intepret the claims.

In the Board's judgment, the absence of the feature "coextruded" does therefore not amount to a violation of Article 123(2) EPC, because the absence of this feature from the independent claims does not mean that the claimed subject-matter extended beyond the content of the application as filed.

5.2.3 Rather this is a matter to be considered under Article 84 EPC under the aspect of insufficient support for a claim not comprising the feature "coextruded".

Although Article 84 EPC does not belong to the grounds of opposition it is to be considered here because the claims under consideration have been amended with respect to their granted version and the missing feature "coextruded", from a technical point

of view, is closely related to the amendment introduced into granted Claim 1: "said layer (II) is an exterior surface layer".

Since, as set out in point 5.2.1, the feature "coextruded" is essential for the claimed invention, claims that do not comprise this feature offend Article 84 EPC. Claim sets "A" and "B" do not, therefore comply with this requirement of the EPC.

5.3 A further objection under Article 123(2) EPC was raised by the Respondent with respect to independent claims not comprising a definition of the method of determination of the gel fractions (X) and (Y) of layer (II).

5.3.1 The original application sets out on page 33, line 27 to page 34, line 14:

"Attention should be paid on preparing the sample for measuring the aforementioned gel fraction with reference to the followings:
When a specific layer of a laminate is intended to use as a sample, the layer should be peeled slowly with coating ethanol thereon; and
When a surface layer of a specific layer in a parison is intended to use as a sample, a piece of 10 mm x 20 mm is cut from the portion of the peeled specific layer having a good flatness and the surface layer is sliced into a thickness of about 20 micron with a microtome for an optical microscope to make samples. It is also possible to slice a specific layer of an oriented film which has been peeled in the same manner as above and returned to a parison state by the heat shrinking treatment."

5.3.2 From the above statement it is clear that the gel fractions are to be measured on sample slices of a thickness of 20 µm. It goes without saying that, in order to determine the gel fractions (X) at an *outer* portion and (Y) at an *inner* portion, the samples have to be cut from the two opposite outermost portions of the layer (II), as e.g. set out on page 17, lines 18 to 23 of original application in the following manner: "... [y] at the surface layer part of the crosslinked polyolefin type layer (II) in the core layer (I) side, ..." and "... [x] at the exterior surface layer part of the same resin layer ..." (see also page 52, line 24 to page 53, line 6 and page 74, Table 14 of the original application). Although these statements are linguistically imperfect their meaning is nevertheless entirely clear.

5.3.3 It is evident that the gel fractions (X) and (Y), as well as the gradient (Y/X) resulting therefrom, are technically meaningful features only when interpreted in the light of the method for their determination, because the position and the thickness of the sample cuttings have an enormous influence on the measured values. This method is therefore an essential feature of the claimed invention.

5.3.4 Concerning the relevance under Article 123(2) and Article 84 EPC of the Respondent's objection to the absence of the method of determination of the gel fractions (X) and (Y) the arguments advanced with regard to the feature "coextruded" in points 5.2.2 and 5.2.3 supra apply.

In consequence, the same conclusion is arrived at, namely that claims which do not comprise the method of determination of the gel fractions (X) and (Y) offend Article 84 EPC, because this method is an

essential feature of the invention that ought to be comprised by the claims, because otherwise the claims lack support in the description.

In T 94/82 (cf. supra) it was held with respect to the characterisation of a gear crimped yarn in terms of parameters of physical properties that it suffices to state in the claims these parameters and that, in the interests of conciseness, the claims need not comprise instructions as to how the product is obtained, if the description enables the person skilled in the art to obtain the claimed product by the process therein described (Reasons 2.5). However, according to the Reasons 2.3 of T 94/82 (cf. supra) the parameters used to characterize the crimped yarn were "usual in the art", whereas the sampling method to be used according to the present case for the determination of the gel fractions (X) and (Y) is not a standard method. Moreover, the introduction of this method into the claims does not interfer with their conciseness. In this situation the requirement of consistency between claims and description (i.e. support) prevails.

All Claims 1 of the main requests of all claim sets "A", "B", "C" and "D" do not, therefore, comply with these requirements of Article 84 EPC that "The claims shall define the matter for which protection is sought" and that "They shall ... be supported by the description".

5.4 For the first time during the oral proceedings before the Board the Respondent raised the objection under **Article 83 EPC** referred to in Section IX-(v) supra. In view of (i) the very late submission of this argument, (ii) the fact that it was unsubstantiated, (iii) the impossibility for the Board to check its veracity, (iv) the Appellant's protest to admit it

into the appeal at this stage, and finally (v) the fact that the appeal failed anyway for another reason, it was neither possible nor necessary for the Board to render a decision thereupon (cf. Section VII-2).

5.5 It follows that from all requests under consideration only the auxiliary requests 1, 2 and 3 of claim set "D" comply with requirements of Article 123(2) and Article 84 EPC.

Claim set "D", auxiliary request 1

6. *Article 54 EPC*

The novelty of the subject-matter of the claims of this request was not questioned by the Respondent and also the Board is satisfied that this subject-matter is novel over the cited prior art.

7. *Article 56 EPC*

7.1 Entitlement to the claimed priority (Article 87(1) EPC):

This question has to be decided, because D7, a document whose disclosure is very close to that of the patent in suit, was published between the date of the claimed priority and the date of filing of the patent in suit.

7.1.1 Features comprised by Claim 1 which have not been disclosed in the priority document:

The priority document does not comprise features (a) and (b) of Claim 1.

7.1.1.1 The Appellant argued that the introduction of feature (a) amounted to nothing more than to a limitation of the disclosure of the priority document, according to which an average gel fraction of the layer (II) of 20 to 60 or 65% was specified (Claim 1; page 54, line 7 of priority document). In application of the principles set out in T 73/88 (cf. supra) this change did not, in the Appellant's view, lead to the creation of a different invention. Hence, feature (a) was not detrimental to the priority entitlement.

7.1.1.2 The Appellant did not, in the appeal, advance any arguments as to the priority entitlement of feature (b), i.e. that "the joint between said layer (II) and said layer (I) is denatured by irradiation with electrons". It appears, however, that this feature, although not explicitly disclosed in the priority document, was part of the invention disclosed therein, because - whatever the technical meaning of the term "denatured" - the same kind of "denaturing" of the joint will be caused by the electron beam irradiation according to the priority invention than according to the patent in suit.

7.1.2 Features comprised by the priority document but not by Claim 1:

7.1.2.1 According to Claim 1 of the priority document the film has a total average film thickness of 40 to 80 microns.

The omission of this feature from the patent in suit extends the claimed scope to films of a thickness beyond this range.

7.1.2.2 According to Claim 1 of the priority document the sealing resin layer [IV] is either made of an ethylene-α-olefin copolymer resin A or of a mixture

of this resin A with an ethylene-α-olefin copolymer elastomer and, possibly, with an ethylene-vinyl acetate copolymer resin.

According to the patent in suit there is no restriction on the type of resin used for the sealing layer (IV). Again, this amounts to an extension of the scope of the invention according to the priority document.

7.1.2.3 Experimental Example 2 of the priority document (pages 40 to 41) relates to the significance of the selection of the kind of PVDC. It is concluded in lines 16 to 24 on page 40 that "as the PVDC in order to avoid deterioration or discoloration which will be caused at the core layer it **is necessary** to use those having a solution viscosity of 1.0 or more" [emphasis by the Board].

The solution viscosity is not a characteristic of the PVDC resins used according to the patent in suit. On page 28, line 25 to page 29, line 4 of the original application it is set out: "..., in order to eliminate the deterioration or yellowing of the core layer to the minimum, when PVDC is a vinylidene chloride-vinyl chloride copolymer, the vinyl chloride content is preferably in the range of 10 - 25% by weight, and when PVDC is a vinylidene chloride-methyl acrylate copolymer, the methyl acrylate content is preferably in the range of 3 - 15% by weight."

The definitions of the PVDC to be used according to the priority document and according to the patent in suit are therefore different and in the latter case PVDC resins having a solution viscosity of below 1.0 are not excluded. This again amounts to an extension of the scope of the patent in suit as compared to the invention disclosed in the priority document.

7.1.3 Irrespective of the decision on the issue of feature (a) discussed in previous point 7.1.1.1, the scope of the invention of the priority document has been extended by the omission of the three essential features set out in the preceding Section 7.1.2. From this alone it follows that the invention covered by the original application cannot be the same as the one according to the priority document.

The argument on which the Appellant relied during the oral proceedings, namely that, for the priority entitlement, it would suffice that the invention of the original application was "basically foreshadowed" in the priority document, is not in agreement with the provision in Article 87(1) EPC that the right of priority may only be granted for the "same" invention.

The patent in suit is therefore not entitled to the claimed priority.

7.2 Obviousness

7.2.1 In consequence of the non-entitlement of the patent in suit to the claimed priority document D7 becomes state of the art under Article 54(2) EPC.

It discloses a multiple layer, molecularly oriented, cross-linked polymeric film including first and second layers comprising major fractions of ethylene vinyl acetate copolymer (EVA) and a third layer of vinylidene chloride-methylacrylate copolymer disposed between the first and the second layers (cf. Claims 1, 4 and 5), preferably prepared by coextruding the layers, orienting the resulting multiple layer film and subjecting the latter to electron beam irradiation (page 19, line 14 to page 20, line 7). Pursuant to page 21, lines 5 to 10

"in the irradiation step, all of the layers in the film are exposed simultaneously to the irradiation source, such that irradiation of all the layers of the film takes place simultaneously".

The films are particularly suited for heat shrinkable bags for packaging foodstuffs, e.g. irregularly shaped cuts of meat. The filled bags are evacuated, seal closed and heat shrunk. The bags offer physical protection for the product, provide a barrier against infusion of oxygen, exhibit a good hot strength, and are designed to maintain these properties as long as required (page 1, line 25 to page 2, line 17; page 5, line 20 to page 6, line 18).

7.2.2 The films according to Claim 1 of the 1st auxiliary request of claim set "D" are different from those prepared according to D7 by having been electron beam irradiated in a fashion not allowing the radiation to go beyond the sandwiched oxygen barrier layer (PVDC), thus establishing a film having the characterizing features (a), (b) and (c) of Claim 1.

7.2.3 In the appealed decision document D6 was regarded as closest prior art. This document discloses a multiply laminate comprising two layers of a polymer of ethylene and vinylacetate (EVA), one of which being cross-linked, and sandwiched between them a layer from a copolymer of vinylidene chloride and vinyl chloride (PVDC) (cf. Claim 1). According to Figure 1 in combination with its description in column 3, line 28 to column 7, line 20 first a tubular layer of EVA is extruded, then cross-linked by irradiation with electrons and then coated by extrusion coating with a tubular PVDC layer. This two-ply film is at last extrusion coated with the third layer made from EVA. This laminate is used for the production of bags for packaging of e.g. meat (column 8, lines 1 to 4).

In the bags the cross-linked EVA layer is positioned on the inside and the uncross-linked EVA layer is positioned on the outside of the bag (cf. Figure 4; column 7, lines 48 to 58).

The packaging films according to this document are thus different from those of the patent in suit by the different method of preparation (extrusion coating as compared to coextrusion), by the different position of the cross-linked layer (D6: inside; invention: outside) and by the different method of crosslinking/irradiation (D6: pre-irradiation of inner layer; invention: irradiation of the whole laminated film).

It follows that D6 is further off from the subject-matter of the patent in suit than D7.

7.2.4 When starting from the closest state of the art set out in D7, the problem underlying the subject-matter of Claim 1 of the 1st auxiliary request of claim set "D", in general terms, was the provision of further similarly structured films for the same purpose (food, especially meat packaging).

7.2.4.1 The wish to provide "further" packaging films implies that such films should meet the requirements of modern high speed packaging, should be capable of being quickly and safely vacuum sealed (including the sealing in the presence of folds, as stressed in the Declaration of Mr Matsamura) and should be oil resistant on both sides and at high temperatures. Moreover, the films must also meet the processing requirements resulting from the preparation by coextrusion and subsequent stretching, including good interlayer adhesion. These various requirements are stressed in the original application of the patent in suit as well as in D7 (cf. D7: page 1, line 6 to

page 2, line 17; page 3, lines 7 to 13; page 4, lines 4 to 14; page 5, line 20 to page 6, line 18; Figure 2 in combination with page 14, lines 8 to 13; page 28, lines 13 to 15; cf. original application of the patent in suit: page 2, line 21 to page 3, line 7; page 10, lines 8 to 16; page 19, lines 7 to 18).

7.2.4.2 It is furthermore evident that the packaging films, which by the nature of the used polymers are transparent, should not detract from the appearance of the packed good, in particular should not alter the colour of the packed good, e.g. render the aspect of the meat yellowish. This aspect, although not commented upon in D7, is particularly relevant when PVDC is used as material of the oxygen barrier layer, because PVDC is sensitive to deterioration, particularly discoloration, by excessive electron beam irradiation. This fact, belonging to the common general knowledge of one skilled in the art, was recognized on page 3, line 23 to page 4 line 1 of the original application of the patent in suit. The danger of discoloration of PVDC when used as oxygen barrier layer in laminated structures that are cross-linked by electron beam irradiation was acknowledged in column 2, lines 40 to 45 of document D9 (published on 20 December 1977) as follows:

"However, even though film laminates having a vinylidene chloride copolymer layer have been irradiated, such irradiation is not generally practiced as the vinylidene chloride copolymer may, in some instances, degrade and discolor when subjected to high dosages of radiation."

7.2.4.3 It follows from the above, that - put in a more detailed manner - the problem to be solved by the subject-matter of the patent in suit was to provide

further packaging films, which are characterized by a useful balance of the properties outlined in point 7.2.4.1 and a transparency, which is not disturbed by discoloration of the PVDC layer as set out in point 7.2.4.2.

7.2.5 The solution to the aforementioned technical problem, which is offered by Claim 1 of the 1st auxiliary request of claim set "D", consists in the provision of a film having the specified gel fractions of layer (II), including their gradient, which is brought about by the different method of irradiation mentioned in point 7.2.2 supra.

7.2.6 On the basis of the evidence in the patent in suit the Board is satisfied that thereby the problem of providing a further packaging film (see point 7.2.4.3 supra) has effectively been solved.

7.2.6.1 There is no evidence available, on the basis of which it could be concluded that the films according to the patent in suit would be **superior** to those according to D7 **as a whole**. While, in view of the attenuated electron beam irradiation, it can be accepted that the tendency to discoloration of the PVDC layer is lower according to the patent in suit than according to D7, evidence to prove the superiority of the films of the present invention **over those according to D7** with respect to the many other properties that need to be met is, however, missing. The comparative examples in the patent in suit (e.g. Tables 4 and 5, samples 136 to 140; Tables 10 and 11, sample films G and K) do not allow to deduce anything with respect to the sole feature that distinguishes the patent in suit from D7, i.e. the different irradiation method and the consequential cross-linking pattern of the films according to the patent in suit.

7.2.6.2 Moreover, it is evident that the advantage of good sealability obtained by the uncross-linked character of the sealing layer (IV) of the films according to the patent in suit is accompanied by disadvantages, e.g. lower mechanical resistance and lower adhesive strength towards the PVDC layer as compared to the analogous properties of cross-linked sealing layers made of the same material. The latter disadvantage is reflected by the need of an adhesive layer (III). The Appellant did also not contest the Respondent's contention made during the oral proceedings, that another such disadvantage resided in the inferior oil (grease) resistance of uncross-linked material.

7.2.6.3 The Appellant's argument, which was submitted with the Statement of Grounds of Appeal and was expanded in the **Declaration of Mr Matsamura** (but not repeated during the oral proceedings), cannot be accepted. That argument was that the (sole or main) problem to be solved by the subject-matter of the patent in suit was the provision of a film which allowed the achieving of a good seal of the filled food package even in the presence of folds in the portions of the bag to be sealed. It is evident from the whole contents of the original application that this property, determined as "Reject rate of sealing", was one of the **many** desired properties of the claimed films. Furthermore, and in addition to what was set out in point 7.2.6.1 supra, there is also no evidence at all in the patent in suit as to the superiority with respect to the "Reject rate of sealing" of the present films over those prepared according to D7. Nor is there any conclusive evidence for the superiority of the films according to the present invention over those according to D6 (the document indentified as closest prior art in the appealed decision) with respect to this property. The Appellant's respective assertions concerning the more

favourable "Reject rate of sealing" of the films of the present invention according to "inventive" Sample No 118 as compared to "comparative" Sample No. 136, made according to D6, are non conclusive, since the structure and composition of the compared films are different in several respects, one of them being that the film according to Sample No. 118 is a 4-layer film, whereas that according to Sample No 136 is a 3-layer film (cf. original application: Table 5, page 68; Table 4, page 65; Experimental Example 2, pages 51 to 56, particularly page 51, lines 15 to 23, page 53, lines 7 to 17 and Table 2, page 58, dosage distribution (b)). It is evident that this difference has an important impact on the processing properties and thus the sealing characteristics of the film.

7.2.7 The issue of inventive step, thus, turns on the question whether one skilled in the art wishing to solve the existing problem would find it obvious to change the radiation-induced cross-linking characteristics of the film from the pattern obtained by the simultanous irradiation of all layers according to document D7 to the pattern specified in Claim 1 of the 1st auxiliary request of claim set "D".

7.2.8 The person skilled in the art, being aware of all the requirements a packaging film must meet, which is particularly suited for meat, including the need for transparency and non-yellowing, will in an obvious way try to avoid any danger of discoloration of the PVDC barrier layer. He will, thus, consider the use of adequate irradiation techniques, which prevent the penetration of high energy electron beam radiation into that layer, because he was aware, e.g. from D9 of the sensitivity of PVDC to discoloration by excessive electron beam irradiation.

7.2.8.1 The above conclusion is not invalidated by the fact that according to D7, page 21, lines 6 to 10 "in the irradiation step, all of the layers in the film are exposed simultaneously to the irradiation source, such that irradiation of all layers of the film takes place simultaneously". This statement does not allow to conclude what the energy and dose of the radiation were that penetrated into the PVDC layer, so that the actual difference of the irradiation impact on the PVDC layer according to D7 and according to the patent in suit must remain unknown. Furthermore, D7 is silent on the aspect of transparency. Thus, it can only be speculated whether the PVDC layer, as a consequence of the electron beam irradiation occurring according to D7, suffered some discoloration or not. Possibly this was avoided by appropriate matching of the energy and dose of irradiation and the type of PVDC used. If, on the other hand, dicoloration occurred, then this obvious drawback was tolerated for unknown reasons. Be it as it be, the fact that D7 does not report any special measures for preventing PVDC discoloration cannot be regarded as a prejudice against such measures, as argued by the Appellant. Rather, it is evident from the warning in column 2, lines 40 to 45 of D9, published on 20 December 1977, that the skilled person was well aware at the priority date of D7 (16 May 1985) of the problems associated with excessive PVDC irradiation.

Nor does the fact that, in view of the sensitivity of PVDC to discoloration - according to D9 HEVA was used as material for the barrier layer instead of PVDC - establish a prejudice against the use of PVDC in coextruded films which are electron beam irradiated.

On the contrary, this document, in pointing to this problem, already anticipated to some extent its solution, namely the necessary protection of the PVDC layer from excessive irradiation.

7.2.8.2 At the filing date of the patent in suit curing of polymeric materials by irradiation with electron beams was a well known technique and one skilled in the art looking for information with respect to the irradiation-cross-linking of multilayer films having a cross-linkable polyolefin top layer and a sandwiched PVDC layer would not hesitate to consult such documents.

Among these, document D1 is particularly relevant to the present problem (see 7.2.4.3), because it relates to a process and apparatus where a layer of polymeric material on a heat- or radiation-sensitive supporting substrate is irradiated with a controlled electron beam. In particular D1 discloses a process where a coated release layer substrate is irradiated with an electron beam, whose energy and dose is matched to the thickness and materials of the coated release layer and substrate in order to concentrate the principal amount of the energy substantially uniformly in the coating and to cure the coating, while ensuring minimal energy reaction with the release layer and substrate (cf. Claim 1). According to Figure 1 of D1 a wool face-cloth layer is bonded with an epoxy or polyurethane adhesive to a polyurethane foam substrate, whose other face is bonded by the same adhesive to an electron-permeable nylon backing layer. This article is then electron beam irradiated with an Electrocurtain(R) processor in a way that the principal energy is concentrated and confined to the adhesive regions with minimal energy reacting with the cloth layer (cf. Figure 2; column 4, lines 3 to 44). Figure 2 shows that energy

entering the radiation-sensitive cloth is less than 40% of the energy impinging on the surface layer of the laminate. By this energy reduction a possible degradation of the cloth substrate is prevented which may otherwise lead to discoloration (cf. column 2, lines 29 to 48).

7.2.8.3 The skilled person, confronted with the existing technical problem (cf. point 7.2.4.3 supra), will immediately recognize that the irradiation method applied according to D1 offers the opportunity to avoid any undesirable degradation/discoloration of a sandwiched PVDC layer. It was, thus, obvious to one skilled in the art to solve the existing problem by the measures taken according to Claim 1 of the 1st auxiliary request of claim set "D" of the patent in suit.

This conclusion takes account of the fact that, apart from the obvious low energy irradiation of the film used to avoid discoloration of the PVDC layer, the films according to the patent in suit have not been established to be superior to those prepared according to D7, but in some respects, because of the uncross-linked sealing layer, have even less advantageous properties (cf point 7.2.6.1 supra).

7.2.8.4 The fact that according to the patent in suit, as source of the electron beam radiation, a very expensive Electrocurtain(R) processor is used, a device that was also used according to D1, cannot be interpreted as a prejudice against the obviousness of the low energy beam irradiation. While economical reasons might be important in practice, such secondary indicia are normally only auxiliary considerations for determining inventive step, which under Article 56 EPC should primarily be assessed on the basis of technical obviousness. When this

assessment, as in the present case, leads to a clear result, there is no need to resort to auxiliary considerations.

7.2.8.5 Article 56 EPC sets out: "An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art." Consequently, there is no room for the Appellant's contention that inventive step could only be denied to subject-matter that was "immediately" obvious.

7.2.9 The same obviousness conclusions as to Claim 1 apply to the subject-matters of use Claim 12 and process Claim 13 of the 1st auxiliary request of claim set "D". The use of the films as heat shrinkable packaging for irregularly shaped fatty food is analogous to that according to D7, which concerns the packaging of meat. Since the films are obvious, so their use must be. Similarly, except for the attenuated irradiation, the process steps specified in Claim 13 are substantially the same as those described in D7 (cf. Claim 14 of D7). Once the irradiation step was held obvious, the further features of process Claim 13 cannot, thus, contribute to an inventive step.

7.2.10 Claims 2 to 11, which are dependent upon independent Claim 1, as well as Claims 14 and 15, which are dependent upon independent Claim 13, must share the fate of the respective independent claims to which they are appended.

7.2.11 The obviousness conclusions drawn above with respect to the claims of the 1st auxiliary request of claim set "D" are equally valid for the claims of auxiliary requests 2 and 3.

7.2.11.1 Claim 1 of auxiliary request 2 is different from Claim 1 of auxiliary request 1 only by the introduction of the product-by-process feature: "obtained by forming by coextrusion from a cylindrical die a laminate with said layers (II), (I), (III) and (IV) in this sequential order so that said layer (II) is an outer surface of said cylindrical laminate, cooling and solidifying the resulting cylindrical laminate; irradiating said laminate with an electron beam from the outer surface side of said layer (II) and stretching said laminate so that ... [followed by features (a), (b) and (c) as according to Claim 1 of auxiliary request 1]".

This feature is just a resumé of the process Claim 13 of auxiliary request 1 and cannot, therefore, contribute anything which was unobvious to the subject-matter of Claim 1 of auxiliary request 2.

7.2.11.2 Claim 1 of auxiliary request 3 is directed to a process for producing a heat shrinkable coextruded cylindrical laminate film, whose definition comprises a combination of Claims 1 and 13 of auxiliary request 1. Since, pursuant to the conclusions in point 7.2.8.3 and 7.2.9 supra the subject-matter of the latter claims was held obvious, the same conclusion must apply to Claim 1 of auxiliary request 3.

7.2.11.3 The only further independent claims of auxiliary requests 2 and 3 are the respective use Claims 12, the wording of which is identical to that of use Claim 12 of auxiliary request 1. For the reasons given in point 7.2.9 supra the subject-matter of this claim is therefore also obvious.

196

7.2.12 Thus, none of the claims of any of the auxiliary requests 1, 2 and 3 of claim set "D" involves an inventive step.

8. Since none of the requests ("Main Request", "Auxiliary Requests 1, 2, 3") of any of the claim sets "A", "B, "C" and "D" complies with all requirements of the EPC, the appeal fails.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

E. Görgmaier

The Chairman:

C. Gérardin