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**Datasheet for the decision
of 10 February 2023**

Case Number: T 1654/19 - 3.3.03

Application Number: 14726226.5

Publication Number: 2970631

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Language of the proceedings: EN

Title of invention:
HEAVY METAL FREE CPVC COMPOSITIONS

Patent Proprietor:
Lubrizol Advanced Materials, Inc.

Opponents:
Akdeniz Chemson Additives AG
Baerlocher GmbH

Relevant legal provisions:
RPBA Art. 12(4)
EPC Art. 100(b), 54, 56

Keyword:

Additional evidence submitted to fill a gap in the reasoning -
admitted (yes)

Additional inventive step objection starting from the same
document - admitted (no)

Sufficiency of disclosure (yes)

Novelty (yes)

Inventive step (yes)

Decisions cited:

G 0003/89, G 0011/91, G 0001/03, G 0002/10, G 0003/14,
T 0620/99, T 0790/03, T 0815/07, T 1568/12, T 0026/13,
T 1657/14, T 1845/14, T 0487/16, T 2603/18, T 1820/18



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Case Number: T 1654/19 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 10 February 2023

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 5 April 2019
rejecting the opposition filed against European
patent No. 2970631 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman D. Semino
Members: F. Rousseau
 R. Cramer

Summary of Facts and Submissions

I. The appeal lies against the decision of the opposition division rejecting the oppositions against European patent No. EP 2 970 631 whose independent claim 1 read as follows:

"1. A rigid chlorinated polyvinyl chloride (CPVC) composition comprising (a) a CPVC resin, and (b) a stabilizer system consisting essentially of 1) an organic based stabilizer, and 2) from 0.1 to 3.0 parts by weight zeolite per 100 parts by weight of said CPVC resin, and optionally 3) a C₆ to C₁₂ metal carboxylate."

II. The following items of evidence were submitted *inter alia* during the opposition proceedings:

D1: US 6,096,820

D3: EP 2 083 044 A1

D7: WO 2012/143794 A1

D9: US 7,741,390 B2

D10: EP 1 426 406 A1

D11: EP 1 046 668 A2

D12: EP 0 768 336 A2

D13: WO 2004/050754 A2

D23: Wikipedia entry for "CIELAB color space"

D24: Declaration of Dr. Li Nie

D26: EP 1 325 941 A1

D27: Affidavit of Dr. Bernhard Georg Pelzl

D28: G.T. Dalai, "Chlorinated Poly(Vinyl Chloride) CPVC Engineering Thermoplastic Now a Viable Alternative",

Journal of Vinyl Technology, March 1985, Vol. 7, No. 1, page 36-41.

III. According to the reasons for the contested decision which are pertinent for the appeal proceedings:

Sufficiency of disclosure

(a) The absence of an amount of organic based stabiliser in claim 1 did not result in insufficiency of disclosure, since the amount to be used was taught in the description. The objections relating to the meaning of the term rigid in claim 1 or the measurement of rigidity were mere clarity objections. In any event, the skilled person in the field of halogenated plastics such as PVC and CPVC was well aware of the difference between rigid and flexible resin compositions. The objection concerning the lack of information on the parameter lightness index "L" measured in the examples also failed to convince, since this parameter was not only explained in the specification, but was also known to the skilled person, as shown in D23.

Novelty

(b) Novelty was acknowledged over each of D1 and D10 to D13. D1 contained a pointer to CPVC resins, but did not disclose rigid CPVC formulations. Each of D10 to D13 separately described all features of granted claim 1, but in each case a number of choices had to be made to arrive at a composition according to granted claim 1, with no clear pointer to their combination.

- (c) D26 whose disclosure was similar to that of D11 and D12 had been submitted before the final date for submissions under Rule 116 EPC in a response to both the opposition division's preliminary opinion on novelty and the patent proprietor's declaration D24. It was admitted into the proceedings, but was not novelty destroying, as it did not contain any pointer to the use of CPVC in combination with the amount of zeolite defined in granted claim 1.

Inventive step

- (d) D3 which related to a thermally stabilised rigid halogenated resin for use in articles such as pipes, and which in example 4 explicitly described the thermal stabilization of a CPVC resin composition, represented the closest prior art. D1 was more remote, as it rather concerned soft plasticized compositions.

The subject-matter of granted claim 1 differed from D3 in that its rigid CPVC composition comprised 1) an organic based stabiliser, and 2) from 0.1 to 3.0 parts by weight of zeolite per 100 parts by weight of said CPVC resin.

In the absence of comparative data over D3, the problem solved was the provision of an alternative thermally stabilized CPVC composition.

D3 proposed in example 4 and its claim 1 the use of the specific combination of a) disodium adipate and b) a compound selected from perchlorates and trifluoromethane sultanates in order to improve thermal stability. While one of more stabilisers could be added which included organic co-

stabilizers and zeolites, there would be no incentive for the skilled person to select such a stabiliser combination for CPVC without knowledge of the invention. The skilled person would further have no motivation to depart from the teaching of D3 and consider the stabiliser compositions of D3 itself or D10 to D13 without the use of hindsight. The claimed composition was therefore not obvious in the light of D3.

- (e) With respect to the objection starting from D1 as the closest prior art, there was no motivation in this prior art to provide rigid halogenated polymer compositions. This would not only require departing from the preferred plasticised PVC formulations and removing the di-octyl phthalate (DOP) plasticiser, but also applying the same stabilisers to CPVC resin compositions with an expectation of similar results in terms of thermal stability. The argument that articles such as pipes were known in the art and would motivate the skilled person to remove the plasticiser from the composition of D1 was based on the knowledge of the invention, particularly as the motivation to take a step backwards to remove the plasticiser from the compositions exemplified in D1 was lacking.

IV. An appeal against that decision was lodged by opponent 2 (appellant). They filed with their statement of ground of appeal the following document:

D29: US 6,414,071 B1.

V. An additional appeal filed by opponent 1 was withdrawn with letter dated 18 January 2023. Opponent 1 is therefore party as of right to the appeal proceedings

pursuant to Article 107, second sentence, EPC (hereafter the other party).

- VI. In their response to the statements of grounds of appeal the patent proprietor (respondent) referred to auxiliary requests 1 to 7 filed before the opposition division with letter of 21 June 2018. The wording of these auxiliary requests is not relevant for the present decision.
- VII. Oral proceedings before the Board were held on 10 February 2023 in the announced absence of the other party.
- VIII. The appellant requested that the decision under appeal be set aside and that the patent be revoked.
- IX. The respondent requested that that the appeal be dismissed, or alternatively that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of one of auxiliary requests 1 to 7 filed with letter of 21 June 2018, whereby auxiliary request 5 was to be dealt with before auxiliary request 3.
- X. The appellant's and the other party's submissions, in so far as they are pertinent, may be derived from the reasons for the decision below. Based on their submissions, it is essentially argued that the subject-matter of the granted patent:
 - (a) lacks sufficiency of disclosure,
 - (b) lacks novelty over each of D1, D10, D13, D11, D12 and D26 and

(c) is obvious starting from the disclosure of each of D3, D1 and D29.

XI. The submissions of the respondent, in so far as they are pertinent, may be derived from the reasons for the decision below. They are essentially as follows:

(a) D26 and D29 should not be admitted into the proceedings.

(b) The subject-matter of the granted patent is novel.

(c) The objection of lack of inventive step starting from D29 should not be admitted into the proceedings.

(d) An inventive step over D3 or D1 is to be acknowledged.

Reasons for the Decision

Admittance of Document D26

1. Document D26, whose admittance has been disputed by the respondent, was admitted into the proceedings by the opposition division (page 9, point 4.3.1 of the Reasons for the contested decision) and taken into account for deciding on the issue of novelty of claim 1 (page 10, point 4.3.2. of the Reasons). In such a case, there is no legal basis for excluding document D26 from the appeal proceedings (see also T 0487/16, point 3.1 of the Reasons; T 0026/13, point 2 of the Reasons; T 1568/12, point 2.4 of the Reasons; T 2603/18, points 1.1 to 1.2 of the Reasons). Moreover the Board cannot

establish that the opposition division exceeded its discretionary power. Accordingly, D26 should be taken into account by the Board (Article 12(4) RPBA 2007).

Admittance of Document D29

2. D29 is an item of evidence submitted by the appellant with their statement of grounds of appeal. Its admission to the proceedings, which was contested by the respondent, is subject to the discretionary power of the Board under Article 12(4) RPBA 2007 (see Article 25(2) RPBA 2020) to hold inadmissible facts, evidence and requests which could have been presented or were not admitted in the first instance proceedings.

The appellant justified the filing of D29 with the statement of grounds of appeal by the need to fill a gap in their arguments submitted before the opposition division. That alleged gap would concern the teaching that thermal stabilisers for flexible PVC or CPVC compositions could also be suitable for rigid PVC or CPVC compositions, reference being made to point 5.2 of the Reasons for the contested decision.

The reasoning of the opposition division in that point of the Reasons for the decision concerns the question of inventive step starting from D1 as the closest prior art. Indeed, it is based on the affirmation that the skilled person would not expect a teaching concerning thermal stabilisation of plasticised halogenated polymer compositions such as those prepared in D1, i.e. flexible compositions, to be applicable to similar rigid compositions. This has been addressed in the appeal procedure by the filing of D29, as shown above.

Since the focus of the debates before the opposition division was rather put on the plasticity of the compositions of D1 and the lack of interchangeability of PVC and CPVC (page 4 of the minutes, first paragraph), the Board considers it reasonable for the appellant to address this part of the opposition division's reasoning by submitting new evidence at the earliest possible stage, i.e. with the statement of grounds of appeal.

On that basis, the Board has no reason to make use of its discretionary power under Article 12(4) RPBA 2007 and to hold document D29 inadmissible.

Article 100(b) EPC

3. According to the established jurisprudence of the Boards of Appeal of the EPO a European patent complies with the requirements of sufficiency of disclosure if a skilled person, on the basis of the information provided in the patent specification and, if necessary, using common general knowledge, is able to carry out the invention as claimed in its whole extent without undue burden, i.e. with reasonable effort.

The appellant and the other party have put forward three separate lines of argument as to why the claimed subject-matter is insufficiently disclosed.

Non-working embodiments

4. It is submitted that the definition of the composition of operative claim 1 does not include any limitation as to the amount of organic based stabiliser. On this basis, the appellant and the other party argue that claim 1 is insufficiently disclosed, since embodiments

with only an infinitesimal amount of organic-based stabiliser could not solve the problem the patent purports to solve, i.e. to achieve sufficient thermal stability. For the sake of simplicity, thermal stability is referred to as stability in the following.

This objection is not convincing. As recalled in decision T 1845/14 (points 9 to 9.8 of the Reasons), the achievement of a particular technical effect which is not part of the claim definition, here the achievement of a certain degree of stability, is not a question of sufficiency of disclosure, but may be relevant to the question of inventive step (see decision of the Enlarged Board of Appeal G 1/03, OJ EPO 2004, 413, point 2.5.2, third paragraph of the reasons).

Rigidity

5. Referring to D9 (column 71, lines 25ff), D10 (page 11 , lines 31 to 35) and D11 (paragraphs [0083] and [0115]), the other party submits that there is no precise definition of the terms rigid, semi-rigid and flexible in the field of PVC materials, which leads to an overlap between these materials (statement of grounds of appeal, page 2, point 2.2).
- 5.1 The appellant and the other party put forward various arguments as to why this lack of a precise definition of the term rigid would amount to a lack of sufficiency of disclosure. However, they have not explained how the alleged degree of uncertainty as to the definition of the term rigid would prevent the skilled person from preparing compositions according to claim 1. Putting into practice the claimed invention does not require more than blending the CPVC resin and the ingredients

defined in claim 1 using conventional blending techniques. This applies irrespective of whether the prepared material is to be qualified as rigid or semi-rigid.

- 5.2 The mere argument that the skilled person is not able to determine whether one is working within or outside the scope of the claims, as put forward by the other party, is a matter of clarity of the granted claims, which cannot be examined in view of the ruling of G 3/14 (OJ 2015, A102), as outlined by the respondent (rejoinder, item 10).
- 5.3 The other party also submits that the absence of a clear definition of the term "rigid" which was considered to distinguish the claimed subject-matter from D1 would deprive the skilled person of the promise of the invention, reference being made to T 0815/07 (statement of grounds of appeal, page 2, section 2.2). However, according to more recent case law, fulfilling the promise of the invention is rather a criterion for assessing inventive step, but not for sufficiency of disclosure (Case Law of the Boards of Appeal of the EPO, 10th edition 2022, II.C.8.2.2a); see in particular decision T 1845/14, supra, points 8.3 to 8.7 of the reasons).
- 5.4 The appellant argues that the patent in suit discloses four different methods for determining the rigidity and that, without prior knowledge of the actual rigidity of the polymer, the skilled person would not know whether the actual rigidity has been measured by the appropriate method, or whether the value is not the actual rigidity due to the use of the wrong method.

However, this is not persuasive, because claim 1 does not call for a precise measurement of the rigidity, let alone for any rigidity value. Moreover, no evidence has been submitted that the skilled person would not be able to measure the rigidity of the claimed composition according to one the standard norms mentioned in paragraph [0021] of the specification. The appellant submits in this respect that the term rigid in claim 1 does not refer to the CPVC, but to the CPVC composition comprising the additives mentioned in claim 1. This is not disputed and the Board has no reason to have a different view. Furthermore, it has not been shown that the ability to produce the composition of claim 1 is dependent on a precise measurement of the rigidity value, either of the composition or of the CPVC itself. Therefore, the above objection relating to the alleged difficulty of measuring the actual rigidity value of the composition does not go beyond an objection of clarity which cannot be examined (see point 5.2 above).

Lightness index (L)

6. The appellant submits in essence that the skilled person cannot verify or repeat the experiments disclosed in the examples of the patent in suit because the specification does not disclose how the L-values were determined or what those values mean.

The meaning of the parameter L-value used in the examples to assess the thermal stability of the compositions prepared must be read in the light of paragraph [0074] to [0076], as pointed out by the respondent. Having regard to those paragraphs, it is immediately apparent to the person skilled in the art that the L-value refers to the in the art well known

lightness value in the CIELAB color space diagram. It is used here to measure the stability of the composition, as unstable compositions become darker.

In any event, it should be noted that it is the sufficiency of disclosure of the combination of technical features of the invention, i.e. as defined by the terms of the claims (see Rule 43(1) EPC), that is to be assessed and not that of exemplified embodiments, which are not in the present case the subject-matter of a claim. This means that since L-values are not a feature of the invention as claimed, any alleged difficulty in measuring this parameter has no bearing on the assessment of sufficiency of disclosure.

7. Accordingly, none of the lines of arguments put forward by the appellant and the other party demonstrate a lack of sufficiency of disclosure of the subject-matter of the granted patent.

Preliminary remark concerning the meaning of rigid

8. According to the legal approach to claim construction, it is a well-established principle laid down by Board of Appeal case law that a non-specific definition in a claim should be given its broadest technically sensible meaning. In the present case, therefore, the term "rigid" must be given its broadest technically sensible meaning in the context of chlorinated polyvinyl chloride (CPVC) compositions.

In this respect, as pointed out by the appellant in their statement of grounds of appeal (page 9, point b, third paragraph), D3 (paragraph [0020]), which also deals with the heat stabilisation of halogen-containing compositions, in particular those based on CPVC,

defines that a halogenated resin in rigid formulations means a halogen-containing polymer formulation substantially free of plasticiser compounds.

D7, which also concerns a polymer stabiliser system for polymers containing halogen (title), teaches in paragraph [0094] on page 19 that flexible PVC comprise 20 to 50 parts by weight of plasticiser, based on 100 parts by weight PVC, and semi-rigid PVC comprise preferably up to 20%, particularly preferably up to 15%, of plasticiser, or no plasticiser.

The other party also refers to the passage in column 71, lines 25ff of D9, which document concerns a stabiliser system for chlorinated polymers (abstract). This passage teaches that 5 to 50 parts by weight of plasticiser, appropriately 10 to 45 parts by weight, based on 100 parts by weight of PVC may be used. Rigid PVC or semi-rigid PVC are indicated to contain preferably up to 20%, more preferably up to 5% or no plasticiser.

Additionally, the background art document addressed in paragraph [0007] of the patent in suit is described to teach compositions containing a rigid or semi-rigid PVC having a plasticiser content of up to 20%.

In view of the similarity of the mechanical properties of PVC and CPVC polymers (see D28, page 40, table 1), in particular as regards hardness and tensile strength, it is concluded in the light of D3, D7, D9 and of the prior art document acknowledged in paragraph [0007] of the patent in suit that a PVC or CPVC material requires the addition of a certain amount of plasticiser to be classified by the skilled person as semi-rigid.

In view of the foregoing, PVC and CPVC materials comprising about 20% of plasticisers are considered by the person skilled in the art to be on the borderline between semi-rigid materials and materials described as soft or flexible.

Novelty

9. The concept of disclosure was defined by the Enlarged Board of Appeal in opinion G 3/89 and decision G 11/91 (OJ EPO 1993, 117 and 125), which concept was reaffirmed in decision G 2/10 (OJ EPO 2012, 376).

According to this concept, the disclosure of a document must be determined by considering the document as a whole. It is limited to what a skilled person would derive directly and unambiguously, using common general knowledge, and seen objectively and relative to the relevant date, from said whole document. This concept is the same for the purposes of Articles 54, 87 and 123 EPC, as outlined in decisions of the Enlarged Board of Appeal G 1/03 (OJ EPO 2004, 413, point 2.2.2 of the Reasons) and G 2/10 (*supra*, point 4.6 of the Reasons). It is therefore a general and consistently applied principle of the Boards of Appeal that, in order for novelty to be denied, there must be a direct and unambiguous disclosure in the state of the art which inevitably leads the skilled person to a subject-matter falling within the scope of what is claimed.

Novelty over D1

10. The essence of the other party's objection is that the skilled person would replace in the compositions exemplified in the experimental part of D1 the PVC resin by a CPVC resin arriving thereby at compositions

corresponding to those of claim 1 of the patent in suit.

The other party did not specify on which exemplified compositions of D1 their objection is based. In any event, the Board notes that all the exemplified compositions in D1 concern a composition comprising 50 parts by weight of plasticiser per 100 parts by weight of PVC resins. These exemplified compositions therefore contain 33 wt% of plasticiser. Such an amount corresponds to compositions that cannot be considered rigid, since an amount of about 20 wt% of plasticiser, as shown in point 8 above, results in compositions that are on the borderline between semi-rigid and soft materials.

However, it has not been shown that the skilled person would derive from these examples more than the mere disclosure of the combination of specific components described therein. There is no indication, even implicit, in that document that the preparation of those examples should be repeated by replacing the PVC used therein by a CPVC, while reducing the amount of plasticiser so as to obtain a rigid material. Nor is there any reason to read these examples in the light of the teaching of D1 and to select from the general teaching of D1 a different halogenated polymer resin without changing the co-stabilisers used in the examples, as seems to be implicit in the other party's submissions.

D1 therefore does not disclose rigid CPVC compositions comprising a zeolite. In the Board's view arriving at the reading of D1 made by the other party could only be done with inadmissible hindsight knowledge of the patent in suit.

On that basis, the Board concludes, in line with the contested decision, that novelty over D1 is to be acknowledged.

11. The opposition division acknowledged novelty of the subject-matter of the granted claim 1 over each of documents D10, D13, D11, D12 and D26. These separate objections of lack of novelty of granted claim 1 over the disclosure of each of the above documents have been maintained. They have in common that they are raised taking into account multiple separate passages of each of the documents concerned.

Novelty over D10 and D13

12. The passages of D10 referred to by the appellant and the other party include dependent claim 14, which defines the use of a zeolite, thus defining, with reference to claim 1, a composition comprising a chlorine-containing polymer and at least one monosubstituted 6-aminouracil compound of formula (I), i.e. an organic based stabilizer, and that zeolite. It is also submitted that paragraph [0022] discloses an amount of zeolite having a lower limit of 0.1 pbw, while paragraph [0028] defines that the preferred chlorine-containing polymers comprise CPVC.

The presentation of the passages of D10 cited by the other party concerning the selection of a particular amount of zeolite and a particular chlorine containing polymer is in contradiction with their assertion that *"a single selection has to be made to arrive at the subject-matter of claim 1 of the patent in suit"*. The appellant also refers to paragraph [0032], which allegedly discloses the use of these stabilisers for

hard components such as pipes, heavy profiles and apparatus housings.

It is clear from the list of the various passages of D10 cited by the appellant and the other party, and from the presentation of those passages, that the objection in relation to D10 does not go beyond the mere observation that some of the features of operative claim 1, are described, at least separately and explicitly in that document. However, these passages alone do not demonstrate the existence of a disclosure, even an implicit one, that the features addressed, corresponding to those recited in operative claim 1, are to be used in D10 in combination. As the respondent correctly points out, D10 does not even disclose a rigid CPVC.

According to the case law of the Boards of Appeal the term "implicit disclosure" refers to a disclosure which any person skilled in the art would objectively consider to be necessarily implied by the the explicit content, i.e. the direct and unambiguous consequence of what is explicitly mentioned (Case Law, *supra*, I.C.4.3). However, the appellant and the other party did not refer to any pointer in D10, i.e. one or more passages thereof, which would lead the person skilled in the art, for example by means of preferences expressed or references to other passages, necessarily to read some of the passages cited by those parties in combination so as to result in the description of a composition which falls within the ambit of granted claim 1. In this respect, even the preferred amount of zeolite defined in paragraph [0028] of D10 is not necessarily within the range defined in operative claim 1.

In these circumstances the Board concludes that a lack of novelty of the subject-matter of claim 1 over the disclosure of D10 has not been demonstrated.

13. The same conclusion is reached with respect to the objection of novelty over D13, since the appellant and the other party merely submit that the same argumentation made in respect of D10 also applies.

Novelty over D11 and D12

14. The objections based on D11 and D12 are similar to those based on D10 and D13. The passages of D11 referred to by the appellant and the other party are (i) dependent claim 15 defining a stabiliser composition comprising an uracil derivative and a zeolite, (ii) paragraph [0058] disclosing an amount of zeolite having a lower limit of 0.1 pbw, (iii) claim 20 defining a composition comprising a chlorine-containing polymer and the stabiliser compositions according to any of the preceding claims and (iv) paragraph [0104] comprising a list of chlorine containing polymers including CPVC. The Board notes that, contrary to the assertion of the other party, CPVC is not indicated as a preferred chlorine-containing polymer. In any event, for the same reasons as set out in the second and third paragraphs of point 12 above, it has not been established that the subject-matter of claim 1 lacks novelty over the disclosure of D11. The same applies to the disclosure of D12, since the appellant and the other party consider that the same reasoning applies to D11 and D12.

Novelty over D26

15. An objection similar to that raised in respect of D11 and D12 was raised by the appellant and the other party in respect of D26, reference being made to (i) claim 1 (stabiliser composition comprising an uracil derivative and a zeolite), (ii) claim 10 (composition comprising a chlorine-containing polymer and the stabiliser composition of claim 1), (iii) paragraph [0124] (lower limit of 0.1 pbw for the amount of zeolite), (iv) paragraph [0176] (CPVC is cited as an example of a chlorine containing polymer) and (v) paragraph [0188] (use of the stabiliser compositions for producing hard components such as pipes, heavy profiles, apparatus housings). Similarly, for the same reasons as set out in the second and third paragraphs of point 12 above, a lack of novelty of the subject-matter of claim 1 has not been demonstrated.
16. Consequently, in the light of the above assessment, there is no reason for the Board to depart from the conclusion of the opposition division that the subject-matter of the main request is novel.

Inventive step

Inventive step over D3

17. It can be taken from paragraph [0017] of the patent in suit that the object of the invention is to provide a method of stabilising a CPVC composition. This composition, according to claim 1, and in line with the use intended for it, namely the production of pipes and fittings (e.g. paragraphs [0016], [0022], [0083], [0084] and [0086]), must have a suitable hardness which

is reflected in the wording of claim 1 by the use of the word "rigid".

18. According to its claim 1, D3 concerns a composition for stabilizing halogen-containing polymers comprising a) disodium adipate and b) at least one compound selected from the group consisting of $M(\text{ClO}_4)_k$ and $(\text{CF}_3\text{SO}_3)_n\text{M}$, M being selected from a hydrogen ion, ammonium or certain metal ions.

An inventive composition of D3 is that of example 4 (Formulation 10), which the opposition division took as starting point for assessing inventive step of operative claim 1. It concerns a rigid CPVC composition comprising, as stabiliser system, 0.09 parts by weight of disodium adipate and 0.01 parts by weight of 60% NaClO_4 (in accordance with the definition of the composition in claim 1 in D3) and 1.5 parts by weight of an organotin compound (Reatinor RT 403; see footnote to Table 7 in paragraph [0107]), all based on 100 parts by weight of the CPVC.

All parties, in agreement with the contested decision, consider that the composition of example 4 of D3 is an appropriate starting point for assessing inventive step.

Meaning in granted claim 1 of "consisting essentially of"

19. The composition in accordance with operative claim 1 is defined to comprise a stabilizer system (b) consisting essentially of 1) an organic based stabilizer, and 2) from 0.1 to 3.0 parts by weight zeolite per 100 parts by weight of the CPVC resin, and optionally 3) a C_6 to C_{12} metal carboxylate.

Contrary to the appellant's position, the expression "composition comprising" in operative claim 1 does not allow for the presence of any other stabilizer component in addition to the stabiliser system defined by feature (b). The only reasonable interpretation of claim 1 is that the stabiliser system (b) is the stabilizer of the claimed rigid chlorinated polyvinyl chloride (CPVC) composition, i.e. it excludes that claim 1 could contain, in addition to the stabiliser system (b), any other component having the same function.

With regard to the expression "consists essentially of" for the definition of the stabiliser system (b), the Board has no reason to attribute to this expression a meaning different from that given by the case law (Case Law, *supra*, II.E.1.15). It allows the presence of other components in addition to the mandatory components, here 1) an organic-based stabiliser, 2) from 0.1 to 3.0 parts by weight zeolite per 100 parts by weight of the CPVC resin, and optionally 3) a C₆ to C₁₂ metal carboxylate for the stabiliser system (b), provided that the essential characteristics of the defined composition, here the stabiliser system (b), are not materially affected by their presence.

Taking into account the text of the patent as granted as a whole, there is also no reason to consider that a different meaning was intended for this expression, for which an equivalent definition is given in paragraph [0032], namely "*by 'consist essentially of' it is meant that the compound may include some small amount of other stabilizer in amounts insignificant to the stabilization of the product.*"

Stabiliser system used in example 4 of D3

20. As shown in point 18 above, the stabiliser system of example 4 of D3 comprises in addition to 0.09 parts by weight of disodium adipate, 0.01 parts by weight of 60% NaClO₄ and 1.5 parts by weight of an organotin compound, all based on 100 parts by weight of the CPVC. In view of the comparison of formulations 9 and 10 in table 7 of paragraph [0107] of D3, which shows that such a small amount of sodium perchlorate has a noticeable beneficial stabilising effect, and the fact that the amount of organotin compound used in this example corresponds to the more preferred amount taught in paragraph [0041] of that document, there is no doubt that the NaClO₄ and the organotin compound as used in example 4 of D3 are essential components for the stabilisation of this exemplified embodiment of D3.

Distinguishing feature over example 4 of D3

21. In view of the considerations in points 19 and 20 above, it follows that the composition according to operative claim 1 differs from the closest prior art in that the stabiliser system consists essentially of 1) an organic based stabiliser, and 2) from 0.1 to 3.0 parts by weight zeolite per 100 parts by weight of the CPVC resin, and optionally 3) a C₆ to C₁₂ metal carboxylate, which excludes the presence of sodium perchlorate and organotin compounds in amounts affecting the stability of the composition. In this respect, the Board is convinced that an amount of organotin compound used in example 4 of D3 is one which would have a noticeable effect on the stabilisation of the CPVC composition.

Problem successfully solved

22. In the absence of any experimental evidence demonstrating any advantage in terms of the degree of stability resulting from the replacement of the stabilisers used in example 4 of D3 by the stabiliser system defined in operative claim 1, the appellant formulated the problem successfully solved over the rigid CPVC composition of example 4 of D3 as the provision of further thermally stabilised rigid CPVC compositions. However, the respondent stressed at the oral proceedings that one should take into account that the stability test used in the experimental part of the patent in suit (paragraphs [0070] to [0072]) is a dynamic thermal stability test. The respondent's additional argument that such a test is suitable for assessing the stability of rigid CPVC compositions under heat and shear conditions used for the production of articles such as pipes and fittings was not disputed.

In these circumstances, the Board, in agreement with the respondent's position, is satisfied that the problem successfully solved by the claimed rigid CPVC compositions over the closest prior art is to be formulated as the provision of rigid CPVC compositions thermally stable under conditions suitable for the production of pipes and fittings. The solution to this problem lies in the stabiliser system defined in operative claim 1.

Obviousness of the solution

23. It remains to be decided whether, having regard to the disclosure of D3, possibly in combination with other prior art documents or with common general knowledge,

the skilled person wishing to solve the above problem would have found the suggestion to use the stabiliser system defined in operative claim 1. The appellant referred in this respect to D3, D10 to D13, D26 and D28.

- 23.1 The appellant submitted that the claimed solution would be obvious, since paragraph [0047] of D3 would recommend the use of organic co-stabilisers to improve the effectiveness of the stabiliser composition, with paragraphs [0062] to [0068] identifying zeolites as preferred co-stabilisers. This would also be supported by claim 16 of D3, which would highlight organic co-stabilisers and zeolites as preferred stabiliser components.

This is not convincing for the following reasons:

Firstly, as correctly pointed out by the respondent during the oral proceedings, paragraph [0082] of D3 teaches that, in the second preferred embodiment of the invention described in D3, the halogen-containing polymer is CPVC for which the stabilising composition comprises disodium adipate, at least one perchlorate salt and one or more stabilisers. Thus, it can only be understood from D3 that the skilled person is encouraged to use a stabilising amount of at least one perchlorate salt for stabilising CPVC. Other specific compositions for the stabilisation of CPVC are not described in D3.

Secondly, as the respondent has pointed out, D3 does not provide any indication that the stabilised CPVC composition of its example 4 is a composition suitable for the manufacture of pipes and fittings, i.e. that it

is thermally stable enough under the conditions used in the manufacture of pipes and fittings.

Thirdly, the sodium perchlorate and the organotin compound contained in the CPVC composition of example 4 of D3 are present in a stabilising amount, i.e. in an amount that affects the stability of the composition, which amount is therefore excluded by the wording of operative claim 1. However, the appellant and the other party have not put forward a single argument as to why it would be obvious to a person skilled in the art to dispense with the mixture of sodium perchlorate and the organotin compound, which is expected to have a noticeable effect on the stabilisation of a CPVC composition, as indicated in point 21 above.

23.2 At the written phase of the procedure (appellant's statement of grounds of appeal, pages 15 and 16), the appellant, referring to their submissions made in relation to novelty, merely submitted in respect of documents D10 to D13 and D26 that those documents taught that the stabilising systems used therein were suitable for stabilising both CPVC and rigid products. It was also added that D26 discloses the combined use of a uracil derivative, i.e. an organic stabiliser, and a zeolite. In addition, during the oral proceedings, the appellant referred to the teaching of D28. This is also not convincing for reasons similar as those provided in points 12 to 15 above. In other words, it has not been shown that these documents even suggest that the stabiliser systems described therein are suitable for the production of rigid-CPVC, let alone that they would provide sufficient thermal stability for the conditions used in the production of pipes and fittings.

23.3 During the oral proceedings, the appellant did not refer to any additional evidence concerning the obviousness of the solution for the inventive step analysis starting from D3 as the closest prior art.

24. For these reasons, the appellant's and the other party's arguments based on example 4 of D3 as the closest prior art do not establish the obviousness of the claimed composition. Their objection starting from example 4 of D3 as the closest prior art therefore does not succeed.

Inventive step over D29

25. The appellant submitted in appeal a new objection of lack of inventive step starting from D29 as the closest prior art (statement of grounds of appeal, page 16, item 7; letter of 22 June 2020, pages 9 to 11, item 3, in particular last paragraph on page 10), whose admittance is disputed by the respondent. The decision as to whether that new objection should be admitted to the proceedings is to be taken having regard to the provisions of Article 12(4) RPBA 2007 (see Article 25(2) RPBA 2020).

25.1 D29 is held by the appellant to concern CPVC compositions comprising a zeolite (letter of 22 June 2020, page 10, second and third full paragraphs), i.e. a stabilizer required in operative claim 1, whereas the starting point chosen by the appellant in relation to D3 does not contain any of the stabilisers mandatorily required in operative claim 1 (see points 20 and 21 above). Moreover, the appellant put forward during the oral proceedings that an assessment of inventive step starting from D29 as the closest prior art would be essentially the same as the

one starting from D1. In the Board's view, an assessment of inventive step starting from D29 would be fundamentally different from that proposed on the basis of D1, since D29, contrary to D1 (see point 10 above), relates to the stabilization with zeolites of unplasticized (i.e. rigid) CPVC pipe extrusion formulations (synthesis example 12F and example 14). The appellant's argument that the new objection based on D29 would not result in a substantial change of the inventive step issue is therefore incorrect.

25.2 The mere fact that evidence D29 was admitted into the appeal proceedings in order to fill the above mentioned gap in reasoning (see point 2., above) does not mean that other objections based on this new evidence are also to be admitted into the appeal proceedings. As now explicitly laid down in Article 12(2) RPBA 2020, the aim of opposition-appeal proceedings is to obtain judicial review of the opposition decision and not to bring a "fresh case" (Case Law relating to Article 12(4) 2007, *supra*, V.A.5.11.1). In particular, it is a matter for each party to submit all facts, evidence, arguments and requests relevant for the enforcement or defence of its rights as early and completely as possible, in particular in *inter partes* proceedings in order to act fairly towards the other party and, more generally, to ensure due and swift conduct of the proceedings (Case Law, *supra*, V.A.5.1.2, 5.2.1, 5.4.2.b, 5.11.1 and 5.11.3.a).

25.3 Finally, in the Board's view, that new objection cannot be considered to be the result of an unexpected development of the case before the first instance. In this respect, the appellant has not provided any justification for not having raised this new objection

of lack of inventive step already before the opposition division.

- 25.4 On this basis, the Board considers that an objection of inventive step starting from document D29 as the closest prior art could and should have been filed during opposition proceedings. It is therefore held inadmissible pursuant to Article 12(4) RPBA 2007.

Inventive step over D1

26. The appellant (letter of 22 June 2020, pages 8 and 9, point VI.1) and the other party (statement of grounds of appeal, page 5) submitted that the claimed composition lacks an inventive step over D1, which was contested by the respondent.
27. From a procedural point of view, the respondent submitted during the oral proceedings that only opponent 1, as a former appellant and now other party, filed a reasoned objection starting from D1 as the closest prior art. Opponent 2, as the only remaining appellant, would have merely referred in the said letter of 22 June 2020 to the submissions made in the statements of grounds of appeal of opponent 1, i.e. to the submissions of the former appellant and now other party. The respondent considers that the objection of inventive step based on document D1 as the closest prior art is therefore no longer part of the appeal proceedings. This is not convincing. As recalled in decision T 1820/18 (point 4 of the Reasons), it is not possible to split the appeal proceedings into different procedures, each dealing separately with the grounds for opposition and the facts, evidence and arguments presented by the individual opponents concerned (T 790/03, point 2.1 of the Reasons). Therefore, each

opponent can rely on any grounds, facts, evidence and arguments duly submitted by other opponents (see also T 620/99, point 1 of the Reasons; T 1657/14, point 2.4.3 of the Reasons).

28. As to the substance of this objection, the respondent is of the opinion that D1 cannot represent the closest prior art, in line with the position of the opposition division. In this respect, it is established case law that the closest prior art should ideally be a document which mentions the purpose or objective indicated in the patent in suit as a goal worth achieving (Case Law, supra, I.D.3.2). The aim thereof is that the assessment process should be based on a situation that is as close as possible to that faced in reality by the inventor, avoiding *ex post facto* considerations.

28.1 It is apparent from paragraph [0017] of the patent in suit that the object of the invention is to provide a method of stabilising a CPVC composition. This composition, according to claim 1, and in view of its intended use, namely the production of pipes and fittings (e.g. paragraphs [0016], [0022], [0083], [0084] and [0086]), must have a suitable hardness which is reflected in the wording of claim 1 by the use of the word "rigid". In the present technical field, this word excludes compositions comprising about 33 wt% of plasticiser, as is the case for the compositions of the examples of D1 (see points 8 and 10 above). This means that the PVC composition of example 4 of D1, which was specifically mentioned by the appellant during the oral proceedings as a starting point for the analysis of the inventive step, does not concern a rigid CPVC composition.

28.2 The Board does not accept the appellant's contention that example 4 of D1 should be read in the light of the general teaching in column 1, line 44 of that document to teach a composition using CPVC instead of PVC.

Similar arguments were put forward by the other party, which argued that D1 teaches that the stabiliser compositions disclosed in D1 are suitable for all types of halogenated polymers, including CPVC, reference being made to column 3, lines 21ff. The other party also submits that D1 discloses stabiliser systems suitable for rigid CPVC compositions (statement of grounds of appeal, page 6, 4th full paragraph).

At the oral proceedings, the appellant also referred to documents D7, D10, D11, D27 and D29, which would demonstrate that it was common practice in the present technical field to use the same stabilisers for PVC and CPVC materials, and argued that for that reason that the teaching of example 4 of D1 would be understood by the person skilled in the art to apply also to CPVC resins.

However, as has already been pointed out in relation to the question of novelty over D1 in point 10 above, there is nothing in that document to suggest, even implicitly, that the compositions of its examples should be repeated by replacing the PVC used therein by a CPVC, while reducing the amount of plasticiser so as to obtain a rigid material. The other party and the appellant have not pointed to any passage in D1 which would implicitly disclose that such unplasticized CPVC were considered by the inventors of D1.

Furthermore, given the undisputed fact that CPVC has a much higher glass transition temperature than PVC (D28,

page 37, section "Rheological properties of CPVC" and figure 1), it can be agreed with the statement in point 3 of declaration D24 that CPVC, which has a higher glass transition temperature than PVC, requires a higher processing temperature, which is confirmed in D28 (page 40, left-hand column, lines 5-10).

- 28.3 It follows that the person skilled in the art seeking to develop rigid, thermally stable CPVC compositions for the manufacture of pipes and fittings which, in the light of the foregoing, must be able to withstand more severe thermal conditions than PVC, would not, without the benefit of hindsight, start from the teaching of D1. This is all the more so where the PVC compositions of D1 use large quantities of plasticisers, such as in example 4 proposed as a starting point for assessing inventive step, and no evidence has been provided concerning the effect of those large quantities of plasticisers on the processing conditions of PVC or CPVC resins. Furthermore, it is undisputed that D1 does not even mention the preparation of pipes or fittings.
29. In view of the above, it is concluded that the person skilled in the art would not have realistically started from the teaching of document D1 when aiming at a rigid CPVC composition according to the present invention. On this basis, the reasoning on inventive step based on D1 lacks objectivity and therefore cannot succeed.
30. Consequently, none of the inventive step objections to claim 1 succeeds. On that basis, the subject-matter of claim 1 of the granted patent involves an inventive step within the meaning of Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Hampe

D. Semino

Decision electronically authenticated