

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 31

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HAJIME SADATOSHI,
SEIICHIRO IMA,
KAZUKI WAKAMATSU,
JIRO MORI,
and
EISUKE SHIRATANI

Appeal No. 1998-3173
Application No. 08/465,515

ON BRIEF

Before PAK, OWENS, and LIEBERMAN, 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 6 and 8 through 14, which are all of the claims

pending in this application.

THE INVENTION

The invention is directed to a method of producing a polypropylene random copolymer by gas phase polymerization using a Ziegler-Natta catalyst. The polymer has a specific range of propylene, ethylene, and α -olefin content. It is further required that the xylene soluble component of the polymer fall within specific limitations. Additional limitations are disclosed in the following illustrative claim.

THE CLAIM

Claim 1 is illustrative of appellants' invention and is reproduced below:

1. A method of producing a polypropylene random copolymer comprising the steps of:

copolymerizing propylene and an α -olefin or propylene, ethylene, and α -olefin using a Ziegler-Natta catalyst in a gaseous phase, wherein the propylene content is from 92.3 to 75.0% by weight, the ethylene content (E) is from 0 to 2.7% by weight, and the α -olefin content is from 5.0 to 25.0% by weight, and wherein the content (C) of 20°C xylene-soluble components in the random copolymer satisfies formulae (1) to (3):

in the copolymer wherein the ethylene content (E) is less than 1.5% by weight,

$$C \leq 12.0 \text{ (weight \%)} \quad (1)$$

in the copolymer wherein the ethylene content (E) is from 1.5% by weight to 1.8% by weight,

$$C \leq 42.0 - 20.0 \times E \text{ (weight \%)} \quad (2)$$

and in the copolymer wherein the ethylene content (E) is from 1.8%
by weight to 2.7% by weight,

$$C \leq 6.0 \text{ (weight \%)} \quad (3);$$

and wherein the Ziegler-Natta catalyst is a catalyst system comprising:

(A) solid catalyst components comprising magnesium, titanium and a halogen,

(B) an organoaluminum compound, and

(C) a silicon compound represented by formula $R^1R^2Si(OR^3)_2$ wherein R^1 represents an alicyclic hydrocarbon group having 5 to 20 carbon atoms, and R^2 and R^3 each represent a hydrocarbon group having 1 to 20 carbon atoms.

THE REFERENCES OF RECORD

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

Isaka et al. (Isaka)	4,230,767	Oct. 28, 1980
Fujii et al. (Fujii)	4,291,140	Sep. 22, 1981
Ebara et al. (Ebara)	5,023,223	Jun. 11, 1991
Sasaki et al. (Sasaki)	5,143,880	Sep. 01, 1992

THE REJECTIONS

Claims 1 through 6 and 8 through 12 stand rejected under 35 U.S.C.

§ 103 as being unpatentable over Sasaki or Ebara in view of Fujii.

Claims 13 and 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sasaki or Ebara in view of Fujii and further in view of Isaka.

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OPINION

We have carefully considered all of the arguments advanced by the appellants and the examiner, and agree with the appellants that the rejection of claims 1 through 6 and 8 through 14 are not well founded. Accordingly, we reverse these rejections.

The Rejection under § 103

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability," whether on the grounds of anticipation or obviousness. **In re Oetiker**, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). On the record before us, the examiner relies upon a combination of at least two references to reject the claimed subject matter and establish a prima facie case of obviousness.

It is the examiner's position that, "the claimed polymer properties are nothing more than the properties that inherently result from the use of the process conditions recited in the balance of the claim which process conditions have been shown to be obvious." See Supplemental Examiners Answer, page 2. We disagree.

We find that Sasaki discloses the preparation of a solid catalyst for the polymerization of "-olefins within the scope of the claimed subject matter. See abstract, and column 11, line 11 to column 15, line 42. We further find that the polymerization

may be performed in numerous modes including gas phase polymerization. See column 15, lines 67-68. Copolymerization of two or more species of olefins selected from the group consisting of ethylene with α -olefins mixed together is disclosed at column 16, lines 12-16. We find that Example 5 relied upon by the examiner specifically discloses a catalytic silicon compound falling within the scope of the claimed subject matter. There is however, no disclosure of the specific proportions of olefin monomers required by the claimed subject matter. Nor is there any disclosure relating to the xylene soluble components which may be present.

A similar disclosure is found in Ebara wherein Sasaki is the co-inventor. It likewise discloses a Ziegler-Natta catalyst and is directed to olefin polymerization. It likewise has the same limitation of the Sasaki reference in that there is no disclosure of the specific proportions of an olefin monomer required by the claimed subject matter. Nor is there any disclosure relating to the xylene soluble components which may be present.

The examiner therefore relies on Fujii for its disclosure of the utilization of butene-1 in proportions above 10% by weight in an olefin copolymer. See column 2, lines 13-16 and Answer, page 6. The teaching relied upon by the examiner however, is a prior art teaching which results in a transparency which, "appears to be the same as or somewhat inferior to that of a propylene-ethylene copolymer." See column 2, lines 20-22. This disclosure is deficient in that it refers to prior art which is distinguished over by

Fujii. Furthermore, even if it were applied to the teachings of Fujii, that composition is directed to a block copolymer having a propylene homopolymer block and

a random copolymer block of ethylene, propylene and hexene-1. We find no motivation to use either the copolymer of the prior art cited in Fujii or the block copolymer disclosed by Fujii. Moreover, neither teaching falls within the proportions required by the claimed subject matter.

Finally, the examiner in reference to the requirements for xylene soluble components of the claimed subject matter states that, "[r]egarding polymer properties set forth in the claim, those properties are nothing more than the properties that inherently result from the use of the process conditions recited in the balance of the claim which process conditions have been shown to be obvious." See Answer, page 6. Reference however, to Table I on page 22 of the specification discloses numerous comparative examples which fall within the scope of proportions required by the claimed subject matter, which nonetheless do not possess the requisite xylene soluble content required by any of the three equations present in the claimed subject matter. Accordingly, we conclude that the requirements for specific xylene-soluble components are not an inherent result of a gas phase polymerization process having the requisite proportions of ethylene, propylene, and " -olefin, but constitute an additional process limitation of the claimed subject matter.

Based upon the above considerations, even if the examiner was correct in combining Sasaki or Ebara with Fujii in the manner described in the Answer, the omission

of the requisite limitations with regard to xylene soluble component from the disclosure of each of the prior art references, as required by the claimed subject matter would result in a process created that would, in any event, fall short of the invention defined by the claimed subject matter, as the aforesaid claimed subject matter requires features that cannot be achieved by

combining the references. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988).

Accordingly, the examiner has not established a prima facie case of obviousness.

DECISION

The rejection of claims 13 and 14 under 35 U.S.C. § 103 as being unpatentable over Sasaki or Ebara in view of Fujii and further in view of Isaka is reversed.

The rejection of claims 1 through 6 and 8 through 12 under 35 U.S.C. § 103 as being unpatentable over Sasaki or Ebara in view of Fujii is reversed.

The decision of the examiner is reversed.

REVERSED

	CHUNG K. PAK)	
	Administrative Patent Judge)	
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)	BOARD OF PATENT
)	TERRY J. OWENS
)	APPEALS)	AND
	Administrative Patent Judge)	INTERFERENCES
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