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 B. RAGHAVA REDDY
and EDWAR S. SHAMSHOUM

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Appeal No. 1997-3908
Application 08/174,997

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ON BRIEF

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Before GARRIS, WARREN, and OWENS, *Administrative Patent Judges.*

OWENS, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal from the examiner's refusal to allow claims 1-46 as amended after final rejection. These are all of the claims in the application.

THE INVENTION

Appellants claim a process for polymerizing propylene in

the presence of a specified catalyst system. Claim 1 is

illustrative:

1. A process for the polymerization of propylene comprising:

a) selecting a conventional Ziegler-Natta transition metal compound catalyst component;

b) contacting the catalyst component with a metallocene compound of

$$(CpR_4)_a(CpR'_4)_bM'R^*_{v-(a+b)}$$

where Cp is a cyclopentadienyl ring, R and R' are substituents on the cyclopentadienyl rings and can be a hydride or a hydrocarbyl from 1-9 carbon atoms, each R and R' being the same or different, each (CpR_4) and (CpR'_4) being the same or different, a and b are 0 or 1, indicating whether the particular Cp ring is present, but at least one of a or b must be 1; M' is titanium or zirconium and if M' is zirconium a is 1 and b is 0, R^* is a hydride, a halogen or a hydrocarbyl from 1-20 carbon atoms, v is the valence of M';

c) contacting an electron donor containing silicon with an organoaluminum co-catalyst compound; wherein said electron donor having the general formula $SiR_m(OR')_{4-m}$ where R is selected from the group consisting of an alkyl group, a cycloalkyl group, an aryl group and a vinyl group; R' is an alkyl group; and m is 0-3, wherein when R is an alkyl group, R may be identical with R'; when m is 0, 1 or 2, the R' groups may be identical or different; and when m is 1, 2 or 3, the R groups may be identical or different and wherein said organoaluminum co-catalyst is described by the formula AlR^*_3 where R^* is an alkyl of from 1-8 carbon atoms and R^* may be the same or different;

d) adding the catalyst component/metallocene to the electron donor/co-catalyst mixture to form a catalyst;

e) introducing the catalyst into a polymerization reaction zone containing propylene under polymerization reaction conditions; and

f) extracting polypropylene from the reactor having a molecular weight of in the range from 300,000 to 800,000 and a melt flow index of less than or equal to l.

THE REFERENCES

Fujita et al. (Fujita)	5,104,838	Apr. 14, 1992
Tsutsui et al. (Tsutsui)	5,145,818	Sep. 8, 1992
Hara et al. (Hara)	5,244,989	Sep. 14, 1993

THE REJECTIONS

Claims 1-12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103 as being obvious over Fujita. Claims 13-46 stand rejected under 35 U.S.C. § 103 as follows: claim 13 over Fujita in view of Hara; claims 14-26 over Fujita; and claims 27-46 over Fujita in view of Tsutsui.

OPINION

We have carefully considered all of the arguments advanced by appellants and the examiner and agree with

appellants that the aforementioned rejections are not well founded. Accordingly, we reverse these rejections.

Each of appellants' independent claims requires "contacting an electron donor containing silicon with an organoaluminum co-catalyst compound". Appellants point out that Fujita's electron donor is an internal electron donor used to prepare the Ziegler-Natta catalyst (col. 5, lines 5-65), and argue that appellants' electron donor is an external electron donor which is used in the polymerization and is a selectivity control agent for stereoregulation in the polymerization reaction (brief, pages 5-6).

During patent prosecution, claims are to be given their broadest reasonable interpretation consistent with the specification. *See In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989); *In re Sneed*, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983); *In re Herz*, 537 F.2d 549, 551, 190 USPQ 461, 463 (CCPA 1976); *In re Okuzawa*, 537 F.2d 545, 548, 190 USPQ 464, 466 (CCPA 1976). Appellants' specification states that "[t]he term 'electron donor' as used

herein, refers to the external electron donor or selectivity control agent (SCA)" (page 13, lines 9-10). Thus, we interpret "electron donor" in appellants' claims as meaning an external electron donor.

Consequently, the examiner's argument that appellants' electron donor is an internal electron donor (answer, page 8) is not well taken. The examiner argues that because the electron donor is added in step (c) in claim 1 in the preparation of the catalyst system, it is an internal electron donor. *See id*. This electron donor, however, is not used in the preparation of the Ziegler-Natta catalyst but, rather, as indicated by step (d) of that claim, is added with the organoaluminum co-catalyst to the Ziegler-Natta/metallocene catalyst mixture.

The examiner argues that appellants' electron donor is the same type of component as the electron donor in Fujita's example 5 (answer, page 8). In Fujita's example 5, the synthesis of solid catalyst component (A), which is the Ziegler-Natta/metallocene component, is carried out according to the method of example 2, wherein an electron donor is used

in the preparation of that component (col. 11, lines 47-55). Thus, the electron donor is an internal electron donor. Fujita then mixes solid catalyst component (A) with an organoaluminum compound, component (B) (col. 2, lines 34-37), but does not disclose adding an external electron donor.

The examiner argues that it does not matter whether an electron donor is called an internal or external electron donor (answer, page 8). The examiner apparently is arguing that an internal electron donor can perform the function of an external electron donor. The examiner, however, has provided no evidence or technical reasoning in support of this argument. The examiner has provided mere speculation, and such speculation is not a sufficient basis for a *prima facie* case of obviousness. *See In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968); *In re Sporck*, 301 F.2d 686, 690, 133 USPQ 360, 364 (CCPA 1962).

The examiner argues that Fujita's organosilicon compound can be used as either an internal electron donor or an external electron donor (answer, page 8). In support of this

argument the examiner relies upon U.S. 4,900,706 to Sasaki. *See id*. This reference, however, is not included in the statement of the rejection and, therefore, is not properly before us. *See In re Hoch*, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970).

Accordingly, on the record before us, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of appellants' claimed invention.[1]

REMAND

The application is remanded to the examiner for the examiner to determine whether appellants' claims should be rejected over references including Sasaki.

DECISION

The rejections of claims 1-12 under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103 as being obvious over Fujita, and the rejections under 35 U.S.C. § 103 of claim 13 over Fujita in view of Hara,

[1] The examiner does not rely upon Hara or Tsutsui for a disclosure which would remedy the above-discussed deficiency in Fujita.

claims 14-26 over Fujita, and claims 27-46 over Fujita in view of Tsutsui, are reversed.

REVERSED and REMANDED

BRADLEY R. GARRIS Administrative Patent Judge	)	
CHARLES F. WARREN Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
TERRY J. OWENS Administrative Patent Judge	)	

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