

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 16

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UNITED STATES PATENT AND TRADEMARK OFFICE

FEB 14 1996

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT J. KUMPF, DOUGLAS A. WICKS
DITTMAR K. NERGER, HARALD PIELARTZIK, and
ROLF WEHRMANN

Appeal No. 94-0971
Application 07/701,425¹

ON BRIEF

Before JOHN D. SMITH, TURNER and PAK, Administrative Patent Judges.
TURNER, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the Examiner's decision rejecting claims 1-7 which are all of the claims remaining under rejection. Claims 9-13 have been indicated as allowed. Illustrative claim 1 is attached to this decision.

¹ Application for patent filed May 15, 1991.

Appeal No. 94-0971
Application 07/701,425

The references of record relied upon by the Examiner
are:

Matzner et al. (Matzner '975)	4,619,975	Oct. 28, 1986
Matzner et al. (Matzner '284)	4,837,284	Jun. 6, 1989

The appealed claims stand rejected under 35 U.S.C.
§ 103 as unpatentable over each of Matzner '975 and Matzner '284.
The subject matter on appeal is directed to block copolymers
defined by a certain formula. The copolymer(s) contains both
poly(aryl)ether segments and liquid crystalline polyester
segments.

According to Appellants, the claims stand or fall
together.

OPINION

We have carefully reviewed the record before us,
including each of the arguments and comments advanced by
Appellants and the Examiner in support of their respective
positions. This review leads us to conclude that the Examiner's
position is not well founded. Accordingly, we will not sustain
the rejection. Our reasons follow.

The claims describe a block copolymer represented by a
liquid crystalline polyester segment and a polyether segment
which has a "Z" linking group. The "Z" moiety is defined as the
linkage which results from the transesterification of a liquid

Appeal No. 94-0971
Application 07/701,425

crystalline polyester and an ester group containing aromatic polyether.

Each of the Matzner references, according to the Examiner, teach block copolymers having polyarylether segments and liquid crystal polyester segments. No discussion of a linking moiety is set forth. The Examiner indicates that monomers used to produce the polyester segment include those that would produce the units specified in the claimed block copolymer and this is not disputed by Appellants. The Examiner then concludes that it would have been obvious to prepare block copolymers of polyarylether and liquid crystal polyester having the structure specified in the claims. The Examiner further states that since an ester linkage is formed by transesterification, it is not apparent how the claimed copolymers "differ from those taught by each of the references in which the polyarylether (sic-polyarylether) block and the liquid crystal polyester block are linked by an ester group." We do not find, based upon this record, that the Examiner has met the initial burden of establishing a prima facie case of obviousness.

The Examiner states (Answer, page 4) that under polyester forming conditions, the ester terminated polyarylether of the references would react with the aromatic acid monomer to form an ester group linking the polyarylether block with the polyester block which would be structurally the same as

Appeal No. 94-0971
Application 07/701,425

Appellants' Z group. The Examiner further indicates that in comparing formula IIa at page 4 of the Brief with the formula at page 5 of the Brief, it is clear that the only difference is the oxygen atom in the second ester group in the formula at page 5.

According to the Examiner: "[T]his oxygen in the reference block copolymers is connected to an aromatic group derived from the diphenol used to prepare the polyester block. In appellant's (sic-appellants') block copolymer, it connects the last aromatic group of the polyester to the Z linkage. See the block copolymer formula in claim 1. Thus, in both appellant's (sic-appellants') block copolymer and the reference block copolymer a linkage between the polyester block and polyarylether block is formed by two aromatic groups connected by an ester group with one aromatic group further connected to the polyarylether block by an ether group and one aromatic group further connected to the polyester block by an ester group."

Appellants responded to the Examiner's statement in the reply Brief by indicating that the statement above is incorrect. Appellants indicate that "the ether oxygen in the block connected to Appellants' Z linking group can not properly be considered the same as the oxygen present in the second carboxyl group of the "reference" linking group because that ether oxygen is part of a repeating unit in Appellants' composition which repeating unit does not have a Z linking group

Appeal No. 94-0971
Application 07/701,425

between each repetition.

However, even if the ether oxygen present in Appellants' repeating unit were moved into the linking group Z, the blocks to which that linking group was attached would no longer have the repeating ether oxygen required in the claimed invention. The Examiner would therefore have 'arrived at' the same linking group but the blocks connected by that linking group would be substantially different from those required in the claimed block copolymers.

Thus, Appellants have challenged the Examiner's statement and stress that the linking groups are not the same. To this assertion, the Examiner has not responded. Further, Appellants state in the main Brief (page 3, line 25-page 4, line 3 and page 7, lines 3-8) that the references do not mention ester groups containing polyethers, much less suggest their use in the disclosed copolymers. The significance of this "missing " teaching, according to Appellants, lies in the fact that it would be impossible for the reference compounds to have both the Z linking group and the polyether segment required in Appellants' invention without the ester group containing polyethers required in the claimed invention. Thus, the Examiner has not met the burden of providing supporting authority or other evidence to rebut the statements of Appellants. We conclude, therefore, that the Examiner's rejection fails for lack of a sufficient factual

Appeal No. 94-0971
Application 07/701,425

basis upon which to reach a conclusion of obviousness. In re
Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)

The decision of the Examiner is reversed.

REVERSED

John D. Smith
JOHN D. SMITH)
Administrative Patent Judge)

Vincent D. Turner
VINCENT D. TURNER)
Administrative Patent Judge)

Chung K. Pak
CHUNG K. PAK)
Administrative Patent Judge)

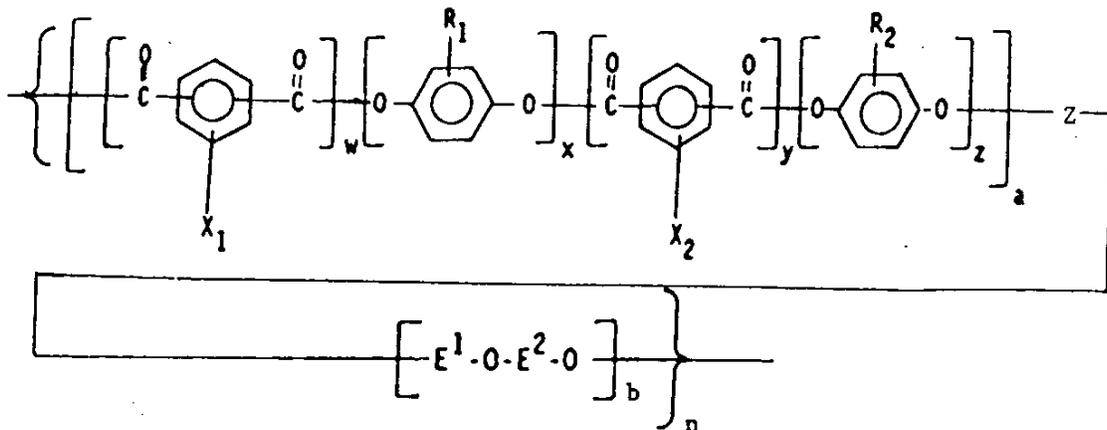
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Appeal No. 94-0971
Application 07/701,425

Lyndanne M. Whalen
Mobay Corp.
Mobay Road.
Pittsburgh, PA 15205-9741

APPENDIX

1. A block copolymer represented by the formula:



in which

R_1 and R_2 each represents an alkyl group, aryl group, aralkyl group, alkoxy group, phenoxy group or a combination of these groups;

X_1 and X_2 each represents a hydrogen or halogen atom

w, x, y, z each represents a mole fraction of the monomer residuum such that $(w + y) = (x + z)$;

Z represents the linkage which results from the transesterification of a liquid crystalline polyester and an ester group containing aromatic polyether;

E^1 represents the residuum of a benzenoid compound having an electron withdrawing group in at least one of the positions ortho or para to the valence bonds having a sigma value sufficient to activate a halogen enough to promote reaction of the halogen with an alkali metal phenolate,

Appeal No. 94-0971
Application 07/701,425

- E^2 represents the residuum of a dihydric phenol which does not contain ester groups,
- a represents the average number of repeated aryl ester units in the block copolymer;
- b represents the average number of repeated aryl ether units in the block copolymer; and
- n represents the degree of polymerization of the block copolymer.