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**Datasheet for the decision
of 12 January 2012**

Case Number: T 0230/09 - 3.3.05

Application Number: 97912345.2

Publication Number: 958257

IPC: C04B 26/04

Language of the proceedings: EN

Title of invention:

Mixtures of materials settable on exposure to atmosphere

Patentee:

Cairn Holdings (UK) Limited

Opponent:

PCI Augsburg GmbH

Headword:

Settable mixture/CAIRNS

Relevant legal provisions:

EPC Art. 84, 123(2)

Keyword:

"Clarity (main request, auxiliary requests 1 and 2): no -
relative term"

"Added matter (auxiliary requests 3 and 4): yes -
generalisation of examples"

Decisions cited:

-

Catchword:

-



Case Number: T 0230/09 - 3.3.05

DECISION
of the Technical Board of Appeal 3.3.05
of 12 January 2012

Appellant: Cairn Holdings (UK) Limited
(Patent Proprietor) PO Box 258
Northwich
Cheshire, CW9 8TE (GB)

Representative: Barker, Rosemary Anne
Harrison Goddard Foote
4th Floor, Merchant Exchange
17-19 Whitworth Street West
Manchester M1 5WG (GB)

Respondent: PCI Augsburg GmbH
(Opponent) Piccardstrasse 11
D-86159 Augsburg (DE)

Representative: Bausch, Thorsten
Hoffmann - Eitle
Patent- und Rechtsanwälte
Arabellastraße 4
D-81925 München (DE)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 12 December 2008
revoking European patent No. 958257 pursuant to
Article 101(3)(b) EPC.

Composition of the Board:

Chairman: G. Rath
Members: B. Czech
C. Vallet

Summary of Facts and Submissions

I. The appeal lies from the decision of the opposition division posted on 12 December 2008 revoking European patent No. 0 958 257.

II. Claim 1 of the patent in suit as granted reads as follows:

"1. A mixture which is settable upon exposure to atmosphere, comprising polybutadiene, a flow-enhancing hydrocarbon solvent, and dry sand; characterised in that the dry sand has a moisture content no greater than that of kiln-dried sand."

III. The evidence relied upon by the parties in the opposition procedure includes the following documents:

D1: DE 40 35 359 C1;

SD1: Material Safety Data Sheet "Boilingpoint benzine 40/65" of P&S Chemicals, dated "1/12/2005";

SD1: Material Safety Data Sheet "Boilingpoint benzine 145/160" of P&S Chemicals, dated "1/12/2005"; and

L1: Leaflet "Hydrocarbon solvents product range" of Shell Chemicals, issued April 1999.

IV. The opposition division considered that the term "*kiln-dried*" used in claim 1 was ambiguous and lacked precision in terms of the moisture content of said sand, and therefore revoked the patent on the ground of insufficiency of disclosure.

V. Under cover of its statement of grounds of appeal the appellant (proprietor of the patent) filed five sets of

amended claims as main and first to fourth auxiliary requests.

Concerning the meaning of the expression "*kiln-dried sand*", the appellant referred to its earlier submissions in opposition and submitted additional evidence in form of two letters from Mr Broad and Mr Parke. Arguing that the expression was widely used and understood in the technical field concerned, the appellant held that there was no insufficiency of disclosure.

- VI. In its reply, the respondent (opponent) *inter alia* raised objections under Articles 123(2) against all of the appellant's requests. Moreover, it held that the feature "*kiln-dried*" and the newly incorporated features "*low aromatic special boiling point 40/65 to 140/165*" lacked clarity (Article 84 EPC).
- VII. The appellant reacted by withdrawing its previous main and first auxiliary requests and submitted two sets of claims as amended fourth auxiliary request and additional fifth auxiliary request.
- VIII. In response to the summons to oral proceedings, the appellant filed three patent documents as further evidence in support of its view that the term "*kiln-dried sand*" was self-defining and posed no problems with regard to clarity or sufficiency of disclosure.
- IX. In a communication issued in preparation for the oral proceedings, the board drew the parties' attention to several points of potential importance, including *inter alia* the possible non-compliance of the amendments with

the requirements of Articles 123(2) EPC and the clarity of the definitions of the flow-enhancing solvents incorporated into claim 1.

- X. In response to said communication, the appellant filed five sets of amended claims as new main and auxiliary requests 1 to 4 under cover of its letter dated 21 December 2011.

Claim 1 according to said main request reads as follows (amendments made to claim 1 as granted made apparent by the board):

*"1. A mixture which is settable upon exposure to atmosphere, comprising polybutadiene, a flow-enhancing hydrocarbon solvent, and dry sand; characterised in that the dry sand ~~is has a moisture content no greater than that of~~ kiln-dried **silica sand**; in that the flow-enhancing hydrocarbon solvent is benzene 140-165 or low aromatic, special boiling point 40/65 to 140/65 [sic]; and in that the mixture is bagged or vacuum packed so as to be contained in a substantially oxygen-free atmosphere."*

Claim 1 according to the first auxiliary request differs from claim 1 according to the main request by the additional indication "**that the polybutadiene is provided in an amount of between 1.5% and 6% by volume of the mixture**".

Claim 1 according to the second auxiliary request differs from claim 1 according to the main request by the additional indications "**that the polybutadiene is provided in an amount of between 2% and 4 % by volume**

of the mixture" and the solvent "*is provided in an amount of between 0.1% and 0.4% by volume of the mixture*".

Claim 1 according to the third auxiliary request differs from claim 1 according to the second auxiliary requests in that the solvent is "**benzene 140-165**".

Claim 1 according to the fourth auxiliary request differs from claim 1 according to the third auxiliary requests in that "**the polybutadiene is in liquid form**" and in that the solvent is "**aroma free benzene (octane 140-165)**".

XI. In its letter dated 23 December 2011, the respondent objected to the late filing of said amended claims by the appellant and maintained its previous objections raised *inter alia* under Articles 84 and 123(2) EPC.

XII. As far as they relate to the decisive issues, the arguments of the parties can be summarised as follows:

The **appellant** held that its requests filed with letter of 21 December 2011 did not raise any new issues and that it had been possible for the board and the respondent to review the amended requests before the oral proceedings.

At the oral proceedings, the appellant argued as follows with regard to the clarity of the features "*low aromatic, special boiling point 40/65 to 140/165*" in the respective claims 1 according to the main request (although mistyped as "*140/65*") and the first and second auxiliary requests. The term "low aromatic" was

a common term in the technical field concerned. The skilled person knew what a "low aromatic" hydrocarbon solvent was and was familiar with "special boiling point" solvents characterised by a boiling range expressed by two temperature values, such as "40/65" and "140/165". This was illustrated by the table in leaflet L1 which referred to "SBPs", i.e. special boiling point solvents, with very low contents of "benzene" and "aromatics", such as the "SBP 140/165" also designated as "Shellsol D25". Documents SD1 and SD2 were also referred to at the oral proceedings. Moreover, the feature "*low aromatic*" was not the most important feature of the invention. The features in question were thus sufficiently clear.

Concerning the third and fourth auxiliary requests, the appellant held that all the amendments to respective claims 1 were sufficiently based on the application as filed. It referred in particular to the mixtures described on page 2, fourth paragraph, and on page 5, examples 1 to 4. An express disclosure of all claim features in combination was not necessary. From the quoted passages and the total information provided by the other parts of the application as filed, the skilled person could directly and unambiguously derive the subject-matter as now claimed.

The **respondent** argued that the late submission of amended requests without further arguments was not a *bona fide* response to the board's communication.

It objected to the clarity of the respective claims 1 according to the main and the first and second auxiliary requests. More particularly, the limitations

implied by the relative expression "*low aromatic*" were not clear. Said expression was not explained in the patent in suit and did not appear to be a clearly defined technical term. The expression "*low aromatic*" was not used in the leaflet L1 either. Moreover, at the oral proceedings, the respondent stated that it was not aware of a precise meaning of the qualifier "*special boiling point*", or of any limitations implied by it in terms of the chemical composition or properties of the hydrocarbon solvent.

The respondent held that the amended claims 1 according to the third and fourth auxiliary requests were objectionable under 123(2) EPC. It argued *inter alia* that the specific combination of features now claimed was not disclosed or derivable from the application as filed. More particularly, those parts of the description disclosing relative amounts of the components to be combined exclusively related to specific mixtures defined by an exhaustive enumeration, in the sense of "consisting of", of all the components and their relative amounts.

XIII. The appellant requested that the contested decision be set aside and that the patent be maintained on the basis of the claims according to the main request filed with letter dated 21 December 2011 or, in the alternative, on the basis of the claims according to one of the first to fourth auxiliary requests filed with the same letter.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. Admissibility of the appellant's requests
 - 1.1 The respondent objected to the late filing of the appellant's requests filed on 21 December 2011, i.e. after issuance of the summons to oral proceedings.
 - 1.2 For the board, said amended requests can be considered as an attempt to deal with issues addressed in the board's communication (Article 12(1)c) RPBA). As pointed out by the respondent, the appellant did not address in its letter of 21 December 2011 all the objections previously raised by the board or the respondent, neither in terms of arguments nor in the form of amendments to the claims. However, this fact cannot, as such, justify the non-admittance of the requests in the present case.
 - 1.3 In the present case, although most of the additional or replacement features appearing for the first time in the claims according to the appellant's latest request stem from the description of the patent in suit, the new subject-matter is of no particular complexity and does not raise issues which the board or the respondent could not reasonably be expected to deal with without the adjournment of the oral proceedings.
 - 1.4 Considering these particular circumstances, in the exercise of the discretion conferred on the board by Article 13(1) and (3) RPBA, the board decided to admit into the proceedings all five requests of the appellant despite their late filing.

2. Main request

2.1 Allowability of the amendments to claim 1
Article 84 EPC (clarity)

2.1.1 Compared to claim 1 as granted, claim 1 according to the main request was amended to include a more limited definition of the flow-enhancing hydrocarbon solvent component included in the mixture. More particularly, according to one alternative, said solvent is "*low aromatic, special boiling point 40/65 to 140/65 [sic]*".

At the oral proceedings, the appellant confirmed that the latter expression was mistyped and should read 140/165.

2.1.2 Since the quoted features were not present in a granted claim but stem from the description (see application as filed, page 1, penultimate paragraph; page 4, first paragraph), they must meet the requirement of clarity (Article 84 EPC).

2.1.3 The relative expression "*low aromatic*" is not explained or illustrated in the patent in suit. Despite the objection of the respondent, the appellant did not provide evidence that the expression had a well-recognised meaning in the field of hydrocarbon solvents, more specifically in terms of the maximum amount of aromatic components that may be contained in a solvent qualified as "*low aromatic special boiling point*" solvent.

2.1.4 The board observes that the appellant has chosen not to incorporate into present claim 1 the feature

"*aliphatic*", a preferred property of the hydrocarbon flow enhancing solvent according to claim 5 of the application as filed. Moreover, the patent in suit (table in section [0017] also refers to "*aroma [sic] **free** benzene (octane 140-165)*" solvents (emphasis added), i.e. to solvents containing essentially no aromatic components at all. In this connection, the board notes that the authors of the prior art document D1 (see column 3, lines 40 to 63) designate aliphatic hydrocarbons solvents containing up to 100 ppm of the aromatic compound benzene (C_6H_6) as being "free" of aromatics.

For the board, in view of the above aspects, the patent in suit appears to suggest that a "*low aromatic*" solvent as referred to in claim 1 may contain significantly more aromatic components than a solvent that the skilled person would consider as being essentially "*free*" of aromatic components.

- 2.1.5 At the oral proceedings, the appellant referred to the (post-published) leaflet L.1, which mentions several solvents designated as "SBPs" (see the top column labels), i.e. **s**pecial **b**oiling **p**oint solvents.

The board notes that the specific "*SBP*" solvents apparently commercialised by Shell Chemicals and described in detail in L1 contain very small amounts (" $< 0.01 \% \text{ m/m}$ " or $< 100 \text{ ppm}$) of aromatics, or even less (see ninth data row for the columns relating to "*SBPs*"), said solvents thus being "free" of aromatics in the sense of document D1.

The board however notes that neither document L1, nor

(post-published) documents SD1 and SD2, contain a literal reference to "*low aromatic*" solvents.

Furthermore, there is no evidence on file showing that it was well-known in the art that "*special boiling point*" hydrocarbon solvents never contained significant amounts of aromatic components. On the contrary, it is expressly stated in the leaflet L1 (see Notes on the right of the table, penultimate paragraph), that some of the solvents described, including the "**SBPs**" 80/110, 100/140 and **140/165**" can be "blended to **various aromatic contents**" (emphasis added).

2.1.6 Hence, in the absence of a generally recognised definition of "*low aromatic special boiling point*" hydrocarbon solvents, the board does not accept that present claim 1 is limited to solvents essentially free of aromatic components as described in SD1, SD2 or L1, such as the solvent commercialised under the designation "SBP 140/165" by Shell Chemicals, which is also expressly mentioned as an example in the description (paragraph [0003]) of the patent in suit.

2.1.7 Summarising, it is not clear in the given context of the whole disclosure of the application as filed up to which maximum proportion of aromatic components may be comprised in the special boiling point hydrocarbon solvents referred to in claim 1.

2.1.8 Due to the amendment consisting in the incorporation of the feature "*low aromatic special boiling point ...*" into instant claim 1, the latter does not meet the requirements of Article 84 EPC.

2.1.9 The features in question were introduced into claim 1 to distinguish the claimed mixture from the prior art including document D1, which document also undisputedly refers to the use of flow enhancing hydrocarbon solvents.

According to the appellant's own arguments submitted in the course of the opposition and appeal proceedings, the nature of the hydrocarbon solvent to be used in the mixture was an essential and distinctive feature of the invention (versus document D1). The fact that the application as filed (see application as filed page 1, penultimate paragraph; page 4, first paragraph) contains no clearer definition of the "*low aromatic special boiling point ...*" hydrocarbon solvents referred to *verbatim* in instant amended claim 1 does not give room for an interpretation justifying the allowability of the amendment in question under Article 84 EPC.

2.1.10 Hence, the appellant's main request is not allowable.

3. First and second auxiliary requests

3.1 Allowability of the amendments to claim 1
Article 84 EPC (clarity)

3.1.1 Claim 1 according to the first auxiliary request and claim 1 according to the second auxiliary request differ from claim 1 according to the main request in that the features relating to the relative amounts of polybutadiene and solvent were additionally incorporated into claim 1.

3.1.2 These amendments, i.e. the incorporation of the respective amounts, have no bearing on the considerations under points 2.1.2 to 2.1.9 above concerning the lack of clarity of the features "*low aromatic, special boiling point ...*", which were also incorporated into the respective claims 1 of the first auxiliary request (with a literal error consisting in the omission of the word "*boiling*") and of the second auxiliary request. Said considerations thus apply *mutatis mutandis* to said claims.

3.1.3 The meaning of the features "*low aromatic special boiling point ...*" is unclear (see points 2.1 to 2.1.9) in the context of the respective instant claims 1 according to the first and second auxiliary requests. Due to the incorporation of said features into claim 1 according to the first auxiliary request and claim 1 according to the second auxiliary request, said claims do not meet the requirement of clarity (Article 84 EPC).

3.1.4 Therefore, the appellant's first and second auxiliary requests are not allowable either.

4. Third auxiliary request

4.1 Allowability of the amendments to claim 1 under Article 123(2) EPC

4.1.1 The mixture according to present claim 1 is defined *inter alia* by enumerating three components comprised therein (kiln-dried silica sand, polybutadiene and benzene 140-165 as hydrocarbon solvent), and by indications concerning the relative amounts of the

polybutadiene component (2 to 4 % by volume) and of the solvent component (0.1 to 0.4 % by volume).

- 4.1.2 Mixtures containing silica sand as well as polybutadiene and a benzene 140-165 solvent in said specific relative amounts are only disclosed in the application as filed on page 2, fourth paragraph ("typical mixture"), and on page 5 (examples 1 to 4).

In the application as filed, mention is also made in more general terms of additional components that may be included in the mixture, for example a colourant and/or a reinforcing material (page 5, fifth paragraph), i.e. materials of the type added according to the examples 2 to 4 (pigments and fibres). Also mentioned is the possibility of adding diluents such as vegetable oils (page 6, last paragraph).

- 4.1.3 However, the specific mixtures described on page 2, fourth paragraph, and on page 5, examples 1 to 4, are described in terms of exhaustive lists of the components and their respective amounts, the amount of silica sand being expressed by the terms "balance % by volume".

The compositions according to examples 2 to 4 additionally contain small defined amounts of 1 to 5 % by volume of fibres and/or 0.1 to 0.5 % by volume pigment.

Said specifically described mixtures thus not only comprise but consist of the (exhaustively) listed components in the relative amounts specified.

- 4.1.4 There is no express disclosure in the application as filed of the subset of mixtures which
- comprise 2 to 4 % by volume of a polybutadiene and 0.1 to 0.4 % by volume benzene 140-165 solvent;
- but which at the same time
- may comprise other components than the "*fibres*" and "*pigment*", or comprise them in amounts outside the ranges indicated in the examples 2 to 4 of the patent in suit;
- and/or
- may comprise the kiln-dried sand component in amounts which are less than the "balance" in volume % needed to arrive at 100 % by volume in combination with the other components (polybutadiene, benzene 140-165, optional fibres, optional pigment).
- 4.1.5 It is true that present claim 1 is narrower in terms of the definition of the mixture than claim 1 as granted. However, the application as filed contains no further elements from which the skilled person, considering the information provided by the specific mixtures exemplified therein, could directly and unambiguously derive an implicit disclosure of the subset of mixtures referred to under point 4.1.4 above.
- Or, in other words, the intermediate generalisation of the examples 1 to 4 to the more generic definition of the mixtures according to claim 1 finds no basis in the application as filed.
- 4.1.6 In the board's judgement, by virtue of the amendments in question, present claim 1 is thus directed to subject-matter extending beyond the content of the application as filed. Hence, the amendments in question do not meet the requirements of Article 123(2) EPC.

4.1.7 The appellant's third auxiliary request is thus not allowable either.

5. Fourth auxiliary request

5.1 Allowability of the amendments to claim 1 under Article 123(2) EPC

5.1.1 Claim 1 according to the fourth auxiliary request differs from claim 1 according to the third auxiliary request only in that the polybutadiene component used is specified to be "*liquid*" and in that the solvent benzene 140-165 is specified to be "*aroma free benzene (octane 140-165)*".

5.1.2 These amendments have no bearing on the considerations under points 4.1.1 to 4.1.5 above, which considerations thus apply *mutatis mutandis* to present claim 1.

5.1.3 In the board's judgement, by virtue of the amendments in question, present claim 1 is thus directed to subject-matter extending beyond the content of the application as filed. Hence, the amendments in question do not meet the requirements of Article 123(2) EPC.

5.1.4 The appellant's fourth auxiliary request is thus not allowable either.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

C. Vodz

G. Rath