

Veröffentlichung im Amtsblatt	Ja/Nein
Publication in the Official Journal	Yes/No
Publication au Journal Officiel	Oui/Non



Aktenzeichen / Case Number / N° du recours : T 157/87 - 3.3.1

Anmeldenummer / Filing No / N° de la demande : 83 900 075.9

Veröffentlichungs-Nr. / Publication No / N° de la publication : 0 108 068

Bezeichnung der Erfindung: Method to produce composites based on cellulose or  
Title of invention: lignocellulosic materials and plastics  
Titre de l'invention :

Klassifikation / Classification / Classement : C08J 3/20

### ENTSCHEIDUNG / DECISION

vom / of / du 25 April 1988

Anmelder / Applicant / Demandeur : Kubat, J. et al.

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPO / EPC / CBE Article 54

Kennwort / Keyword / Mot clé : Novelty (yes)

Leitsatz / Headnote / Sommaire



Case Number : T 157/87 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 25 April 1988

**Appellant :**

KUBAT, Josef  
Solparksvägen 3  
S-171 35 Solna

KLASON, Tore Carl Fredrick  
P.L. 2201  
S-441 90 Alingsas

**Representative :**

Halldin, Bo  
Dr. Ludwig Brann Patentbyrå AB  
Kungsgatan 3  
P.O. Box 7524  
S-103 92 Stockholm

**Decision under appeal :**

Decision of Examining Division 013  
of the European Patent Office  
dated 25 November 1986 refusing  
European patent application  
No. 83 900 075.9 pursuant to  
Article 97(1) EPC

**Composition of the Board :**

**Chairman :** K. Jahn

**Members :** J.W. Arbouw  
G.D. Paterson

## Summary of Facts and Submissions

- I. European patent application 83 900 075.9 filed on 10 December 1982 and published with publication number WO 83/02118 claiming priority of the prior application of 11 December 1981 (SE 8 107 444.5), was refused by the decision of the Examining Division of the European Patent Office dated 25 November 1986. The decision was based on Claims 1 and 2 as originally filed.
- II. The subject-matter of this application is, according to Claim 1 as filed, a method to produce composites based on cellulose or lignocellulosic materials and plastics characterised in that the cellulose or lignocellulose material is subjected to a pre-hydrolytic or other chemically degrading treatment prior to or during the compounding or processing step whereby a comminution and improved dispersion of the cellulose or lignocellulose material in the plastic phase is achieved.

The reason given for the refusal was that the process claimed in Claim 1 is not novel in view of the common general knowledge to incorporate microcrystalline cellulose - i.e. a material obtained by pre-hydrolysis or partial hydrolysis of cellulose - into plastics.

The Opposition Division further considered that the subject-matter of the application is not novel over each of the documents:

- (1) Chemical Abstracts, Vol. 72 (1970), abstract No. 134357s, Vanina V I, Zakoshchikov A P (Mosk. Tekhnol. Inst. Moscow, USSR)

- (2) Chemical Abstracts, Vol. 87 (1977),  
abstract No. 169399u, Charina M V (Ural  
Lesotekh. Inst., Sverdlovsk, USSR)
- (3) Chemical Abstracts, Vol. 90 (1979),  
abstract No. 73569k, Czech. 174362
- (4) Derwent's abstract No. 30579 C/17,  
SU 681 081.

III. On 26 January 1987 the Appellant lodged an appeal against the Decision. The appeal fee was duly paid and the Statement of Grounds was received on 27 March 1987. A new set of Claims 1 and 2 was filed on 15 March 1988.

Claims 1 and 2, according to the main request, read as follows:

"1. A method of producing plastics composites containing cellulose or lignocellulose material in a plastics matrix characterized by subjecting the cellulose or lignocellulose material to a pre-hydrolytic or other chemically degrading treatment prior to the compounding or processing step by means of which step the cellulose or lignocellulose material is comminuted and dispersed throughout the plastic phase.

2. Use of a pre-hydrolyzed or otherwise chemically degraded cellulose or lignocellulose material as additive for plastics at normal concentrations or in concentrates (masterbatch) without the need of prior grinding or other comminution before the compounding or processing of the plastics."

The Appellant further filed three alternative sets of claims, the allowability of which should be considered in

case the claims according to the main request were not allowable.

The Appellant submitted that the new claims are novel over the cited documents since these do not disclose the use of pre-hydrolysed or otherwise chemically degraded cellulose or lignocellulose as additives in plastic composites.

- IV. The Appellant requests that the decision under appeal is set aside and that a patent be granted on the basis of Claims 1 and 2 as set out in Section III.

Alternatively, he requests the grant of a patent on the basis of one of sets of claims A, B or C filed simultaneously.

#### Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is therefore admissible.
2. There is no formal objection to the current version of the claims according to the main request since they are adequately supported by the original disclosure.

Claim 1 is based on original Claim 1 but includes a further limitation that the degrading treatment takes place prior to the compounding or processing step. Claim 2 is based on original Claim 2 and page 2, lines 30 to 33 of the description.

3. In the Board's view, the closest prior art is represented by (1). This document is concerned with a process for the manufacture of plastic composites based on hydrolysis lignin and lignocellulose material in a plastic matrix.

Although the expression hydrolysis lignin might not be perfectly clear it cannot be equated with a product which has been obtained by partial hydrolysis of wood and which is therefore prehydrolysed cellulose or lignocellulose.

In the Board's view, hydrolysis lignin means the waste-product obtained after a complete hydrolysis of wood, whereby the cellulose content of the wood is converted into sugar. Such a product includes no cellulose or lignocellulose at all.

This view is supported by the indication in (1) that it is used as a replacement for costly cork and wood flour. The filler material according to the claims is certainly not a cheap replacement material for cork and wood flour, since at least cellulose is a material of high value.

Further support for this interpretation can be found in the handbook: Encyclopedia of Polymer Science and Engineering, Vol. 8, page 817. In the first lines of Table 9 it is indicated that acid-hydrolysis lignin is a synonym for lignin produced by hydrolysis of polysaccharides leaving lignin as a residue.

The lignocellulose material also used according to (1) is not pre-hydrolysed or otherwise chemically degraded. It therefore is not detrimental to the subject-matter of the claims.

Therefore, the subject-matter of the Claims 1 and 2 according to the main request is novel over document (1).

- 3.1 The further documents on which the decision to refuse the patent relied are more remote and do not anticipate the subject-matter of the application.

Document (2) relates to hydrolytic changes in the filler - i.e. wood flour - during preparation of a wood phenol-formaldehyde composition. In contrast, the method according to Claim 1 of the present application relates to a hydrolytic treatment prior to the compounding or processing step. Therefore, even under the assumption that the hydrolytic degradation according to (2) is identical with the pre-hydrolytic treatment according to the application, the method according to the application is novel over document (2).

Document (3) relates to thermosetting adhesives based on phenol-formaldehyde resol and not to plastic composite materials, the subject of the claims. Plastic composites - i.e. materials that result when two or more materials are combined - are entirely different from adhesives, which are viscous materials (see (3), line 5), in contrast to the claimed plastic composites which are solid materials. Further to that the hydrolysed lignocellulose in the adhesives according to (3) is used as an active filler - i.e. as a filler that reacts chemically with the phenol-formaldehyde resol - and not to a chemically inactive filler forming a composite, as is the case in the patent application.

Document (4) concerns a resin-based linoleum composition which comprises as one of the filler materials a byproduct from the hydrolysis of red-algae. This product contains equal weights of lignin and gypsum and has an ash content. Due to its high ash content this product cannot be considered as being identical to the pre-hydrolysed cellulose or lignocellulose materials as claimed in the application.

- 3.2 The ground of objection relied upon by the Examining Division that the use of microcrystalline cellulose as an additive in plastics is common general knowledge was not substantiated, nor has the Board such knowledge of its own. Therefore, in the absence of proper substantiation this ground must be set aside.
4. Since the only ground for refusal - lack of novelty - has been overcome by filing the new set of claims, the decision under appeal must be set aside. However, the patent sought cannot be granted since the substantive examination has not yet been completed. The Board therefore makes use of its power under Article 111(1) EPC to remit the case to the Examining Division for further prosecution.

#### Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division for further prosecution on the basis of the two claims according to the main request.

The Registrar



The Chairman

