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D E C I S I O N
of 12 March 2001

Case Number: W 0004/99 - 3.3.3

Application Number: PCT/EP98/01903

Publication Number: W09842768

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Language of the proceedings: EN

Title of invention:

Acid functional and epoxy functional polyester resins

Applicant:

Shell Internationale Research Maatschappij B.V.

Opponent:

-

Headword:

-

Relevant legal provisions:

PCT Art. 17(3)(a)
PCT R. 13.2, 40.2

Keyword:

"Lack of unity a posteriori (yes)"

Decisions cited:

-

Catchword:

-



Case Number: W 0004/99 - 3.3.3
International Application No. PCT/EP98/01903

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 12 March 2001

Applicant: Shell Internationale Research Maatschappij B.V
Carel van Bylandtlaan 30
2596 HR The Hague (NL)

Representative: -

Subject of the Decision: Protest according to Rule 40.2(c) of the Patent Cooperation Treaty made by the applicant against the invitation (payment of additional fee) of the European Patent Office (branch at The Hague) dated 24 August 1998.

Composition of the Board:

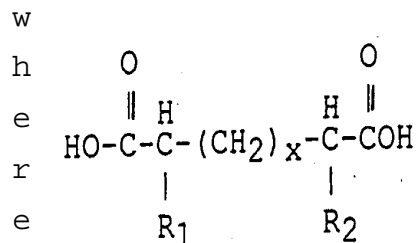
Chairman: R. Young
Members: P. Kitzmantel
B. Günzel

Summary of Facts and Submissions

I. International patent application PCT/EP98/01903 was filed on 24 March 1998 with ten claims, which read as follows:

"1. Carboxyl functional polyester resins obtainable by reaction of

(a) at least a compound of the formula



wherein R₁ and R₂ each may represent an alkyl group having from 1 to 4 carbon atoms or wherein R₁ and R₂ may form together with the group -CH-(CH₂)_x-CH- a cycloalkylgroup (A1), optionally mixed with minor amounts of a corresponding compound of formula I wherein x=0, or anhydride thereof (A2),

(b) at least one diol compound B, comprising two aliphatic hydroxyl groups, which may each independently be a primary or a secondary hydroxyl group;

(c) optionally one dihydroxymonocarboxylic acid compound C, comprising a tertiary aliphatic carboxyl group and two aliphatic hydroxyl groups which may each independently be primary or

secondary hydroxyl, and

- (d) optionally a trihydroxyalkane (D1) or tetrahydroxy-alkane (D2);

the molar ratio of compounds (A1+A2):B:C:D1:D2 being $X+Y+2Z+3Q+P:X:Y:Z:Q$, wherein X ranges from 1 to 8, Y ranges from 0 to 8, Z ranges from 0 to 4 and Q ranges from 0 to 3 and P ranges from 1 to 5, preferably from 1 to 3 and is most preferably equal to 1, at a temperature of from 100 to 240, until essentially all the hydroxyl groups as initially present in the reaction mixture have been reacted.

2. Carboxyl functional polyester resins according to claim 1, characterized in that component A1 is 1,4-cyclohexyl dicarboxylic acid, optionally mixed with minor amount of 1,2-cyclohexane dicarboxylic acid or anhydride thereof.

3. Carboxyl functional polyester resins according to claims 1-2, characterized in that component B is hydrogenated diphenylolpropane (HDPP).

4. Carboxyl functional polyester resins according to claims 1-3, characterized in that component C is dimethylol propionic acid.

5. Carboxyl functional polyester resins according to claims 1-4, characterized in that component D1 is trimethylol propane.

6. Carboxyl functional polyester resins according to claims 1-5, characterized in that component D2 is pentaerythritol.

7. A linear or branched polyglycidylester resin obtainable by reacting carboxyl functional polyester resins according to claims 1-6, with an excess epihalohydrin in the presence of a suitable base and optionally a catalyst.

8. A powder coating composition comprising a linear or branched aliphatic carboxyl functional polyester resin claims 1-6 and a cross-linking agent.

9. A powder coating composition comprising a polyglycidyl ester resin of claim 7 and a cross-linking agent.

10. A powder coating composition according to claim 9, characterized in that the cross-linking agent is a linear or branched polyester resin according to claims 1-6."

II. On 24 August 1998, the European Patent Office (EPO), acting as an International Searching Authority (ISA) invited the applicant to pay, within a time limit of thirty days, four additional search fees pursuant to Article 17(3)a, Rule 40.1 and Rule 40.3 PCT, since it considered that that there were five inventions claimed in the international application covered by the claims indicated, and that the international application did not comply with the requirements of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 PCT.

In particular, the five inventions considered to be claimed in the international application were identified as follows:

1. Carboxyl functional polyesters as claimed in

claims 1-3, 5;

2. Carboxyl functional polyesters as claimed in claim 4;
3. Carboxyl functional polyesters as claimed in claim 6;
4. Powder Coating comprising a carboxyl functional polyester resin as claimed in claim 8; and
5. Glycidylated carboxyl functional polyester resin as defined in claim 7 and powder coating thereof as defined in claims 9 and 10.

The ISA issued a partial search report on claims 1 to 3 and 5 relating to the invention first mentioned, i.e. group 1.

III. The invitation to pay additional fees was reasoned, on the basis of the international partial search report, essentially in the following terms:

- (i) The international application contained different independent claims in the same category:
 - (A) a carboxyl functional polyester resin (invention A, defined in claims 1 to 6);
 - (B) a glycidylated carboxyl functional polyester resin (invention B, defined in claim 7);
 - (C) a powder coating comprising a carboxyl

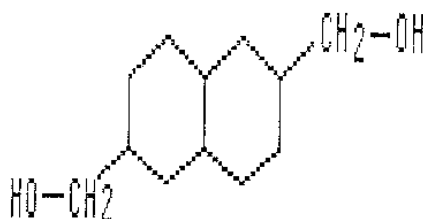
functional polyester resin (invention C, defined in claim 8); and

(D) a powder coating comprising a glycidylated carboxyl functional polyester resin (invention D, defined in claims 9 and 10).

(ii) Whilst there was a *a priori* unity of invention, since inventions A-D had a common technical feature, which improved weatherability of coatings such as powder coatings and corresponded to the problem solved (page 5 of the application, lines 15-25), there was no unity of invention *a posteriori* for the following reasons.

The prior art represented by EP-A-733687 (D1) disclosed, in example 5, a carboxyl functional polyester obtainable by reaction of:

- (a) 0,988 moles of 1,4-cyclohexanedicarboxylic acid (=Compound A1),
- (b) 0,691 moles of 2,6-decalindimethanol a diol comprising two primary aliphatic hydroxyl groups (=Compound B) and



(c) 0,014 moles trimethylolpropane which was a trihydroxy alkane (=Compound D1).

The compounds were reacted at a temperature of 180 to 230°C.

Since the hydroxyl number was 0 (see table on page 8 of D1), it had to be concluded that the reaction had been executed until all the hydroxyl groups as initially present in the reaction mixture had been reacted.

The molar ratio of Compounds A1:B:D1 was 10:7:0,15 and thus satisfied the ratio disclosed in operative claim 1.

Furthermore, D1 disclosed, in example 11, a powder coating comprising the above polyester resin. The coatings exhibited superior weatherability (abstract of D1 and examples).

The common technical structural element between inventions A,B,C and D as well as its effect (good weatherability) was thus known from D1. Consequently, there were three separate inventions which were not linked by a general inventive concept: Invention A; Invention C, and Invention B/D.

According to Article 17(3)(a) PCT, the first invention, namely Invention A (claims 1 to 6) had had to be searched.

(iii) Operative claim 1 was, however, itself not novel in view of D1. Accordingly, the following 3 new

independent claims were created:

Invention A1, defined in claim 3: a carboxyl functional polyester obtainable by reaction of *inter alia* HDPP as diol component (=technical feature A1). This feature allowed linearly to extend the polyesters (page 7, lines 10 to 15).

Invention A2, defined in claim 4: a carboxyl functional polyester obtainable by reaction of *inter alia* a dimethylol propionic acid (=technical feature A2). This feature allowed to introduce tertiary carboxyl groups pendant to the main chain (see page 7 lines 5 to 10).

Invention A3, defined in claim 6: a carboxyl functional polyester obtainable by reaction of *inter alia* a pentaerythritol (=technical feature A3). This feature allowed to produce branched polyesters (page 7 lines 10 to 15).

There was no unity of invention between A1-A3. The technical features A1-A3 had no common technical structure. There was no evidence on file that a common technical relationship was involved by the technical features A1-A3. Consequently Inventions A1-A3 were not so linked as to form a single general inventive concept.

According to Article 17(3)(a) PCT, invention A1 had been searched.

- (iv) There remained 4 inventions which had not been searched.

- (a) Invention A2 (claim 4);
- (b) Invention A3 (claim 6);
- (c) Invention C (claim 8);
- (d) Invention B/D (claims 7, 9 to 10).

IV. On 1 September 1998, the applicant paid four further search fees under protest pursuant to Rule 40.2(c) PCT together with a reasoned statement. According to the latter, the claimed carboxyl functional polyester, the subsequently derived epoxy functional polyesters and the powder coating compositions comprising these epoxy functional polyesters and/or the carboxyl functional polyesters were actually related to one inventive concept.

The inventive concept was based on a change of earlier used constituents of a polyester backbone in order further to improve the combination of the final properties of outdoor durable coating compositions. Such properties had appeared to be predominantly dependent on the average backbone microstructure of the starting carboxyl functional polyester molecules which had to be easily glycidated into the corresponding epoxy functional polyester molecules by means of the conversion of the remaining tertiary carboxyl groups into tertiary epoxy ester groups.

More particularly, essential properties of film coatings, such as Tg, flexibility and storage stability were determined by the average backbone microstructure which in turn was determined by the type and the proportion of the respective selected constituents, as

would be appreciated by the average person skilled in the art.

Finally, there was no reason at all for a distinction between the carboxyl functional polyesters as claimed in claims 1 to 3 and 5 on the one hand and those as claimed in claim 4 on the other hand, as each of claims 2, 3, 4 and 5 indicated preferred constituents A, B, C and D. Similarly, the distinction between claim 10 relating to powder coating compositions comprising, as cross-linking agent, a carboxyl functional polyester according to the invention and on the other hand claim 8 seemed quite arbitrary.

- V. On 9 December 1998, the EPO notified the applicant that the ISA had reviewed the invitation to pay additional search fees and found the latter justified. The applicant was invited to pay within one month the protest fee.

- VI. The protest fee was paid on 14 December 1998.

Reasons for the Decision

- 1. In accordance with Article 154(3) EPC, the Boards of Appeal are responsible for deciding on a protest made by an applicant against an additional fee charged by the EPO acting as ISA under Article 17(3)(a) PCT.

- 2. The protest is admissible.

- 3. The applicant did not specifically challenge the analysis, in the invitation to pay additional search fees, of D1 leading to the finding that it disclosed

the claimed carboxyl functional polyesters and their use in outdoor durable coatings. On the contrary, the arguments of the applicant were confined to general observations (section IV, above), which will be dealt with in turn.

- 3.1 The argument that the inventive concept was based on "a change of earlier used constituents" in order to "further improve the final properties of outdoor durable coating compositions" is not convincing, since the carboxyl functional polyester according to D1 is obtained from exactly the same type of constituents and with exactly the same proportions as defined in claims 1 and 5 of the international application. Consequently, there is no "change" of earlier used constituents in view of D1 and hence it is not plausible that the final properties are different.
- 3.2 The further argument, that the carboxyl functional polyester is easily glycidated by means of the conversion of the tertiary carboxyl groups is irrelevant, since the carboxyl functional polyester according to claims 1 and 5 does not contain tertiary carboxyl groups as a mandatory feature. On the contrary, the tertiary carboxyl groups only originate from compound C which is an optional compound. The carboxyl functional polyester according to claim 1 contains secondary carboxyl groups (originating from compound A). A technical relationship (easy glycidation) resulting from a feature (tertiary carboxyl groups) which is not a mandatory feature according to the terms of the claims cannot be taken into consideration in the definition of a common concept.

3.3 The submission of the applicant, that there was no reason for a distinction between the carboxyl functional polyesters defined in claims 1 to 5, "since they are indicating all constituents A, B, C and D" is not supported by the wording of the claims themselves. In particular, according to claim 4, which refers *inter alia* to claim 1, constituent C must be present whereas constituent D is optional. Similarly, according to claim 5, which refers *inter alia* to claim 1, constituent D must be present whereas constituent C remains optional. According to claim 1, only two constituents are mandatory: constituent A and constituent B. Thus, there is a relevant distinction between the carboxyl functional polyesters referred to in the above claims.

3.4 Finally, the argument of the applicant that the distinction, in the invitation, between the specified multiple groups of separate inventions is "quite arbitrary" is not supported by the wording of the invitation itself, which sets out, in a logical manner, the various groups of inventions.

4. In view of the above, the invitation to pay additional fees was justified.

Order

For these reasons it is decided that:

The protest according to Rule 40.2(c) PCT is dismissed.

The Registrar:

The Chairman:

E. Görgmaier

R. Young