

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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte WILLIAM MURDOCH

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Appeal No. 2003-1674  
Application No. 09/651,161

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**ON BRIEF**

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Before OWENS, LIEBERMAN and MOORE, Administrative Patent Judges.

LIEBERMAN, Administrative Patent Judge.

**DECISION ON APPEAL**

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 1 through 14, which are all the claims pending in this application.

### **THE INVENTION**

The invention is directed to a process for recycling polyethylene terephthalate by treatment with ammonium hydroxide to form ammonium terephthalate. The ammonium terephthalate is heated to form terephthalic acid (TPA) and ammonia. Additional limitations are described in the following illustrative claim.

### **THE CLAIM**

Claim 1 is illustrative of appellant's invention and is reproduced below.

1. A process for recycling polyethylene terephthalate to form reactants useful in the manufacture thereof comprising:

- (a) contacting recyclable polyethylene terephthalate with ammonium hydroxide to form a mixture of ammonium terephthalate and ethylene glycol;
- (b) separating said ammonium terephthalate from the mixture; and
- (c) heating said ammonium terephthalate to form TPA and ammonia.

### **THE REFERENCES OF RECORD**

As evidence of obviousness, the examiner relies upon the following references:

Ventura et al. (Ventura)	3,624,049	Nov. 30, 1971
Sze et al (Sze)	3,968,152	July 6, 1976
Lamparter et al (Lamparter)	4,542,239	Sep. 17, 1985

## **THE REJECTION**

Claims 1 through 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lamparter in view of Sze and further in view of Ventura.

## **OPINION**

We have carefully considered all of the arguments advanced by the appellant and the examiner and agree with the appellant that the rejection of the claims under § 103(a) is not well founded. Accordingly, we reverse this rejection.

### The Rejection under § 103(a)

The primary reference to Lamparter is directed to a method for recycling polyethylene terephthalate. There is no dispute that Lamparter discloses steps (a) and (b) of the claimed subject matter wherein polyethylene terephthalate is contacted with ammonium hydroxide to form a mixture of ammonium terephthalate and ethylene glycol wherein the ammonium terephthalate is thereafter separated from the mixture. The claimed subject matter thereafter requires heating the ammonium terephthalate to form TPA and ammonia. See step (c), of claim 1. In contrast, Lamparter acidifies the ammonium terephthalate with a mineral acid such as sulfuric acid to form TPA and an ammonium salt, such as ammonium sulfate. Thus, Lamparter fails to disclose or teach step (c) of claim 1.

The examiner thereafter relies upon Sze purportedly to teach heating of ammonium terephthalate to form TPA and ammonia and provide the requisite motivation to substitute that step for the one present in Lamparter. Based upon these considerations, it is the examiner's position that, "Sze's teaching is directed toward the recovery of TPA from its diammonium salt and thus provides the motivation for the instant use of steam to release TPA from its diammonium salt." See Answer, pages 5-6. We disagree.

Sze is directed to a single step process for the production of an acid such as TPA by hydrolysis of its corresponding nitrile. See column 1, lines 49-53. Although the examiner points to numerous teachings in Sze as providing basis for the recovery of TPA from its diammonium salt, we conclude that none of the citations are directed to the recovery of TPA from its diammonium salt. In this respect, column 4, lines 31-36 of Sze, cited by the examiner Answer, page 4, makes no mention of an ammonium salt of terephthalic acid. Furthermore, the exemplification of conversion of terephthalonitrile, (TPN) to TPA at column 3, line 51 to column 4, line 12, Example 1, cited by the examiner, Answer, page 8, converts TPN to TPA, likewise fails to suggest or teach the hydrolysis of ammonium terephthalate to TPA. Although ammonium terephthalate is present throughout the reaction, it remains completely unchanged in the amount present from the onset of the reaction to its completion. Stated otherwise 20.3 parts of ammonium terephthalate are present at the onset of the reaction and the same amount is recovered at the completion of the reaction.

Finally, although the mechanism outlined by the examiner for the hydrolysis of TPN to TPA, which contains the hydrolysis of the ammonium terephthalate intermediate to TPA, is agreed to by the appellant, it is not seen wherein said mechanism provides the requisite motivation to substitute the hydrolysis of ammonium terephthalate to TPA for the acidification step taught by Lamparter of record.

We conclude that the only reason for combining the references of record is a result of the disclosure of the invention by the appellant. Based upon the above finding and analysis, we conclude that the examiner has not established a prima facie case of obviousness with respect to the aforesaid set of claims. See In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("[T]he best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references").

The reference to Ventura is directed exclusively to the polymerization of polyethylene terephthalate and accordingly is not relevant to the issue before us for consideration.

**DECISION**

The rejection of claims 1 through 14 under 35 U.S.C. §103(a) as being unpatentable over Lamparter in view of Sze and further in view of Ventura is reversed.

The decision of the examiner is reversed.

**REVERSED**

TERRY J. OWENS	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
PAUL LIEBERMAN	)	APPEALS
Administrative Patent Judge	)	AND
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JAMES T. MOORE	)	
Administrative Patent Judge	)	

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