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**Datasheet for the decision
of 30 November 2020**

Case Number: T 1691/18 - 3.3.09

Application Number: 12766779.8

Publication Number: 2751174

IPC: C08J3/21, C08J3/12, C08L27/08,
C08K3/26, C08K5/1515, C08K5/17,
C08L23/30, C08L83/04, C08L91/06

Language of the proceedings: EN

Title of invention:
PROCESS OF INCORPORATING ADDITIVES INTO VINYLIDENE CHLORIDE
POLYMERS WITHOUT THE USE OF A BLENDER

Applicant:
SK Saran Americas LLC

Headword:
Process of incorporating additives into vinylidene chloride
polymers/SK SARAN AMERICAS

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
Inventive step - main request (yes)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1691/18 - 3.3.09

D E C I S I O N
of Technical Board of Appeal 3.3.09
of 30 November 2020

Appellant: SK Saran Americas LLC
(Applicant) 564 Bldg SARAN
627 Washington Street
Midland, MI 48667 (US)

Representative: Boulton Wade Tennant LLP
Salisbury Square House
8 Salisbury Square
London EC4Y 8AP (GB)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 14 February
2018 refusing European patent application No.
12766779.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman A. Haderlein
Members: M. Ansorge
F. Blumer

Summary of Facts and Submissions

- I. The appeal was filed by the appellant (applicant) against the examining division's decision to refuse the patent application (hereinafter "the application").
- II. The examining division decided, *inter alia*, that the subject-matter of claim 1, which was then claim 1 of the 3rd auxiliary request, did not involve an inventive step in view of D1 as the closest prior art.
- III. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request filed on 28 September 2020.
- IV. Claim 1 of the main request (which corresponds to claim 1 of the 3rd auxiliary request before the examining division) reads as follows:

"A process for blending solid additive particles with solid VDC polymer particles, the process comprising the steps of:

- A. Polymerizing VDC monomer, optionally with one or more mono-ethylenically unsaturated comonomers, in a polymerization zone under polymerization conditions to form solid VDC polymer particles;
- B. Stopping the polymerization of the VDC monomers after formation of the solid VDC polymer particles; and
- C. Contacting the solid VDC polymer particles with the solid additive particles (i) before the solid VDC polymer particles are de-watered, (ii) after stripping residual monomer from the solid VDC polymer particles,

and (iii) at a temperature sufficient to melt or soften the solid additives particles but insufficient to melt or soften the solid VDC polymer particles such that the melted or softened solid additive particles adhere to the solid VDC polymer particles upon contact,

wherein the solid additive particles are solid at ambient conditions (23°C, atmospheric pressure)."

Claims 2 to 6 of the main request are dependent claims and correspond to dependent claims 6 to 10 of the 3rd auxiliary request before the examining division.

V. In the present decision, reference is made to the following documents:

D1: "Addition of extrusion aids to vinylidene chloride copolymers without using a blender", Research Disclosure, Kenneth Mason Publications, Hampshire, GB, vol. 376, no. 14, 1 August 1995, ISSN 0374-4353
D2: WO 2011/110567 A1

VI. The appellant's arguments can be summarised as follows:

The subject-matter of claim 1 of the main request involves an inventive step in view of D1 as the closest prior art.

Reasons for the Decision

MAIN REQUEST

1. Article 123(2) EPC

The subject-matter of claims 1 to 6 of the main request fulfils the requirement of Article 123(2) EPC, as held by the examining division.

Claim 1 is based on claim 1 and paragraphs [0005] and [0027] of the application as filed. Not including the two alternatives "before the stripping ..." and "during the stripping ..." (see paragraph [0005], first sentence of the application as filed) in claim 1 is in line with Article 123(2) EPC.

Claims 2 to 6 are based on claims 8 to 12 of the application as filed.

2. Inventive step

2.1 The examining division was of the opinion that the subject-matter of claim 1 did not involve an inventive step in view of D1 as the closest prior art.

2.2 For the following reasons, the board does not agree with this opinion:

2.2.1 The examining division and the appellant agreed that D1 was the closest prior art in the present case. The board shares this view, since D1 and the application are both directed to a process of adhering additives to vinylidene chloride (VDC) polymers.

- 2.2.2 The only difference between the process of claim 1 and the process described in D1 is that the contacting of the solid VDC polymer particles with the solid additive particles under the required temperature conditions is carried out after stripping residual monomer from the solid VDC polymer particles in claim 1, whereas in D1 the additive (the processing aid MetablenTM L-1000) is added prior to the stripping step and is contacted in the stripping step at elevated temperature to adhere the additive to the VDC polymer particles.
- 2.2.3 The board agrees with the examining division's conclusion that no effect resulting from the distinguishing feature was demonstrated, and therefore the objective technical problem is the provision of an alternative method for adhering solid additive particles to VDC polymers.
- 2.2.4 Thus, it needs to be assessed whether it was obvious for a skilled person starting from D1 to modify the process disclosed in D1 to arrive at the claimed process.
- 2.2.5 D1 explicitly discloses that about 740 pounds of 2% MetablenTM L-1000 (as the processing aid) and 250 pounds of 3% tetrasodium pyrophosphate (TSPP) solution are added to the reactor through a side manway of the residual monomer stripper (see page 1, lines 9 to 12 from the bottom of D1). As can be understood from page 1, lines 8 to 10 of D1, the processing aid is softened by the heat from the stripping step. Thus, D1 teaches adding the processing aid before the stripping step and contacting it with the VDC polymer particles during the stripping step at elevated temperature to adhere it to the VDC polymer particles, but not

contacting it after the stripping at the required temperature conditions and before de-watering the solid VDC polymer particles.

In this context, it is noted that D1 relates to an industrial process which almost exclusively consists of a single, very specific process using a polymerization reactor, a stripper vessel and a slurry tank under very specific process conditions and specific components (see "EXAMPLE" section of D1). In addition to this specific process, on page 1, lines 1 to 13 of D1 some explanations and advantages of this procedure are given. No variations of this industrial process are addressed in D1 at all and the board does not find an incentive to modify this specific process in D1 itself.

2.2.6 The examining division provided the following line of argument:

"The solution to this problem is to add the additive to the slurry after the stripping step. All that D1 requires is that the additive be present in the copolymer dispersion when it is heated to a temperature of between 80 and 95°C such that the heat of the stripping step softens the additive and the soft additive sticks to the VDC-copolymer particles. The skilled person immediately recognizes that this may be achieved not only if the additive is added before the stripping step, but also if the additive is added after stripping of the residual monomers, albeit at a price, since the system would have to be (re-)heated to the necessary elevated temperature."

The board shares the view that a skilled person learns from D1 that the heat generated in the stripping step is suitable for softening the processing aid

(Metablen™ L-1000) to adhere it to the VDC polymer particles. However, the board does not find an incentive in D1 to add the additive dispersion used in D1 after the stripping step and before the solid VDC polymer particles are de-watered, e.g. in the slurry tank. This would require not only an adjustment of the whole set-up of polymerization reactor, stripper vessel and slurry tank for carrying out the process of D1, but also an additional step or device for heating the slurry tank. Thus, numerous modifications would be necessary to arrive at the claimed process. Put differently, when starting from D1 it is not sufficient to simply add an additive after the stripping step. Instead, the temperature conditions required in claim 1 represent another modification in order to arrive at the claimed process. The board is of the opinion that the industrial process in D1 is optimised to the desired needs and there is nothing in D1 to suggest modifying it to fall within the scope of claim 1.

2.2.7 Although the board has some sympathy for the examining division's rationale denying inventive step, the fact remains that numerous modifications to the process in D1 are necessary in order to arrive at the claimed process, which in the board's view would require hindsight knowledge.

In the board's view, there is nothing in D1 to suggest contemplating contacting the processing aid with solid VDC polymer particles after the stripping of residual monomer while at the same time providing the temperature required in claim 1, but before de-watering the solid VDC polymer particles.

2.2.8 The examining division mentioned that it relied exclusively on the text of D1 to reach these

conclusions and it did not think that the teaching of D1 was strictly limited to the one example in D1.

It is reasonable to assume that the teaching of a specific example, as in the present case, is not limited to its literal meaning. However, for denying inventive step of the claimed process, a hint or motivation in the prior art would be necessary for a skilled person to contemplate the distinguishing feature. The board does not consider there to be an incentive for a skilled person to modify the process according to D1 to fall within the claimed scope. In the board's view, D2 also fails to give a hint towards such a modification.

Accordingly, the claimed process represents a non-obvious alternative in view of D1 as the closest prior art. Thus, the subject-matter of claim 1 of the main request involves an inventive step in view of D1. The same applies to the dependent claims.

2.3 An adapted description was filed by the appellant. The board has no objections to the adaptation of the description. Thus, the main request is allowable.

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 with the order to grant a patent in the following version:

Description:

pages 1, 1a and 2 to 10, filed on 28 September 2020

Claims:

No. 1 to 6, filed on 28 September 2020

The Registrar:

The Chairman:



A. Nielsen-Hannerup

A. Haderlein

Decision electronically authenticated