

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen

D E C I S I O N
of 11 June 1996

Case Number: T 0653/92 - 3.3.3

Application Number: 83112022.5

Publication Number: 0143858

IPC: C08C 1/07

Language of the proceedings: EN

Title of invention:
Particle agglomeration in rubber latices

Patentee:
THE DOW CHEMICAL COMPANY

Opponent:
BASF Aktiengesellschaft, Ludwigshafen

Headword:
-

Relevant legal provisions:
EPC Art. 123(2)(3)

Keyword:
"Inventive step (affirmed)"
"Disclaimer not objectionable"

Decisions cited:
T 0597/92, T 0004/80, T 0433/86, T 0170/87, T 0020/81

Catchword:
-



Case Number: T 0653/92 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 11 June 1996

Appellant:
(Opponent)

BASF Aktiengesellschaft, Ludwigshafen
-Patentabteilung - C6-
Carl-Bosch-Strasse 38
D-67056 Ludwigshafen (DE)

Representative:

Respondent:
(Proprietor of the patent)

THE DOW CHEMICAL COMPANY
2030 Dow Center
Abbott Road
P.O. Box 1967
Midland
Michigan 48640-1967 (US)

Representative:

Kremer, Robert A.M.
BUREAU D.A. CASALONGA - JOSSE
Morassistrasse 8
80469 München (DE)

Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 15 May 1992
rejecting the opposition filed against European
patent No. 0 143 858 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: C. R. J. Gérardin
Members: H. H. R. Fessel
W. M. Schar

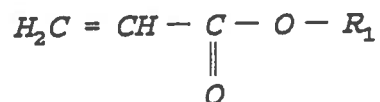
Summary of Facts and Submissions

I. European patent No. 0 143 858 in respect of European patent application 83 112 022.5 filed on 30 November 1983 was granted on 14 December 1988 (cf. Bulletin 88/50) for designated Contracting States: BE DE FR GB IT NL on the basis of a set of 8 claims, Claim 1 reading as follows:

"An agglomerating agent (AgAg) suitable for agglomerating the particles of a latex of an elastomeric material which AgAg is a dispersion of particles having core material and shell material, said AgAg comprising:

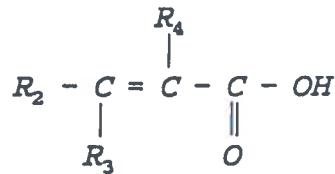
(a) as shell material substantially grafted to the core material, from 5 to 50 weight percent, based on the total weight of the AgAg of a polymerized mixture of:

(i) from 80 to 99.5 weight percent based on the total weight of component (a) of ester monomer of the formula:



wherein R₁ is a lower alkyl radical containing up to 4 carbon atoms; and

(ii) from 0.5 to 20 weight percent based on weight component (a) of an ethylenically unsaturated carboxylic acid of the formula:



wherein R₂ and R₃ are independently -H or -COOH and R₄ is -H, -COOH or a lower alkyl radicals containing up to 4 carbon atoms;

(b) as core material, from 50 to 95 weight percent, based on the total weight of the AgAg, of an elastomeric material, in which, whenever present, the ester monomer units are different from those contained in the polymerized shell material."

Dependent Claims 2 to 5 relate to preferred embodiments of the subject-matter of Claim 1.

Independent Claim 6 is directed to a method of agglomerating the particles of a latex of an elastomeric material with an agglomerating agent of any of Claims 1 to 5.

Dependent Claims 7 and 8 relate to preferred embodiments of the subject-matter of Claim 6.

II. A Notice of Opposition was filed on 12 September 1989 by BASF Aktiengesellschaft, D-6700 Ludwigshafen, the Opponents alleging lack of novelty and inventive step (Article 100(a) EPC) as well as non compliance with the requirements of Article 78 EPC in connection with Article 84 EPC. It was stated that the opposition did not extend to the designated country BE.

The opposition was supported by the citation of documents:

D1: EP-A-0 125 483;

D2: EP-A-0 077 038, and

D3: DE-A-2 432 342.

III. By its interlocutory decision of 12 February 1992 issued in writing on 15 May 1992, the Opposition Division held that the grounds of opposition did not prejudice the maintenance of the patent in amended form on the following basis:

- (a) for BE the Claims as granted (Version B);
- (b) for DE, FR, GB, IT and NL (Version A): Claim 1 drafted as use claim and addition of a new Claim 2 corresponding to Claim 1 as granted, with the addition at the end of a disclaimer reading "whereby the AgAg does not contain an ethyl acrylate-methacrylamide copolymer". Granted Claims 2 to 8 were renumbered to read 3 to 9 with the appropriate dependencies.

The amendments made were considered to meet the requirements of Articles 123(2) and (3) EPC as well as to overcome the objection pursuant to Articles 54(3) and (4) EPC. Since neither D2 and D3 gave any indication that it would be possible to use different ester units or to have core material without ester units, nor was therein any hint at the improved compatibility of the treated latices, the subject-matter of independent product and use claims was considered to involve an inventive step.

IV. On 16 July 1992 an appeal was lodged by the Appellants (Opponents) together with payment of the prescribed fee. The Statement of Grounds of Appeal was received on 18 September 1992.

The arguments presented in that statement and during oral proceedings held on 11 June 1996 can be summarized as follows:

- (i) The incorporation in Claim 1 of a disclaimer had no basis in the application as originally filed and offended against Article 123(2) EPC.
- (ii) Proper interpretation of D2, i.e. interpretation not limited to the specific Examples 3 and 4, but taking into account the whole contents of the citation, showed that the teaching thereof was in fact novelty destroying for the claimed subject-matter.
- (iii) Regarding the issue of inventive step, the Appellants made only a general reference to the arguments and submissions presented before the Opposition Division.

V. In their written and oral submissions the Respondents argued essentially as follows:

- (i) Regarding the objection under Article 123(2) EPC a subject-matter explicitly disclosed in an Article 54(3) EPC document, here D1, might be excluded, even if not derivable from the application as filed.
- (ii) Whilst an essential feature of the polymers according to D2 was the presence of the same ester in the two polymerization steps, the

wording of the claims required that in the patent in suit, on the contrary, the ester monomer should be different. Furthermore, the requirement in the patent in suit that the shell material be grafted to the core material had to be regarded as a functional definition of the latter, namely the presence of residual double bonds available for the grafting reaction. Thus, novelty was to be acknowledged over D2 on the basis of at least these two differences.

- (iii) These compositional and structural differences were responsible for the various advantages provided by the AgAg as defined and used in the patent in suit. In particular lower amounts of AgAg could be used to achieve the same amount of agglomeration (Table 1 of the patent in suit and Tables 3 and 4 of D2).

VI. The Appellants requested that the decision under appeal be set aside and the patent be revoked.

The Respondents requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.
2. Admissibility of the disclaimer
 - 2.1 In an annex to summons for oral proceedings the Rapporteur indicated that, in view of established practice of the Boards of Appeal, the disclaimer in Claim 2 of Version A of the claims could not be regarded as objectionable under Article 123(2) EPC. To support

this view decision T 597/92 (OJ EPO 1996, 135) was cited. Under point 3 of the reasons for the decision it is said that: ".....a disclaimer can only be allowed in rather exceptional circumstances, so as to make a claim which overlaps with the state of the art novel, even in the absence of support for the excluded matter in the original filed application (see T 4/80, OJ EPO 1982, 149, and T 433/86 dated 11 December 1987, not published in OJ EPO), but cannot be used to render a claim inventive, in the absence of such exceptional circumstances, since the introduction of a 'disclaimer' in that case amounts in fact to nothing else than the insertion of a new (negative) feature in terms of subject-matter not present in the originally filed application, which is contrary to the requirement of Article 123(2) EPC (see T 170/87, OJ EPO 1989, 441). Thus, as already stated in decision T 4/80, a disclaimer may only be used by way of exception for avoiding claim anticipation, if the subject-matter of a claim cannot be restricted on the basis of the original disclosure in positive terms without unduly impairing its clarity and conciseness.....".

- 2.2 These conditions are met in the present case, since the disclaimer is directed to ethyl acrylamide-methacrylamide copolymers disclosed in D1. More specifically, this citation discloses in Example E6 the preparation of a graft copolymer by (i) polymerizing butadiene, (ii) agglomerating the rubber particles thus formed by means of an ethyl acrylate-methacrylamide copolymer, and (iii) graft polymerizing a mixture of an n-butyl acrylate with methacrylic acid on the backbone. This embodiment falling within the terms of Claim 1 as granted, novelty was restored during opposition proceedings, first by drafting that claim as a use claim, and, secondly, by introducing a new Claim 2 corresponding to Claim 1 as granted, but wherein the

above disclaimer had been incorporated. Such excision is fully in line with the requirements laid down in T 4/80 and is thus not objectionable under Article 123(2) EPC.

3. *Novelty*

The subject-matter claimed in the patent in suit is defined by:

- (a) "a shell material substantially grafted to the core material ..." and
- (b) "a core materialin which, when ever present, the ester monomer units are different from those contained in the polymerized shell."

The process disclosed in D2 will be discussed particularly in the light of these two requirements.

- 3.1 D2 describes a process for the preparation of an impact resistant graft polymer by (1) first polymerising 5 to 90 p.b.w. of a mixture of monomers comprising at least one alkyl acrylate having 1 to 12 carbon atoms in the alkyl group and optionally another copolymerisable monomer, which should not be an α , β - unsaturated carboxylic acid, and subsequently copolymerising the residual 95 to 5 p.b.w of that monomer mixture together with an α , β - unsaturated carboxylic acid to form an acid residue containing copolymer (B) latex, (2) adding minor amounts thereof to a synthetic rubber (A) latex, whereby an agglomerated rubber (C) latex is obtained, and (3) graft polymerising a monomer mixture containing styrene and/or acrylonitrile and/or methyl methacrylate in the presence of rubber (C) latex (Claim 1).

- 3.2 The disclosure makes it clear that the copolymer (B) latex cannot exhibit a double layer structure within the terms of the patent in suit, i.e. a structure wherein the shell would be grafted to the core. This appears from the list of other copolymerisable monomers suitable in the two stages of step (1), wherein only styrenic monomers, (meth)acrylonitrile and alkyl methacrylates having 1 to 12 carbon atoms in the alkyl group, thus ethylenic compounds, are mentioned (page 9, lines 22 to 27); this also appears from Examples 1 to 6, wherein the various copolymer (B) latices are obtained from olefinic monomer mixtures, thus without dienes.

The condition in the patent in suit that the shell should be grafted to the core, which can only be fulfilled if residual double bonds are available, amounts thus to a functional definition of the composition of the core (cf. patent specification, page 4, line 61 to page 5, line 5), whereby the claimed subject-matter can be distinguished from the teaching of D2.

- 3.3 Similarly, the fact that in D2 the same monomer composition is used in the two stages of step (1), first without copolymerisable carboxylic acid, than with such acid comonomer, means that the same ester is incorporated throughout in the particles. This is contrary to the requirement in the patent in suit, according to which the ester monomer units, whenever present, should be different from those contained in the shell material (cf. also patent specification, page 5, lines 55 to 58).

The reference by the Appellants during oral proceedings to Examples 3 and 4 of D2 as being novelty destroying, if properly interpreted, is not appropriate. The fact that methyl methacrylate is used additionally during the

first polymerisation stage is irrelevant, since the same monomer, e.g. butyl acrylate, is used in both stages as major component, thus in accordance with the general teaching of the citation.

- 3.4 The comparison with D2 shows that the subject-matter as defined in Claims 1 and 2 differs from that disclosure by the elastomer character of the core as well as by the esters units present respectively in the core and in the shell, so that novelty can be acknowledged on the basis of these two differences.

Problem and solution

4. The patent in suit concerns the particle agglomeration in rubber latices. Such subject-matter is disclosed in D2 which the Board, like the parties, regards as the closest state of the art.
- 4.1 On that basis the Opposition Division took the view that the invention aimed at an "enlargement of the number of monomers and monomer combinations usable in core-shell agglomerating agents and a better compatibility of agglomerated latex" (Reasons for the decision, point 6).
- 4.2 In their statement filed on 10 May 1996 as well as during oral proceedings before the Board, however, the Respondents argued that overall nine beneficial effects reported in the patent specification should also be taken into account for the definition of the technical problem underlying the patent in suit. This applied particularly to the better controlled agglomeration of latices, since in the patent in suit (Table 1, Example VIII) 1% by weight of (AgAg) resulted in 32% agglomeration, whereas in Examples 3-3 and 3-4, Table 3

of D2 higher amounts (1.5 respectively 2% by weight) were necessary to achieve practically the same agglomeration.

In the Board's view, a more ambitious definition of the technical problem incorporating these additional effects is not justified in view of the absence of adequate comparison with the prior art. The sole mention of advantageous properties in general terms in the patent specification cannot be regarded as evidence for that purpose. Even the above comparison of controlled agglomeration is not conclusive, since that parameter corresponds to the "particle diameter after agglomeration" in D2 (Table 3, last column) and to the "volume % of particles converted to at least twice the average particle size (diameter) before agglomeration" in the patent in suit (Table 1, footnote 6).

As laid down in decision T 20/81, OJ EPO 1982, 217, alleged but unsupported advantages cannot be taken into consideration in respect of the determination of the technical problem (Reasons for the decision, point 3, last paragraph). For these reasons the Board concludes that the latter should remain as defined hitherto.

- 4.3 According to Claim 1 of the patent in suit this technical problem is to be solved by an (AgAg), wherein (i) the shell material is substantially grafted to the core material, and (ii) the ester monomer units in the shell are different from those in the core.
- 4.4 Since the monomer composition must be different in the two polymerisation stages as far as the ester is concerned, it is evident that a broader class of copolymers can be obtained. There also can be no doubt that this flexibility in the composition can be used to adjust the characteristics of the agglomerated elastomer

lattices, whereby an improved compatibility with other polymers can be achieved. The Board is thus satisfied that the above defined technical problem is effectively solved in its two aspects.

Inventive step

5. It remains to be decided whether the combination of features as required in the patent in suit can be derived in an obvious manner from the documents relied upon by the Appellants.

5.1 As stated above in point 3.3, an essential feature of the process disclosed in D2 is the use of the same monomer feed - with the exception of the ethylenically unsaturated carboxylic acid - in the two polymerisation stages, whereby a copolymer having a homogeneous composition based on the same alkyl acrylate is obtained. By contrast, the solution proposed in the patent in suit, which no longer ties the composition of the shell to that of the core, aims at the production of heterogeneous copolymers. Such compositional change, which goes against the prior art teaching, cannot be regarded as obvious.

The same applies to the structure of the copolymer, since nothing in D2 suggests the possibility to use an elastomer as the core material (see point 3.2 above).

5.2 As far as D3 is concerned, which deals with an even further remote state of the art, it was not considered at all by the Appellants during oral proceedings. As pointed out by the Respondents in their statement of 10 May 1996 (see pages 3 and 4), in addition to major differences in the preparation and in the composition of the (Ag Ag) described there, the latter do not have the

required grafted structure. It is thus evident that such teaching cannot contribute to the solution of the above defined technical problem.

5.3 It follows that the subject-matter of Claims 1 and 2 (Version A) involves an inventive step.

6. These independent claims being patentable, the same applies to the dependent product claims as well as further to the method claims (Claims 7 to 9 of Version A), which involve the use of the (AgAg) according to Claim 2 and the patentability of which is supported by that of this claim.

Order

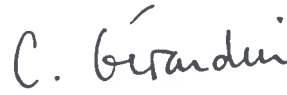
For these reasons it is decided that:

The appeal is dismissed.

The Registrar:


E. Gorgmeier

The Chairman:


C. Gérardin

PC 01/28/96