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Datasheet for the decision of 19 November 2018

Case Number: T 1000/15 - 3.3.02

Application Number: 04717087.3

Publication Number: 1601250

IPC: A01N31/02, A01N47/46, A01N47/14, A01N47/08, A01N43/88, A01N29/02

Language of the proceedings: EN

Title of invention:
COMPOSITIONS FOR CONTROLLING PLANT-INJURIOUS ORGANISMS

Patent Proprietor:
Kanesho Soil Treatment Bvba

Opponent:
ARKEMA FRANCE

Headword:

Relevant legal provisions:
EPC Art. 52(1), 56

Keyword:
Inventive step - all requests (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 1000/15 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 19 November 2018

Appellant: (Patent Proprietor)	Kanesho Soil Treatment Bvba Boulevard de la Woluwe 60 1200 Brussel (BE)
Representative:	Reitstötter Kinzebach Patentanwälte Im Zollhof 1 67061 Ludwigshafen (DE)
Respondent: (Opponent)	ARKEMA FRANCE Département Propriété Industrielle 420, rue d'Estienne d'Orves 92700 Colombes (FR)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 2 March 2015 revoking European patent No. 1601250 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	M. O. Müller
Members:	M. Maremonti
	L. Bühler

Summary of Facts and Submissions

I. The appeal by the patent proprietor (hereinafter "appellant") lies from the decision of the opposition division to revoke European patent EP 1 601 250.

II. The contested patent contained a set of 12 claims, independent claims 1 and 6 of which read as follows:

"*1. A composition for controlling plant-injurious organisms comprising:*

(i) at least one active component A selected from among 1,3-dichloropropene, trichloronitromethane (chloropicrin), methyl isothiocyanate and substances which release methyl isothiocyanate, and

(ii) *dimethyl disulfide as component B.*"

"*6. A method for controlling plant-injurious organisms, which comprises applying the active components A as defined in claim 1 jointly with dimethyl disulfide in such an amount that they bring about the destruction of plant-injurious organisms, their eggs or their larvae, on the plant-injurious organisms, their eggs, their larvae or their environment.*"

Claims 2 to 5 were directed to specific embodiments of the composition of claim 1, claims 7 to 10 to specific embodiments of the method of claim 6 and claims 11 and 12 to specific uses of the composition of claim 1.

III. The following document was cited during the opposition proceedings:

D1: WO 02/074083 A

The opposition division came *inter alia* to the following conclusions:

- The subject-matter of claim 1 as granted was not novel over D1.

- The subject-matter of the then pending auxiliary claim requests 1 to 5 was novel over D1 but did not involve an inventive step.

IV. In its statement setting out the grounds of appeal, the appellant contested the reasoning of the opposition division and submitted that the subject-matter of claim 1 as granted was novel and involved an inventive step in view of document D1. It nevertheless filed four sets of claims as first to fourth auxiliary requests.

V. Under cover of a letter dated 14 September 2018, the opponent (hereinafter "respondent") requested that the impugned decision be confirmed and the contested patent revoked.

VI. In preparation for the oral proceedings, the board issued a communication, containing in particular the preliminary opinion that the subject-matter of claim 1 as granted seemed to lack an inventive step.

VII. By letter dated 26 October 2018, the appellant withdrew its request for oral proceedings and stated that it would not attend the oral proceedings.

VIII. Oral proceedings before the board were held on 19 November 2018 in the absence of the appellant, pursuant to Rule 115(2) EPC and Article 15(3) RPBA.

IX. Final requests

The **appellant** requested that the decision under appeal be set aside and the patent be maintained as granted (main request). Alternatively, it requested that the patent be maintained on the basis of the claims according to one of the first to fourth auxiliary requests filed with the statement of grounds of appeal.

The **respondent** requested that the appeal be dismissed.

X. The arguments of the appellant, where relevant for the present decision, may be summarised as follows:

- D1 represented the closest prior art. It disclosed the application of certain mono- or polysulfides, particularly dimethyl disulfide (hereinafter "DMDS"), for pesticidal soil treatment.

- The specific compositions disclosed in D1 contained DMDS as the sole pesticide active.

- D1 required much higher application rates of DMDS in comparison with the claimed subject-matter.

- The objective technical problem in view of D1 was therefore to provide a composition allowing for control of plant injurious organisms at lower application rates than required for solo-application of DMDS.

- The data reported in tables 1 to 3 of the contested patent showed the low reliability of solo-application of pesticides.

- In contrast thereto, the results of table 5 to 7 of the patent in suit showed that the combined application of DMDS with a component A according to

the claimed subject-matter increased efficacy and reliability of action. The observed efficacy was even higher than the expected one, thus in fact proving a synergistic effect.

- This benefit was surprising and not derivable from D1. In fact, D1 did not provide any evidence that the addition of another pesticide to DMDS might have an effect at all.

- Moreover, since D1 required significantly higher application rates of at least 150 kg/ha, a skilled person would have concluded that it was not possible to achieve an acceptable control of plant injurious organisms at lower application rates of DMDS.

- The claimed subject-matter was thus based on an inventive step.

XI. The respondent essentially counter-argued as follows:

- D1 disclosed in claim 9 a pesticidal treatment using DMDS in combination with other pesticides.

- The specific pesticides mentioned in the claims at issue as component A were explicitly disclosed in D1 on page 5.

- The selection of a component A as claimed was therefore an obvious choice for the skilled person.

- The results reported in table 5 of the contested patent showed that for compositions falling within the ambit of the claims no synergistic effect was present. In several cases, the observed efficacy was indeed even lower than the expected one.

- Additionally, some compositions which were not encompassed by the claimed subject-matter performed better than the claimed ones.

- No technical effect over D1 was therefore present and the objective technical problem had to be merely formulated as the provision of a further pesticidal treatment.

- In the absence of any technical effect, the application rates of DMDS and component A as well as the weight ratio of component A to DMDS as specified in the claims at issue had to be regarded as arbitrary selections.

- It was entirely obvious to the skilled person that if another pesticide was used in combination with DMDS in the treatment taught by D1, the application rate of DMDS would be reduced. As a consequence, no inventive step derived from the claimed selections.

- These objections applied equally to all the requests filed by the appellant. None of these requests was thus based on an inventive step.

Reasons for the Decision

Fourth auxiliary request - claim 1 - inventive step

1. The appellant's fourth auxiliary request is directed to a method which comprises jointly applying DMDS and an active component A selected from 1,3-dichloropropene, trichloronitromethane, methyl isothiocyanate and substances which release methyl isothiocyanate, "*where dimethyl disulfide is applied with an application rate of 10 g/ha to 100 kg/ha and where the component A is*

applied in an amount from 10 g/ha to 1000 kg/ha and wherein the active components A and B [dimethyl disulfide] *are jointly incorporated into soils and where the weight ratio of component A to dimethyl disulfide is from 500:1 to 1:10*" (insertion in brackets by the board).

2. The closest prior art

Both parties indicated D1 as the closest prior art. The board has no reason to take another stance.

In fact, D1 discloses (claims 1, 5 and 9; page 5, line 22 to page 6, line 14) the pesticidal treatment of soils or substrates, comprising applying compositions containing DMDS jointly with one or more further pesticides to soils and substrates, in order to achieve a nematocidal, fungicidal, insecticidal and bactericidal effect, without any phytotoxicity.

The board concludes that D1 thus represents the most promising starting point for the assessment of inventive step.

3. The technical problem

3.1 The subject-matter of claim 1 of the fourth auxiliary request differs from said closest prior art in that

(a) the pesticide component A which is applied jointly with DMDS is selected from among 1,3-dichloropropene, trichloronitromethane, methyl isothiocyanate and substances which release methyl isothiocyanate,

(b) the application rate of DMDS is specified to range from 10 g/ha to 100 kg/ha;

(c) the amount of component A ranges from 10 g/ha to 1000 kg/ha, and

(d) the weight ratio of component A to DMDS is specified to be from 500:1 to 1:10.

Contrary to what was submitted by the appellant, the closest prior art is not represented by solo-application of DMDS but by a pesticidal soil treatment by means of compositions comprising DMDS in combination with one or more further pesticides, see 2, *supra*. Therefore, it is not the joint application of DMDS and component A as such, but only the joint application with the specific component A as defined in claim 1 that differentiates claim 1 from D1 (see distinguishing feature (a) above).

3.2 The board does not concur with the appellant's argument (see X, *supra*) that the results shown in the contested patent, particularly in tables 1 to 7, demonstrate a technical effect deriving from the above-mentioned differentiating features (a) to (d) over the closest prior art, let alone a synergistic effect deriving from the joint application of DMDS and component A as specified under feature (a) above, and this for the following reasons.

3.2.1 An alleged synergistic effect should derive from the difference between the efficacy value observed when applying DMDS jointly with component A (tables 5 to 7) and the expected efficacy value calculated from the sum of the efficacy values obtained by solo-application of DMDS and components A (tables 1 to 4).

3.2.2 The appellant has explicitly acknowledged that the values reported in tables 1 to 4 for solo-application have low reliability (see second paragraph on page 4 of

the statement of grounds of appeal). Indeed, the results shown in these tables are extremely erratic with no recognisable trend of the observed efficacy by increasing application rate of the pesticide. For instance, solo-application of DMDS results in an efficacy of 30% at an application rate of 0.0031 l/ha, whereas by increasing application rates the efficacy falls to 0%, raises to 21% and falls to 0% again (table 1). A similar erratic behaviour is observed for chloropicrin, as well (table 3). No explanation of such a behaviour is reported in the patent in suit, nor was an explanation given by the appellant.

3.2.3 In the board's judgement, if those values in tables 1 to 4 obtained for solo-application have low reliability, the expected efficacy value for joint application (i.e. the sum of the values obtained for solo-application) and any alleged synergy (i.e. the difference between the values observed and those expected for joint application) is even less reliable, so that for this reason alone, no synergistic effect has been convincingly proven.

3.2.4 Even disregarding the unreliability of the reported efficacy values, and as correctly pointed out by the respondent, the results reported in table 5 show that for some treatments meeting all the above features (a) to (d) (3.1, *supra*) of claim 1 at issue, the efficacy observed for the joint application is actually lower than the expected efficacy, thus contradicting any synergy (see the 5^{th}, 10^{th}, 15^{th}, 18^{th} and 20^{th} entries from the top in table 5).

3.2.5 Tables 5 and 6 further show that treatments not meeting feature (b), i.e. falling outside the ambit of claim 1 at issue, perform better than treatments as claimed:

see table 5, 1st, 2nd, 3rd, 12th and 13th entries from the top and table 6, 1st and 2nd entries from the top, corresponding to treatments with an application rate of DMDS lower than 10 g/ha.

3.3 The board therefore concludes that the differentiating features (a) to (d) (3.1, *supra*) are not linked to any technical effect, let alone the synergistic one postulated by the appellant.

As a consequence, the objective technical problem can only be seen in the provision of a *further* pesticidal treatment.

4. Obviousness of the claimed solution

4.1 What remains to be decided is whether or not, having regard to the state of the art and common general knowledge, it was obvious to the skilled person seeking to solve the posed technical problem to modify the treatments of the closest prior art (2, *supra*) by incorporating features (a) to (d) (3.1, *supra*) of claim 1 at issue.

4.2 As to feature (a), D1 discloses (page 5, lines 22 to 29) that pesticidal components particularly suitable for being added to the pesticidal sulphur compound (e.g. DMDS) are 1,3-dichloropropene, chloropicrin, metam sodium, sodium tetrathiocarbonate, methyl isothiocyanate and Dazomet. Therefore, five out of six of the compounds listed in D1 correspond to substances mentioned in claim 1 at issue as components A. The sole different compound is sodium tetrathiocarbonate.

No technical effect could be shown as deriving from the selection of the compounds listed as component A in claim 1 at issue from said list of D1. It is thus

concluded that feature (a) (3.1, *supra*) is an obvious selection and cannot contribute to inventive step.

4.3 As to features (b) to (d), D1 is silent about the application rates to be used in the joint employment of two or more pesticides as well as about the weight ratio between such pesticides. D1 merely mentions (page 6, lines 6 to 7) that for solo application of the sulphur compound (e.g. DMDS), the application rate generally ranges from 150 to 1000 kg/ha, which is above the upper limit of the claimed range.

4.4 Without any surprising effect having been proven, the claimed selection of the application rates of DMDS and component A and of their weight ratio is entirely arbitrary and thus nothing more than ranges that the skilled person would use as a matter of routine. As regards in particular the higher application rates disclosed in D1 for DMDS, the board is convinced that it would be immediately obvious to the skilled person that when one or more further pesticides are added to DMDS, the application rate of the latter would be diminished in comparison to solo-applications, so that an application rate of DMDS falling in the claimed range (feature (b), 3.1, *supra*) would be immediately considered by the skilled person.

4.5 For the reasons given above, the board concludes that none of differentiating features (a) to (d) mentioned under 3.1, *supra*, is based on an inventive step.

4.6 Therefore, the subject-matter of claim 1 of the fourth auxiliary request does not meet the requirements of Article 52(1) in combination with Article 56 EPC, so that the fourth auxiliary request is not allowable.

Main request and first to third auxiliary requests - inventive step

5. The board notes that claim 1 of the fourth auxiliary request (1, *supra*) represents a restriction of claim 6 as granted (II, *supra*) as deriving from the inclusion of the above features (b), (c) and (d) (3.1, *supra*). Since claim 1 of the fourth auxiliary request was found not to be inventive, this fate is shared *a fortiori* by the subject-matter of claim 6 as granted.

The main request is thus not allowable.

6. The board further observes that claim 1 of the fourth auxiliary request represents a restriction of independent claims 6, 6 and 1 of the first, second and third auxiliary requests, respectively.

In fact, in claim 6 of the first auxiliary request, feature (b) (3.1, *supra*) was added in comparison with claim 6 as granted, and in claim 6 of the second auxiliary request and claim 1 of the third auxiliary request, both features (b) and (c) (3.1, *supra*) were included.

As a consequence, the same reasoning of lack of inventive step as for claim 1 of the fourth auxiliary request also applies *mutatis mutandis* to the corresponding claims 6, 6 and 1 of the first, second and third auxiliary requests.

The first to third auxiliary requests are thus not allowable.

7. The board concludes that none of the requests of the appellant is allowable under Article 52(1) in combination with Article 56 EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

N. Maslin M. O. Müller

Decision electronically authenticated