Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANANDA M. CHATTERJEE

Appeal No. 2001-1852
Application No. 09/172,544

ON BRIEF

Before OWENS, LIEBERMAN and TIMM, Administrative Patent Judges.

OWENS, Administrative Patent Judge.

DECISION ON APPEAL

This appeal is from the final rejection of claims 1, 3 and 4. Claim 2 has been canceled. Claims 5-18, which are all of the other claims in the application, stand withdrawn from consideration by the examiner as being directed toward a nonelected invention.

THE INVENTION

The appellant claims an extrusion coating composition comprising a propylene impact copolymer having specified properties. Claim 1 is illustrative:

1. An extrusion coating composition comprising a propylene impact copolymer having the following properties:

(i) an E_c of about 55% wt to about 60% wt,
(ii) an F_c of about 10% wt to about 35% wt,
(iii) an intrinsic viscosity ratio of from 1.1 to 2.0
(iv) a melt flow of 30 dg/min to 70 dg/min, and
(v) a Q value of less than 6.5.[1]

THE REFERENCES

Scheve et al. (Scheve)	4,916,198	Apr. 10, 1990
Spagnoli et al. (Spagnoli)	5,660,789	Aug. 26, 1997
Williams et al. (Williams)	5,820,981	Oct. 13, 1998

THE REJECTION

Claims 1, 3 and 4 stand rejected under 35 U.S.C. § 103 as being unpatentable over Williams in view of Scheve and Spagnoli.

OPINION

We reverse the aforementioned rejection. We need to address only the sole independent claim, i.e., claim 1.

Williams discloses a heterophasic propylene polymer which can be used for extrusion coating (col. 4, lines 3-6 and 16-53).[2] The examiner relies throughout the answer on Williams' example 7, which is the only example of a heterophasic polymer. In this example eight samples of a heterophasic propylene polymer having a melt flow rate (MFR) of 3.6 dg/min are irradiated under eight sets of conditions to increase the MFR. The sample relied upon by the examiner has an MFR of 28.6 dg/min (table 6) which, the examiner argues, is very close to the 30 dg/min recited in the appellant's claim 1 (answer, page 8). The heterophasic propylene polymer in Williams' example 7 contains 15 wt% ethylene/propylene rubber (i.e., F_c is 15 wt%)[3] and 60% ethylene units (i.e., E_c is 50 wt%).[4,5] The polydispersity indexes of the eight samples are 2.46 to 2.71 (table 6), all of which are within the Q value range of less than 6.5 recited in the appellant's claim 1.

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[2] "Heterophasic propylene polymer" used by Williams and "propylene impact copolymer" used by the appellant have the same meaning (brief, page 5, footnote 1).

[3] Williams' disclosed F_c range is 1-45 wt%, preferably 8-25 wt%, most

Williams does not disclose the intrinsic viscosity ratio of his heterophasic propylene polymer. The appellant states (specification, page 3) that the intrinsic viscosity ratio (β/α) may be calculated from:

$$(\beta/\alpha) = 1 + (1/fc)[(\text{MF homopolymer/MF copolymer})^{0.213} - 1.0]$$

where fc is the fraction of rubbery copolymer in the impact copolymer.

Williams does not disclose the melt flow rate of the propylene homopolymer in his example 7. However, the propylene homopolymer in Williams' example 8, which was obtained from the same source as the heterophasic propylene polymer in example 7, has an MFR of 20 dg/min. Substituting this value of MF homopolymer along with MF copolymer = 30 and fc = 0.15 into the above equation gives an intrinsic viscosity ratio of 0.448 dg/min, which is well below the 1.1 dg/min lower limit recited in the appellant's claim 1.

The examiner argues that the propylene homopolymer in Williams' example 8 is irradiated and then peroxide-visbroken to

MF homopolymer = 800, MF copolymer = 30, and F_c = 10 into the above equation gives an intrinsic viscosity of 1.1 (answer, page 12). The examiner's calculation is incorrect because in the equation for intrinsic viscosity, fc is the fraction, not the percentage, of rubbery copolymer in the impact copolymer. Thus, the examiner should have used fc = 0.10 instead of F_c = 10 in his calculation. When MF homopolymer = 800, MF copolymer = 30, and fc = 0.10 are substituted into the above equation for intrinsic viscosity, the result is 11.1 dg/min, which is well above the 2.0 dg/min upper limit in the appellant's claim 1. For the intrinsic viscosity in this calculation to be 1.1 dg/min as obtained by the examiner, MF homopolymer would have to be 31.4, which is far below the propylene homopolymer MFR of greater than 300 dg/min desired by Williams (col. 3, lines 14-18).

For a *prima facie* case of obviousness to be established, the teachings from the prior art itself must appear to have suggested the claimed subject matter to one of ordinary skill in the art. *See In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA

The examiner has not established that the Williams reference itself would have fairly suggested, to one of ordinary skill in the art, selecting, from Williams' disclosed 20-800 dg/min MFR range, a propylene homopolymer MFR such that a heterophasic propylene polymer made therefrom has, in combination with the other characteristics required by the appellant's claim 1, an intrinsic viscosity ratio of 1.1 to 2.0. The examiner relies upon Scheve and Spagnoli only for a disclosure of the limitations in the appellant's dependent claims, and not for a teaching which remedies the above-discussed deficiency in Williams (answer, page 12).

Accordingly, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the appellant's claimed invention.

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DECISION

The rejection of claims 1, 3 and 4 under 35 U.S.C. § 103 over Williams in view of Scheve and Spagnoli is reversed.

REVERSED

TERRY J. OWENS Administrative Patent Judge	)
PAUL LIEBERMAN Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES
CATHERINE TIMM Administrative Patent Judge	)

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