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D E C I S I O N
of 12 October 2000

Case Number: T 0451/97 - 3.2.4

Application Number: 91900257.6

Publication Number: 0460146

IPC: A22C 13/00

Language of the proceedings: EN

Title of invention:
Tubing Used For Encasing Food Products And A Method For Manufacturing The Tubing

Patentee:
OY VISKO AB

Opponents:
Viskase Corporation
Kalle Nalo GmbH & Co. KG

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step - all requests - no"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0451/97 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 12 October 2000

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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 7 March 1997 revoking European patent No. 0 460 146 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: C. A. J. Andries

Members: M. G. Hatherly
R. E. Teschemacher

Summary of Facts and Submissions

I. The opposition division's decision to revoke European patent No. 0 460 146 was posted on 7 March 1997.

The appellant (proprietor) filed an appeal on 28 April 1997, paid the appeal fee on 2 May 1997 and filed a statement of grounds on 16 July 1997.

II. The following documents were referred to in the appeal proceedings:

D1: US-A-3 135 613

D2: US-A-4 222 821

D3: JP-A-1/174 699

D3a: Translation of D3 into English

D4: DE-C-2 728 098

D5: DE-A-2 655 594

D7: G. Effenberger, "Kunstdärme - Herstellung, Eigenschaften, Anwendung" (1976), ISBN 3 87854 015 3

D8: US-A-3 896 764

III. The independent method claim 1 of the **main request** reads:

- "A method of manufacturing a tubing for use as a casing into which a food product is to be stuffed

(e.g. sausage), which method comprises the steps of:- forming a base material made mainly of long-fibred manilla hemp (abaca) paper previously wet-strengthened by using regenerated cellulose, into a tube; impregnating the tube with viscose; passing the tube through one or more acid and/or salt treatment bath(s) in the course of which treatments the viscose coagulates due to the effect of the acid and/or salts; and regenerating the viscose into cellulose in such a manner that the fibres become embedded by regenerated cellulose to form a tubing, wherein the method uses manilla hemp paper having an air-dry weight of no more than 15 g/m^2."

The independent product claim 4 of the **main request** reads:

- "A tubing capable of being used as a casing into which a food product is to be stuffed, which tubing comprises a base material of long-fibred manilla hemp paper and regenerated cellulose, the material having been previously wet-strengthened by using regenerated cellulose wherein the long-fibred manilla hemp paper has an air-dry weight of no more than 15 g/m^2."

First auxiliary request:

- claims 1 and 4 are the same as the respective claims of the main request except that the word "stuffed" is changed to "packed".

Second to fifth auxiliary requests:

- there are first and second versions of the independent method claim 1 and the independent product claim (numbered 4 or 3) in each of these requests. Each first version differs from the respective second version only in that the first version uses the word "stuffed" while the second version uses the word "packed",

- the **other** differences are as follows:

Second auxiliary request:

- claim 1 is the same as claim 1 of the main request except that the word "mainly" (near the start) is deleted,

- the first version of claim 4 is identical to claim 4 of the main request, and

- the second version of claim 4 is identical to claim 4 of the first auxiliary request.

Third auxiliary request:

- the independent method claim 1 and the independent product claim 3 are the same as claims 1 and 4 of the main request except that the wording "and wherein the diameter of the tubing is greater than or equal to 35 mm and is less than or equal to about 165 mm" is added at the end.

Fourth auxiliary request:

- the independent method claim 1 and the independent product claim 3 are the same as claims 1 and 4 of

the main request except that the wording "and wherein the diameter of the tubing is greater than or equal to 50 mm and is less than or equal to about 165 mm" is added at the end.

Fifth auxiliary request:

- the independent method claim 1 and the independent product claim 3 are the same as claims 1 and 4 of the main request except that the wording at the end is amended to "air-dry weight of no more than 13 g/m^2 within a range of ± 1 g/m^2" (instead of 15 g/m^2).

The sole claim of the **sixth auxiliary request** reads:

- "The use of a paper, made mainly of long fibred manilla hemp (abaca) and which has been previously wet strengthened by using regenerated cellulose and has an air-dry weight of no more than 15 gsm, in the manufacture of tubing of any diameter in the range 35 mm to c. 165 mm and into which sausage product is to be stuffed, the method of manufacture of the tubing comprising the steps of:- forming the paper into a tube; impregnating the tube with viscose; passing the tube through one or more acid and/or salt treatment bath(s) in the course of which treatments the viscose coagulates due to the effect of the acid and/or salts; and regenerating the viscose into cellulose in such a manner that the fibres become embedded by regenerated cellulose to form the tubing."

The sole claims of the **seventh to eleventh auxiliary requests** are the same as that of the sixth auxiliary

request except that

- in the seventh auxiliary request the diameter range is 80 mm to c. 165 mm (instead of 35 to c. 165 mm),

- in the eighth auxiliary request the diameter range is 35 mm to 80 mm (instead of 35 to c. 165 mm),

- in each of the ninth to eleventh auxiliary requests the "air-dry weight is no more than 13 gsm within a range of ± 1 gsm" (instead of 15 gsm),

- in the tenth auxiliary request a further change is that the diameter range is 80 mm to c. 165 mm (instead of 35 to c. 165 mm), and

- in the eleventh auxiliary request a further change is that the diameter range is 35 mm to 80 mm (instead of 35 to c. 165 mm).

The sole claim of the **twelfth auxiliary request** commences

- "The use in a tubing, for speeding up the curing process of salami packed in the tubing, of a paper which is made mainly of manilla hemp (abaca) and has been previously wet-strengthened by using regenerated cellulose and has an air-dry weight of no more than 15 gsm, the tubing being manufactured by a method ..."

and then continues as the sixth auxiliary request after the words "the method of manufacture of the tubing".

The sole claim of the **thirteenth auxiliary request** is the same as that of the twelfth auxiliary request except that the "air-dry weight is no more than 13 gsm within a range of ± 1 gsm" (instead of 15 gsm).

The sole claim of the **fourteenth auxiliary request** is the same as that of the twelfth auxiliary request with the addition at the end of the words:

- "wherein the paper is such that, at a tubing diameter of 70 mm, Lübeck salami cures in three weeks (36% mass reduction)."

The sole claim of the **fifteenth auxiliary request** is the same as that of the fourteenth auxiliary request except that the "air-dry weight is no more than 13 gsm within a range of ± 1 gsm" (instead of 15 gsm).

The sole claim of the **sixteenth auxiliary request** is the same as that of the sixth auxiliary request with the addition at the end of the words:

- "the tubing having a smoothness of the inner surface, as measured by the Bendtsen test, in the range 700-800 cm^2/min."

IV. The appellant and respondents I and II (opponents I and II) attended oral proceedings on 12 October 2000.

The opposition division revoked the patent for lack of inventive step of the main request and all auxiliary requests then on file.

In the appeal proceedings respondent I alleged that tests on the invention had been carried out in public,

with no secrecy restriction, before the earliest valid priority date of the patent.

The appellant countered that the tests referred to above had not been public. He maintained that the skilled person would not have contemplated the possibility that any viable food product casing could have been produced from any viscose-treated paper weight in accordance with the present invention.

In the appeal proceedings the respondents countered the appellant's arguments.

V. The appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of one of the following requests:

- Main request or auxiliary requests 1 to 5 as submitted with the letter dated 8 July 1997

- Auxiliary requests 6 to 16 as submitted during the oral proceedings.

The respondents requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

2.1 Main request and "stuffed" and "packed" in the first to fifth auxiliary requests

According to claims 1 and 4 as granted the tubing is to be used for the packaging of food products whereas in the corresponding claims of the main request the tubing is for use as a casing into which a food product is to be stuffed.

This amendment does not contravene Article 123(2) EPC because the patent is plainly concerned with the art of filling products such as salami (page 6, line 25 to page 7, line 1 of the published application and page 4, lines 26 to 35 of the patent as granted) under pressure into casings, the patent referring to the tubing being "crumpled or shirred to form a "grub" or "stick"" (page 5, lines 21 and 22 of the published application and page 3, lines 52 and 53 of the patent as granted) which is typical of this art.

Moreover the board sees no objection under Article 123(2) EPC if, instead of adding the word "stuffed", the word "packed" is used in the first auxiliary request and in the second version of each of the second to fifth auxiliary requests.

The amendment relating to "stuffed" restricts the scope of the granted claims so that no objection arises under Article 123(3) EPC.

2.2 The board makes no objection to the amendment in the second auxiliary request to delete the word " mainly" near the start of claim 1 since this removes doubt as to what percentage of long-fibred manilla hemp the base material would need to have to be considered as being made mainly of it.

2.3 The tube diameters specified in the third and fourth

auxiliary requests are to be found in the table on page 6 and claim 3 of the published application.

2.4 The paper weight specified in the fifth auxiliary request is based on page 4, line 7 of the published application.

2.5 The claims of the sixth to sixteenth auxiliary requests are use claims and so are of the same basic category as the method claims of the granted patent. Other than the reformulation, the claims of the sixth to the eleventh auxiliary requests are extremely similar in content to those of the higher requests. Concerning the twelfth to the fifteenth auxiliary requests, curing of Lübeck salami is discussed on page 6 of the published application. Regarding the sixteenth auxiliary request, the tubing smoothness is discussed on page 7 of the published application. The board makes no objection under Article 123 EPC to the claims of these requests.

3. *Novelty*

3.1 Alleged public prior use

In section II.2 of the letter of 3 February 1998 respondent I alleged that the proprietor's 1989 trials of what became the Visko Light range of casing were prior to any of priority dates of the present patent and were public. Even if the trials were secret then respondent I assumed that sausages provided with such casing were marketed in 1989 without any secrecy obligation.

The appellant replied on page 11 of the letter of 1 February 1999 that the trials were not public and that

the casings were peeled from the sausages by the sausage manufacturer prior to sale.

The board finds this allegation of public prior use unproven and respondent I did not pursue it in the oral proceedings.

3.2 The respondents brought no other novelty objection. After examining the prior art documents on file, the board is satisfied that the subject-matter of all the claims of all the main and auxiliary requests is novel within the meaning of Article 54 EPC

4. *The prior art, problem and solution - main request*

4.1 It is not disputed that the features up to the word "wherein" in each of claims 1 and 4 of the main request, are known from D1, see e.g. column 2, lines 20 to 22 and 31 to 41 of D1 and also see page 2, lines 22 to 24 of the present patent as granted.

Table I in column 4 of D1 gives the ream weights of papers used in the D1 method, the lowest of these at 12.5 lbs corresponding, using the definition of ream weight in lines 63 to 65 of column 5, to a weight per unit area of 21.2 g/m^2.

4.2 The problem arising from this prior art is to produce a food product casing more economically and the solution is to reduce the weight per unit area of the paper from which the casing is made.

4.3 It is undisputed that the method and the tubing of the present invention differ from those of the prior art only by the weight of the paper used initially and by

things that result directly therefrom i.e. the tubing of the present invention contains less viscose and has a smoother surface because the initial paper web was lighter.

5. *The other cited prior art*

5.1 The features up to the word "wherein" in each of claims 1 and 4 of the main request are also known from D2 which states that "casing paper, which may be used for the production of packaging for meat products such as sausage ... is commonly manufactured from paper webs ... such as abaca" which are treated with viscose twice (see column 1, lines 11 to 40). According to column 1, lines 59 to 62 "the casing paper may have a typical basis weight (weight per unit area) of 20 grams/m^2, of which the regenerated cellulose accounts for 0.6 g/m^2", corresponding to a paper air-dry weight of 19.4 g/m^2 (which is a little lower than the lowest figure in the earlier published D1).

D2 states in column 1, line 65 to column 2, line 7 that the prior art webs are too soft and weak for the second viscose treatment and thus limit production speed. The invention of D2 is an additional treatment with a cationic polyethylene imine resin. This "may be included in the dilute viscose solution itself", see column 4, lines 12 and 13. Following the polyethylene imine resin and dilute viscose treatment, the casing paper is impregnated "with a caustic viscose solution or the like in order to form the final casing material", see column 4, lines 38 and 39.

Thus the skilled person knows that he can keep the same weight of web, use the additional treatment and

increase the web strength. As D2 considers the prior art webs to be too weak and teaches an additional treatment of the web, the skilled person would not be encouraged to **merely** reduce the weight of the web (i.e. without additionally treating the web). However it would presumably be clear to him that - provided he carried out the additional treatment - he could obtain the same strength even if he reduced the weight of the web.

D5 is a member of the same family as D2 and is no more relevant than D2.

5.2 Page 1, line 20 "(The prior art and problems)" to page 2, line 14 of D3a (which is the translation of D3)

- acknowledges that sausage casings prepared from base paper which is viscose treated twice are known, i.e. the same type of casings as those with which the present patent is concerned,

- sets out the disadvantages of these known casings, and

- explains how to overcome these disadvantages, e.g. to improve the wet tensile strength, by treating the base paper with chitosan.

Thus D3 teaches

- **away** from base paper which is treated twice with viscose,

- **towards** base paper which is treated with chitosan and then either used as it is or treated **once** with

viscose (see page 5, lines 3 to 5 of D3a).

While the paragraph bridging pages 2 and 3 of D3a states that hemp pulp adds to the cost, it proposes reducing the **proportion** of hemp pulp not reducing the **weight** of the base paper. Moreover the sentence bridging pages 9 and 10 implies that if ordinary viscose-converted paper is thought to be too heavy then one should switch to chitosan treated paper.

The statement in page 3, line 14 that "A weight range of 10-30 g/m^2 is common" refers to base paper for chitosan treatment, there is no disclosure of using this paper (e.g. 10 g/m^2 base paper) for treatment twice with viscose.

In the series of tests recorded in Tables 1 to 4, parameters are changed to see what the effects are on the wet tensile strength. The comparison in Table 1 is between chitosan and viscose treatment, in Table 2 the variable is the percentage of manilla hemp, in Table 3 the weight of the base paper is varied and in Table 4 the deposited chitosan quantity is varied. The tables merely record scientific tests on various papers treated in various ways and were made in order to investigate the parameters. Then the results would be used to design a suitable paper for a sausage casing but there is no evidence that any of the papers in the tables were ever used to prepare sausage casings.

Thus there is no evidence that the paper of Comparative Example 2 (17 g/m^2, twice viscose treated) was ever used for a sausage casing or even that the skilled person ever contemplated using it for a sausage casing. The comparative examples in Tables 1, 2 and 4 have base

weights of 23 g/m^2 and so could not be any more relevant than D1.

The appellant argued that D3 was an obscure document which had never been put in practice and concludes that it would not have led the skilled person towards the present invention. The board adds that, on this reasoning, D3 could not be the basis for a prejudice against reducing the paper weight below the figures known elsewhere in the prior art.

5.3 The disclosure of D4 is similar to that of D2. However the independent claims 1 and 3 of D4 specify that after forming the paper web the fibres are treated with a material which is not viscose based.

In the paragraph between lines 21 and 31 of column 7 it is stated that the weight of the inventive paper is typically 13.6 to 20.3 g/m^2 but it can be seen from the opening words of this paragraph ("Im Falle von Teebeutelpapier") that this weight range refers to tea bag paper. The word "inventive" ("erfindungsgemäßen" in line 30) refers to the treatment with a material which is not viscose, i.e. the invention as set out in the independent claims of D4, and not to the use of the treated paper. In fact, lines 1 to 3 of column 3 gives the typical weight for casings (see lines 9 and 10 of column 3 "Umhüllungsschläuche"), namely 20 g/m^2 of which 0.6 g/m^2 is regenerated cellulose.

5.4 Lines 48 to 52 of column 2 of D8 state that fibre fleeces for sausage casings made of regenerated cellulose are mostly 0.06 to 0.12 mm thick. Examples are given in column 5, lines 50 to 53 of a fibre fleece of weight 21 g/m^2 and thickness 0.09 mm and in column 6,

lines 32 to 34 of a fibre fleece of 17 g/m^2 and thickness 0.07 mm.

Respondent II maintained in the oral proceedings that proportionately therefore a fleece of 0.06 mm thickness would weigh under 15 g/m^2. The board cannot find in favour of the respondent on this point since it presupposes that the fleeces have constant densities which however is not disclosed.

5.5 In the table on page 4 of the patent as granted Visko Light tubing is compared with heavy fibre material tubing. The Visko Light tubing is made from manilla hemp paper with a weight of 13 g/m^2 within a range of ± 1 g/m^2 (see page 3, lines 29 and 30 of the patent as granted). The heavy fibre material tubing, acknowledged by the appellant to be prior art (during the oral proceedings and in the statement of grounds of appeal, page 35, section 1.12 and page 36: prior proposals), is made from manilla hemp paper of various weights e.g. 17 g/m^2. The appellant confirmed during the oral proceedings that also the latter figure would be subject to a tolerance of perhaps ± 1 g/m^2 and that a tubing manufacturer might accept a delivery of paper with a weight of 16 g/m^2.

Thus it is not disputed that a method as set out up to the word "wherein" in claim 1 and the features up to the word "wherein" in claim 4, both of the main request, using manilla hemp paper having an air-dry weight of 17 g/m^2 or even 16 g/m^2 were known prior to the present invention.

There is no prior art disclosure on file of abaca base paper lower than 17 or 16 g/m^2 for viscose-treated

sausage casings and, if there was such prior art, then the board would have expected the two respondents to find and cite it. Thus the board proceeds on the basis that 16 g/m^2 is the lowest that anyone used before the priority date.

6. *Inventive step*

6.1 To avoid his firm being driven from the market by competing firms, the skilled person will always be trying to make his products more economically. The skilled person in the field of food product casings is well aware that one thing affecting the cost is the weight per unit area of the paper web used in the casing. Consequently he will always be interested in minimising the weight per unit area of the paper web but must ensure that the paper web can still be reliably transformed into a casing and that this casing can still be reliably filled.

The appellant does not dispute that casing manufacturers at the priority date of the invention were reluctant to use paper webs heavier than perceived necessary but maintains that this was also the case at all times before the priority date. He argues that viscose-treating paper is an art that is at least 50 years old and that, prior to the present invention, viscose-treated paper weights at least at or above the absolute lower limit of any 20 g/m^2 range were perceived to be necessary by the skilled person, so that by going down to no more than 15 g/m^2 the inventor broke a barrier which had stood for many, many years.

6.2 It would seem that it would be obvious for the skilled person to experiment to find out how low he could go

with the weight of the paper web. However the appellant argues that the skilled person was convinced that the weight is already at a minimum. In fact, of course, the invention uses a lower weight and thus shows that the weight before the priority date was **not** at the minimum which in turn shows that the skilled person's **conviction** was in fact merely a **prejudice**.

According to the case law of the boards of appeal (see Case Law of the Boards of Appeal of the EPO, 3rd edition 1998, English version, page 138, section 7.2) inventiveness can sometimes be established by demonstrating that a known prejudice, i.e. a widely held but incorrect opinion of a technical fact, needs to be overcome. In such cases, the burden is on the proprietor to demonstrate, for example by reference to suitable technical literature, preferably encyclopaedias, textbooks or specialist books published before the priority date, that the alleged prejudice really existed.

6.3 Page 4 of the statement of grounds of appeal states that the suggestion "that viable cellulosic paper sausage casings could be attained with viscose-treated abaca base paper at weights very significantly - at least 25% - below 20 g/m^2 (i.e. 15 g/m^2 and lower)" would have been disbelieved and derided.

This statement gives the impression that allegedly there was a prejudice against using paper below 20 g/m^2 i.e. that the line is drawn at 20 g/m^2. However, see section 5.5 above, viscose treated sausage casings made from paper webs of 17 g/m^2 or even 16 g/m^2 were used before the priority date.

Therefore there was no prejudice against using weights lower than 20 g/m^2. Moreover there was no prejudice against using weights lower than exactly 17 g/m^2 because every so often a paper of 16 g/m^2 might be used. Thus, even if the skilled person had drawn a line at 20 g/m^2 or at 17 g/m^2, he knew that the line could be moved, i.e. down to 16 g/m^2.

None of these figures, i.e. 20, 17 or 16 g/m^2, was actually written down in the prior art as being the limit but the appellant maintains that 17 or 16 g/m^2 was the limit.

6.4 It is clear that the difference between 16 g/m^2 and the claimed upper limit of 15 g/m^2 is much less than the figure of "at least 25%" used by the appellant when comparing 20 g/m^2 with 15 g/m^2. If there really was a line at 16 g/m^2 then the skilled person would, at 15 g/m^2, only just have crossed it. Monopolies as a rule should not exist for subject-matter which is only slightly away from the prior art because it is normal for a skilled person to explore the borders of such prior art.

6.5 There is nothing special about the upper limit of 15 g/m^2 in the sense that below this weight something unexpectedly different happens which would not be the case above this weight. There is no step change in the properties of the paper web or the sausage casing at or around 15 g/m^2. The elasticity of the casing changes steadily as the weight of the paper web from which it is made changes. The wet tensile strength also changes steadily. Therefore if paper of 16 g/m^2 worked reliably then it could be expected that the skilled person would have investigated whether something lower would work

reliably too.

"Reliable" may mean different things to different people e.g. some firms may tolerate more frequent production and filling line breakdowns than other firms. Moreover a given paper weight may be satisfactory on one casing production line but not on another one. Different products will be stuffed, e.g. a frankfurter mixture at room temperature or a frozen salami emulsion including ice crystals. Moreover products will be stuffed into different diameter casings.

It can be expected that the lines for producing the paper web, the lines for producing the casing and the lines for stuffing the casing will be developed over the years, e.g. to make the paper web more uniform thus reducing faults which might cause it to tear, and to improve speed control of the line to reduce sudden loads on the web. Thus the skilled person would not expect the web properties never to change.

The board sees no convincing reason why a person skilled in the art would not have been in a position to try the use of a paper of lower weight. The skilled person was well aware that different sausage mixtures are easy or difficult to stuff, depending e.g. on their viscosity and homogeneity. Thus, although he knew that it was conventional to use a casing made from paper of a certain weight when stuffing a frozen salami emulsion including ice crystals into a large diameter casing, if he only wished to stuff a frankfurter mixture at room temperature into a smaller diameter casing then would have known that he could use a casing made of a paper of less weight.

6.6 Thus the board finds that it would have been obvious for the skilled person to have experimented to see if lower weight abaca papers, such as those which were readily available for other purposes, could have been used in the casing. The technical, cost and environmental advantages (e.g. elasticity and peelability) and the alleged commercial success would have automatically resulted from the choice of the lower weight paper.

The range in claims 1 and 4 of the main request extends downwards from 15 g/m^2 with no lower limit (unless one takes 0 g/m^2 as being a lower limit). It is clear that at least paper of weight near 0 g/m^2 would not yield satisfactory sausage casings. Since the appellant saw no need to specify a minimum weight in the claim, it must be assumed that he felt that the skilled person would experiment with trial and error to see how far he could go downwards to a lower practical limit. The board considers that it would be obvious for the skilled person to use the same experimentation to move downwards from 16 g/m^2 to "no more than 15 g/m^2".

The board therefore comes to the conclusion that the subject-matter of claims 1 and 4 of the main request do not involve an inventive step within the meaning of Article 56 EPC.

6.7 Moreover the protection conferred by a patent should correspond to the technical contribution to the art made by the disclosure of the invention described therein, which excludes the monopoly being extended to subject-matter which, after reading the patent specification, would still not be at the disposal of the skilled person. The available information including

the relevant common general knowledge has to enable the skilled person to achieve the envisaged result within the whole of the claimed range without undue difficulty.

The independent claims of the main request specify weights from 15 g/m^2 downwards. It is undisputed however that the envisaged result would not be obtained with very low paper weights such as 4 g/m^2 (assuming such papers could even be made) when using merely the double viscose treatment. The patent however discloses nothing other than this. However the claims, if valid, would cover developments which lowered the paper weight below 15 g/m^2 by using the double viscose treatment and some **additional** treatment (see the last sentence of section 5.1 above concerning D2).

6.8 The main request must therefore be refused.

7. *The auxiliary requests*

7.1 In the context of the present patent, the word "stuffed" (in the main request and some of the auxiliary requests) and the less specific word "packed" (in the other auxiliary requests) can be considered as equivalents when assessing inventive step.

Thus, firstly, as the main request (stuffed) falls, also the more general first auxiliary request (packed) must fall.

Secondly, since there is no effective or meaningful difference between the first (stuffed) and second (packed) versions of the second to fifth auxiliary requests, these versions can be treated together.

7.2 The deletion of the word "mainly" to arrive at claim 1 of the second auxiliary request was done to clarify the claim but does not overcome the obviousness objections made against claim 1 of the main request.

Moreover claim 4 of the second auxiliary request is identical to claim 4 of the main request which claim was found in section 6 above (particularly section 6.6) to be obvious.

Thus the second auxiliary request is refused.

7.3 The minimum tubing diameter of 35 mm specified in the third auxiliary request was not only a commonly known diameter (see D7) but was also conventionally made with paper of weight 17 g/m^2 (see the table on page 4 of the patent). The skilled person would naturally have experimented with this diameter to see if the paper weight could be reduced from 17 (or 16) g/m^2 and so would have arrived at a paper weight of no more than 15 g/m^2.

This third auxiliary request must therefore be refused.

7.4 These routine experiments would have shown the skilled person that lightweight paper could also be used for tubing diameters of more than 50 mm so that also the fourth auxiliary request falls.

7.5 The upper limit of the range specified in the fifth auxiliary request is 13 + 1 = 14 g/m^2 and differs so slightly from the 15 g/m^2 upper limit of the main request that the arguments advanced against the main request also apply to the fifth auxiliary request which is likewise refused.

7.6 The appellant maintained in the oral proceedings that the claims of the sixth to eleventh auxiliary requests expressed the concept of being able to use a single paper weight to produce **all** tubing diameters specified in a particular claim e.g. in the sixth auxiliary request **all** sizes between 35 mm and c. 165 mm. The board disagrees and interprets these claims as meaning **any** size in the range but not necessarily **all** sizes. The sizes themselves can be seen from D7 to be conventional.

The claims of the sixth to eleventh auxiliary requests are extremely similar in content to those of the higher requests and it is not apparent to the board how the reformulation, as such, from method claims to use claims can help the appellant's case. The reasoning of the board for the main and first to fifth auxiliary requests applies also to the sixth to eleventh auxiliary requests which are likewise refused.

7.7 The claims of the twelfth to the fifteenth auxiliary requests are unclear in that they refer to "speeding up the curing process of salami" without specifying to what the speeding up is to be compared. Moreover the claims of the fourteenth and fifteenth auxiliary requests attempt to define the paper by a unusual parameter, namely the speed at which salami cures therein.

The appellant agreed during the oral proceedings that the subject-matter of these claims and of the claim of the sixteenth auxiliary request would be arrived at by the skilled person automatically if he carried out the known method of manufacturing tubing but using lighter weight paper, since the added effects did not result

from additional features to be found in the paper or from additional steps in the paper and casing manufacturing method. Thus the subject-matter of all of these requests is not inventive and the twelfth to sixteenth auxiliary requests are refused.

8. Since all the requests are refused, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Magouliotis C. Andries