

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte HOLGER KNAPPE

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Appeal No. 96-2874  
Application No. 08/027,849

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HEARD: January 12, 2000

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Before KIMLIN, GARRIS, and PAK, Administrative Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 2 through 5, 7, 9, 13 and 14. Remaining claim 6 has not been finally rejected in the final Office action dated October 11, 1994, Paper No. 7. Nor has it been rejected in the Answer.

According to the examiner (Answer, page 2):

The [B]rief includes a statement that claims 2-[5,] 7, 13 and 14 do not stand or fall together but fails

Appeal No. 1996-2874  
Application No. 08/027,849

to present reasons in support thereof. Therefore,  
these claims are presumed to stand or fall together.

Appellant does not challenge the examiner's position. Nor do  
we find any substantive arguments for the separate  
patentability of claims 2 through 5, 7 and 14<sup>1</sup> in accordance  
with 37 CFR

§ 1.192(c)(7)and(c)(8)(iv) (1995). See Brief in its entirety.

Therefore, for purposes of this appeal, we will limit our  
discussion to claim 13 which is reproduced below:

13. A tubular body comprising an inner layer of thermoplastic  
material and an outer layer of fiber-reinforced reaction resin  
cured by exposure to light and at a temperature between  
approximately 20 and 60°C.

The references of record relied upon by the examiner are:

Archer et al. (Archer)	4,961,977	Oct. 9,
1990		
Fuchs et al. (Fuchs)	5,091,230	Feb. 25,
1992		
Hoefer et al. (Hoefer)	5,271,855	Dec. 31,
1993 <sup>2</sup>		

The references of record relied upon by appellant are:

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<sup>1</sup> We observe that claim 14 is presently dependent on  
canceled claim 1. In the event of further prosecution, both  
the examiner and appellant are advised to correct this error  
so that claim 14 can be dependent on a pending claim.

<sup>2</sup> The availavility of this patent or its content as "prior  
art" has never been contested by appellant.

Appeal No. 1996-2874  
Application No. 08/027,849

Hawley's Condensed Chemical Dictionary, Eleventh Ed., Sax et al., Van Nostrand Reinhold, p. 1146 (unknown publication date) (hereinafter referred to as "Sax").

Encyclopedia of Polymer Science and Engineering, Vol. 11, A Wiley-Interscience Publication, John Wiley & Sons, p. 186 (unknown publication date)(hereinafter referred to as "Wiley").

Makromolekulare Stoffe, Bartl et al., Georg Thieme Verlag Stuttgart, 1987, the table contents (hereinafter referred to as "Bartl").

Laboratory Preparation for Macromolecular Chemistry, McCaffery, McGraw-Hill Book Company, 1970, page 71 (hereinafter referred to as "McCaffery").

Principles of Polymerization, Odian, McGraw-Hill Book Company, 1970, page 188 (hereinafter referred to as "O dian").  
Advanced Organic Chemistry, March, McGraw-Hill, Inc., 1977, pp. 215-216 (hereinafter referred to as "March").

The appealed claims stand rejected as follows:

- (1) Claims 2, 5 and 13 under 35 U.S.C. § 102(b) as anticipated by the disclosure of Fuchs;
- (2) Claims 3, 4, 7 and 9 under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Fuchs and Hoefer; and
- (3) Claims 4, 5, 13 and 14 under 35 U.S.C. § 103 as unpatentable over the disclosure of Archer<sup>3</sup>.

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<sup>3</sup> As is apparent from the final Office action and the Answer, the examiner inadvertently has not repeated the final

Appeal No. 1996-2874  
Application No. 08/027,849

We have carefully reviewed the specification, claims and applied prior art, including all of the arguments advanced by both the examiner and appellant in support of their respective positions. This review leads us to conclude that the examiner's § 102 and § 103 rejections are well founded. Accordingly, we will sustain each of the foregoing § 102 and § 103 rejections for essentially those reasons set forth in the Answer. We add the following primarily for emphasis and completeness.

Appellant does not dispute that Fuchs discloses a tube comprising an inner layer of polyamide (a thermoplastic material) and an outer layer of fiber reinforce thermoplastic resin cured at about 140 °C to 160 °C. See Brief, pages 5 and 6. Appellant also does not dispute that it would have been obvious to incorporate neopentyl glycol taught by Hoefer (as required, e.g., by dependent claims 3 and 4) as part of the heat curable thermoplastic resin of the tube described in Fuchs. See Brief, pages 9-11. Further, appellant does not

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rejection of claim 14 under 35 U.S.C. § 103 over the disclosure of Archer. Indeed, appellant recognizes that the § 103 rejection over the disclosure of Archer includes claim 14. See Brief, page 7.

Appeal No. 1996-2874  
Application No. 08/027,849

dispute that Archer would have rendered a tube having "an inner layer of thermoplastic and an outer layer of typically fiber-reinforced reaction resins, such as epoxy resins" obvious to one of ordinary skill in the art. Compare Answer, page 4 with Brief, pages 7-9. Appellant only argues the patentability of the claimed subject matter based on the product-by-process limitation set forth in claim 13, which reads as follows:

an outer layer of fiber-reinforced reaction resin cured by exposure to light and at a temperature between approximately 20 and 60 °C.

The dispositive question is therefore whether this product-by-process limitation imparts patentability to the claimed product, i.e., a tubular body. We answer this question in the negative.

The court provides guidance for analyzing the patentability of product-by-process claims in *In re Thorpe*, 777 f.2d 695, 697, 227 USPQ 964, 965-66 (Fed. Cir. 1985) as follows:

Product-by process claims are not specifically discussed in the patent statute. The practice and governing law have developed in response to the need to enable an applicant to claim an otherwise patentable product that resists definition by other

Appeal No. 1996-2874  
Application No. 08/027,849

than the process by which it is made. For this reason, even though product-by process claims are limited by and defined by the process, determination of patentability is based on the product itself. In *re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); In *re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.*, 77 F.2d 274, 279, 26 USPQ 57, 61 (2d Cir. 1935).

The patentability of a product does not depend on its method of production. In *re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Marosi*, 710 F.2d 799, 803 218 USPQ 289, 292, 292-93 (Fed. Cir. 1983); *Johnson & Johnson v. W.L. Gore*, 436 F.Supp. 704, 726, 195 USPQ 487, 506 (D. Del. 1977); see also *In re Fessman*, 489 F.2d 742, 180 USPQ 324 (CCPA 1974).

With this guideline in mind, we turn to *Fuchs and Archer*. As pointed out by appellant, both *Fuchs and Archer* disclose an outer layer of fiber-reinforced reaction resin cured by heat, rather than light. See, e.g., Brief, pages 6 and 8. However, it appears that the reaction resin cured by heat is chemically identical to that cured by light since both heat and light curing promote crosslinking of the polymers in the reaction resins involved. See e.g., Brief, page 6 and specification,

Appeal No. 1996-2874  
Application No. 08/027,849

page 2. At page 2 of the specification, we also note that appellant states:

The cross linking ensues upon heating and/or under the influence of peroxide catalyts, with the cooperation of accelerators, such as amine salts and heavy metal salts. Optionally, the curing may also be performed by the action of ionizing radiation or UV radiation in the presence of sensitizers, such as quinones.

Moreover, the tubular body resulting from heat curing the outer layer reaction resin shares the same or substantially the same physical properties as the tubular body resulting from curing the outer layer reaction resin with light. They both can be operated at a high pressure level, even as high as 350 bar. Compare, e.g., specification, page 5, with Fuchs, column 1, lines 10-18 and column 3, lines 1-16. Given the above facts, we agree with the examiner that the prior art tubular body is identical or substantially identical to the claimed tubular body within the meaning of 35 U.S.C. § 102 or § 103.

Appellant argues that the claimed tubular body is made by a process which is different from that described in the applied prior art, thus rendering the claimed tubular body patentable over those described or suggested in the applied

Appeal No. 1996-2874  
Application No. 08/027,849

prior art. See Brief, pages 6 and 7. In support of his position, appellant refers to Sax, Wiley, Bartl, McCaffery, Odian and March to demonstrate that thermal and photo polymerizations are different processes. **Id.** We are not persuaded by either appellant's argument or evidence. The patentability of a product, such as a tubular body, does not depend on ways in which it is made. When a product is claimed, the claimed product itself must be patentably different from those of the prior art.

Appellant also argues that the claimed product-by-process limitation renders the claimed tubular body patentably different from those of the prior art since it limits the claimed reaction resin compositions to those which can be cured by exposure to light and at a temperature between 20 °C to 60 °C. See, e.g., Reply Brief, page 5. However, appellant has not demonstrated that the prior art reaction resin compositions cannot be cured by exposure to light (e.g., ionization radiation or UV radiation) at a temperature as high as 60 °C. **In re Thorp, supra; In re Swinehart**, 439 F.2d 210, 212, 169 USPQ 226, 228 (CCPA 1971). In other words, appellant

Appeal No. 1996-2874  
Application No. 08/027,849

has not evinced that the claimed reaction resin compositions are patentably different from the prior art resin compositions. In fact, appellant has acknowledged at page 7 of the Brief that a reaction resin can be cured at the claimed temperature condition of 60 °C (albeit inefficiently), without any additional components.

Further, appellant argues that the claimed product-by-process limitation imparts an unexpected property to the product, thereby rebutting the *prima facie* case established by the examiner. See, e.g., Reply Brief, pages 1-3. In support of his position, appellant refers to pages 1 and 2 of the specification, which reads as follows:

In cross-linking of the jacket layer, which was previously typically done thermally, shrinkage occurs, however, which can in turn lead to hairline cracks in the liner. The production of such tubes therefore requires not only a great deal of experience, but is also time-consuming and expensive, and this makes itself felt in the relatively high prices for the finished products. Instead of the usual thermal cross-linking of the outer layer, cold curing of such synthetic resins is already known, but that has the disadvantage in turn that the UP resin, provided with hardeners and accelerators, allows only very brief processing times of the starting mixture. EP resins can also be processed by cold curing; however, the curing time is longer than with UP resins.

Appeal No. 1996-2874  
Application No. 08/027,849

Although thermally curing the reaction resin of an outer layer without causing hairline cracks thereto involves a great deal of experience, time and cost, the above-quoted statement does not indicate that the resulting thermal-cured tubular body is patentably different from the claimed light-cured tubular bodies. In fact, the prior art tubular body, like the claimed tubular body, does not have any hairline cracks (microcracks) until it is subjected to a very high pressure, i.e., 500 bar. Compare, e.g., specification, page 5, with Fuchs, column 3, lines 1-16. In any event, the alleged "unexpected property" cannot be established by mere arguments in the Brief or Reply Brief or conclusory statements in the specification. ***In re De Blauwe***, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984); ***In re Lindner***, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972). It must be supported by objective evidence, i.e., factual evidence. ***Id.***

In view of the foregoing, we affirm the examiner's decision rejecting 2 through 5, 7, 13 and 14.

OTHER ISSUES

Appeal No. 1996-2874  
Application No. 08/027,849

As a final point, we note that claim 6 has not been finally rejected. It appears that the examiner inadvertently has not extended the prior rejections on appeal to claim 6. Upon return of this application, the examiner is advised to determine whether the subject matter of claim 6 is patentable over the applied prior art.

We also note that in the Background of the Invention section of the application, appellant states that known thermal or cold curing of an outer layer containing a thermoplastic material has certain problems. See specification, pages 2 and 3. Appellant's proffered evidence, e.g., Sax, also indicates that radiation curing (light curing) is a well known alternative curing technique to thermal curing. Upon return of this application, the examiner is to determine whether such problems were known or observable to those skilled in the art at the time of the invention and if known or observable, whether such knowledge or observation would have led one of ordinary skill in the art to employ an alternative low temperature conventional radiation curing to arrive at the claimed product.

Appeal No. 1996-2874  
Application No. 08/027,849

No period for taking any subsequent action in connection  
with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
BRADLEY R. GARRIS	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
CHUNG K. PAK	)	
Administrative Patent Judge	)	

CKP:lp

Appeal No. 1996-2874  
Application No. 08/027,849

CUSHMAN, DARBY AND CUSHMAN  
1100 NEW YORK AVENUE, N.W.  
NINTH FLOOR  
WASHINGTON, DC 20005-3918

***Leticia***

Appeal No. 1996-2874  
Application No. 08/027,849

APJ PAK

APJ GARRIS

APJ KIMLIN

DECISION: AFFIRMED/REMAND  
Send Reference(s): Yes No  
or Translation (s)  
Panel Change: Yes No  
Index Sheet-2901 Rejection(s):  
Prepared: June 21, 2001

Draft                  Final

3 MEM. CONF.    Y                  N

OB/HD                  GAU

PALM /ACTS 2/BOOK  
DISK(FOIA)/REPORT