

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 25

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

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Ex parte MICHAEL F. NOVITS, CHESTER J. KMIEC,  
and EDWARD P. HIBBARD

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Appeal No. 1999-2161  
Application No. 08/475,127

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ON BRIEF

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Before PAK, JEFFREY T. SMITH, PAWLIKOWSKI, Administrative Patent Judges.

PAWLIKOWSKI, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on an appeal from the Examiner's refusal to allow claims 72, 73, 79 through 87, 98, 99, 106, and 110 through 117.<sup>1</sup> Claims 1 through 71 and 103 have been cancelled. Claims 75, 76, 88 through 90, 95 through 97, 100, 101, and 105 have been withdrawn from consideration.

The subject matter on appeal is represented by claim 110, set forth below:

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<sup>1</sup> Claims 74, 77, 78, 91-94, 102, 104, and 107-109 have been determined by the examiner to contain allowable subject matter. (answer, page 2).

110. A crosslinkable, scorch retarded composition consisting essentially of polymer selected from the group consisting of thermoplastic polymers crosslinkable by peroxide or an azo compound, elastomeric polymers crosslinkable by a peroxide or an azo compound, or mixtures of such polymers and sufficient scorch retarding, curing-crosslinking composition to provide 0.01 to 30 parts by weight free radical initiator, said free radical initiator being selected from organic peroxides, azo compounds and mixtures thereof, said scorch retarding, curing-crosslinking composition being prepared by mixing, as the essential ingredients, hydroquinone and sulfur accelerator in a weight ratio of from 1:500 to 50:1, coagent in a weight ratio of from 100:1 to 1:100 to the combined weight of hydroquinone and sulfur accelerator and free radical initiator in a weight ratio of free radical initiator to combined weight of hydroquinone and sulfur accelerator of 100:0.05 to 2:1.

The examiner relies on the following prior art reference as evidence of unpatentability:

Groepper\*            5,292,791            March 8, 1994

\*We note that the examiner and appellants discuss Larsen (U.S. Patent No. 3, 335,124) because this reference is discussed in the applied reference of Groepper.

Claims 72, 73, 79-87, 98, 99, 106, and 110-117 stand rejected under 35 U.S.C. § 103 as being unpatentable in view of Groepper.

Appellants submit at page 11 of their brief that "all the claims do not stand or fall together". However, we find that the Argument section of appellants' brief fails to present an argument that is reasonably specific to any particular claim on appeal, except for claim 110, with particular focus on the combination of the ingredients recited in claim 110. (brief,

e.g., page 14).<sup>2</sup> Accordingly, we consider claim 110 in this appeal. 37 CFR § 1.192 (c) (7) (1998).

We have carefully reviewed pages 1-42 of appellants' brief and the declaration evidence. We have also carefully reviewed the examiner's answer. As a result of this review, we affirm the aforementioned rejection for the reasons set forth below.

### OPINION

#### I. The 35 U.S.C. § 103 rejection

##### a. *Summary of appellants' presentation set forth in their brief*

Appellants state that their invention relies on the discovery that the use of a combination of two classes of scorch extenders known in the prior art (hydroquinones and sulfur accelerators, see specification, p. 5, l. 22-23) in combination with known free radical initiators for crosslinking (organic peroxides and azo initiator, see specification, p. 6, l. 14-16, p.9, l. 14-19) and known crosslinking coagents (see specification, p. 6, l. 9-11), provides a greater than additive effect on scorch retardation during compounding, while having no deleterious effect on either final cure time or degree of crosslinking (see specification, p. 5, l. 7-11). (brief, page 9).

Appellants further state that thus their invention is a curable thermoplastic and/or elastomeric polymer composition which provides enhanced safety from premature scorch during any desired processing prior to cure, without any undesirable

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<sup>2</sup>We note that appellants discuss claims 74, 77, 91, 92, 93, 94, 102, 104, 107, 108 and 109, on page 23 and 29, collectively, of their brief, and discuss claims 77, 78, 91, 102, and 107 on page 26 of the brief. As mentioned, supra, the examiner has determined that these claims contain allowable subject matter. Hence, we need not consider these claims in this appeal.

effects on the time or degree of cure once free radical cure is initiated. (brief, page 9).

Appellants state that it is the examiner's stated position "that the disclosure of Larsen (U.S. 3,335,124) in column 2 of Groepper recited that hydroquinones, sulfur compounds and free radical compounds could be used together." (brief, page 15).

Appellants state that they disagree with the examiner's stated position, and believe that this passage of Groepper is simply a teaching of the alternative use of the named classes of ingredients for scorch retardation. (brief, page 16).

Appellants further point out that Groepper's object of invention, as discussed in column 2, at lines 33 to 42 of Groepper, is as follows:

The object of the invention is the extension of the scorch time in the crosslinkage of polymers with organic peroxides, while avoiding an extension of the crosslinking time and a deterioration of the crosslinkage; the scorch time extender is not to be volatile (like hydroperoxide), not toxic (like N-nitroso compounds) and **is not to contain sulfur** (like phenothiazine) **in order to avoid unpleasant odors** given off by the crosslinked final product . . .

Appellants state that the examiner has dismissed this clear statement by Groepper that its invention is not to contain sulfur containing compounds by asserting that one skilled in the art would not consider this a warning to avoid all sulfur compounds, but rather to avoid only those compounds which caused unpleasant odors and that those in Larsen which do not fall within this realm would be useful. (brief, page 17).

Applicants further state that they are unaware of any sulfur compound sulfur accelerator which has been previously identified by the relevant art as not having an odor generation problem when employed in conjunction with a free radical

(organic peroxide, azo initiator) cure system for thermoplastic and/or elastomers. (brief, page 18). Appellants also support this position with reference to paragraph 8 of the Supplemental Declaration (Paper No. 10) and with reference to paragraphs 16, 17, 18 and 20 of the Groepper Declaration (Paper No. 14).<sup>3</sup> (brief, pages 21 and 23).

Appellants further argue that the issue is not would any sulfur compound give odors in a peroxide cure, but does a sulfur compound sulfur accelerator exist which would not give odors in a peroxide cure. Appellants state that there is no evidence of record that such a compound is known to exist. (brief, page 23).

Appellants emphasize that Groepper provides an accurate summary of the teachings of Larsen U.S. Patent 3,335,124, which shows the alternative use of antioxidants (hydroquinones), sulfur accelerators (e.g. 2-mercaptobenzothiazole and tetramethyl thiuram disulfide) or amine aldehyde adducts for scorch retardation in polymer formulations, but suggests no particular advantage to be gained by their combination. In this context, appellants refer to paragraph 7 of the Supplemental Declaration (Paper No. 10) and to paragraphs 12 and 13 of the Groepper Declaration (Paper No. 14).

Appellants go on to discuss the reference of Ogasawara (and other references). (brief, pages 18-20). We limit our analysis

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<sup>3</sup>The Examiner responds to the statement in paragraph 7 of the Supplemental Declaration (Paper No. 10) by stating that there is no reason or evidence to indicate that scorch property would be lost if the individually known ingredients would be combined. (answer, page 4). The examiner responds to the Groepper Declaration by stating that the prior art discloses that sulfur accelerators as a class could be used to control scorch (answer, page 5).

to the applied reference of Groepper, as it is this reference that is applied in the rejection of record.

*b. Our analysis*

It is not disputed that each of the ingredients recited in claim 110 are known. (brief, page 14). Also, it is well settled that it is generally a matter of obviousness for one of ordinary skill in the art to combine two or more materials when each is taught by the prior art to be useful for the same purpose. In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). Hence, it is enough that Groepper teaches that (a) antioxidants or (b) accelerators or (c) compounds having both antioxidant function and accelerator, function as a class of retarders to extend scorch time. To combine two or more of these materials for the same purpose within the ambit of one of ordinary skill in the art is a matter of obviousness. Id. Hence, the issue of whether the examiner is correct or incorrect regarding his interpretation of Groepper as stated on pages 3-4 of the answer is moot.

With respect to Groepper's disclosure of the use of a compound that "is not to contain sulfur", in order to avoid unpleasant odors, we find that this disclosure suggests that sulfur-containing compounds have been used in the art, however, odor problems have been known to be associated with their use, and hence, one should avoid their use in order to avoid odor problems. See In re Boe, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966) (court affirmed rejections based on art which rendered the claimed invention obvious to those of ordinary skill in the art despite the fact that the art teachings relied upon were phrased in terms of a non-preferred embodiment or as being unsatisfactory for the intended purpose).

Moreover, appellants admit that "both hydroquinones and sulfur compound sulfur accelerators have been used separately to control scorch during compound". (brief, page 14). Hence, to combine two or more of these materials is a matter of obviousness. In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

Appellants argue that the examiner has not shown that there exists sulfur-containing compounds that do not cause odor problems. However, appellants have not shown that their choice of sulfur-containing compounds avoids odor problems in their claimed invention. In fact, paragraph 19 of the Groepper Declaration indicates that appellants' claimed composition has odor problems (minimal, albeit). Hence, the issue of whether the examiner has or has not shown that sulfur-containing compounds exist that do not have odor problems is moot in view of the fact that appellants' composition can have odor problems, albeit, minimal.

In view of the above, we determine a prima facie case has been met.

## II. Rebuttal Evidence

Appellants rely upon the following Declarations:

1. Joint Declaration of Terry N. Myers, Peter A. Callais and Leonard H. Palys made of record in this application on Jan. 22, 1996 ("Myers, Callais, Palys Joint Declaration"). (Paper No. 8).
2. Supplemental Declaration by the same three Declarants made of record in this application June 13, 1996 ("Supplemental Declaration"). (Paper No. 10).

3. Declaration by Jurgen Groepper made of record in this Application April 16, 1997 ("Groepper Declaration"). (Paper No. 14).
4. Declaration of Leonard Palys (signed by Leonard Palys and Peter Callais) made of record in this Application on April 16, 1997 ("Palys Declaration" (Paper No. 14)).

We have already addressed appellants' comments on the Groepper Declaration, item 3 (Paper No. 14), and appellants' comments on the Supplemental Declaration, item 2 (Paper No. 10), supra.

Our comments below address the data presented in the Palys Declaration (Paper No. 14) listed as item 4, above, and on appellants comments on the Joint Declaration (Paper No. 8), listed as item 1, above. Our comments also address some of the examples found in appellants' specification that are discussed by appellants in their brief.

A prima facie case of obviousness is rebuttable by proof that the claimed invention possesses unexpectedly advantageous or superior properties. In re Papesch, 315 F.2d 381, 386-87, 137 USPQ 43, 47-48 (CCPA 1963). Upon our review, we find that the comparison/data referred to by appellants is insufficient to rebut the prima facie case of obviousness for the following reasons.

In order to establish unexpected results for a claimed invention, objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support. In re Clemens, 622 F.2d 1029, 1035, 206 USPQ 289, 296 (CCPA 1980); In re Greenfield, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978); In re Lindner, 457 F.2d

506, 508, 173 USPQ 356, 358 (CCPA 1972); In re Tiffin, 448 F.2d 791, 792, 171 USPQ 294, 294 (CCPA 1971).

The Palys Declaration (Paper No. 14) discusses synergistic effects allegedly achieved by appellants' invention. Table A, e.g, on page 6 of this Declaration, is used to illustrate that Run #4 achieves more than an additive effect on scorch time protection. However, appellants have not explained that the specific composition used in Run #4 is fully commensurate in scope with the composition of claim 110. For example, appellants have not shown that the specific composition used in Run #4 has the same weight ratios required by claim 110.

Appellants discuss examples 1, 2, 3, 4, 5, 7, 12, and 13 set forth in their specification. (brief, pages 25-31). We have carefully reviewed each of these examples, and find these examples also unconvincing for the same reasons that the data of the Palys Declaration (paper No. 14) is unconvincing. Hence, appellants have also not shown that these specific examples are commensurate in scope with the composition of claim 110.

Moreover, appellants have not shown that the comparisons made are made with the closest prior art. We remind appellants that rebuttal evidence can be in the form of direct or indirect comparative testing between the claimed invention and the closest prior art. In re Merchant, 575 F.2d 865m 869, 197 USPQ 785, 788 (CCPA 1978); In re Blondel, 499 F.2d 1311, 1317, 182 USPQ 294, 298 (CCPA 1974); In re Swentzel, 42 CCPA 757, 763, 219 F.2d 216, 220, 104 USPQ 343, 346 (1955).

Appellants argue that if one were to accept the examiner's position that the teachings of Groepper suggest to use those particular classes of compounds in combination for the same purpose, and to ignore the express teaching of Groepper that he intends not to make that combination, one still is left with the

uncontroverted fact that all would expect to gain from such a combination is an additive benefit of the contribution of each to scorch retardation, and that to increase scorch retardation, one would simply be required to add greater and greater quantities of either or both components. See paragraph 33 of the Myers, Callais, Palys Joint Declaration (Paper No. 8). (brief, page 24). Appellants also state that one would also logically expect that in addition to the expected additive effect on scorch retardation one would predict from a combination of two individual members of the known scorch retarder classes, one would also expect a similar additive effect on scorch time and interference with crosslinking efficiency and properties. See paragraph 34 of the Myers, Callais, Palys Joint Declaration (Paper No. 8). (brief, page 25).

We fully appreciate the point appellants attempt to make here. However, we have reviewed the data (discussed above) and remain unconvinced by the data for the reasons discussed above. Furthermore, e.g., example 12 on pages 49-50 of appellants' specification, attempts to illustrate that Sample I achieves more than an additive benefit (the additive benefit, e.g., as discussed at length in the Myers, Callais, Palys Joint Declaration of Paper No. 8). However, we find that differing quantities of ingredients (e.g., some of the quantities listed on page 49 differ from sample to sample) are used, such that a comparison of Samples F, G, H, I, and J made on page 50, is not a true comparison. We note that it is not an unreasonable burden on appellants to require comparative examples relied on for nonobviousness to be truly comparative. Here, the cause and effect sought to be proven is loss here in the welter of unfixed

variables. In re Dunn, 349 F.2d 433, 439, 46 USPQ 479, 483 (CCPA 1965).

In view of the above, we determine that the rebuttal evidence presented by appellants is insufficient.

We therefore **affirm** the rejection of record.

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

**AFFIRMED**

	)	
Chung K. Pak	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
Jeffrey T. Smith	)	
Administrative Patent Judge	)	APPEALS AND
	)	
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ELD

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