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**Datasheet for the decision
of 23 February 2021**

Case Number: T 1742/15 - 3.3.02

Application Number: 07799715.3

Publication Number: 2046128

IPC: A01N41/10, A01N37/22, A01P13/02

Language of the proceedings: EN

Title of invention:
HERBICIDAL COMPOSITION AND METHOD OF USE THEREOF

Patent Proprietor:
Syngenta Participations AG

Opponent:
Rotam Limited

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1742/15 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 23 February 2021

Appellant:

(Opponent)

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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
6 July 2015 concerning maintenance of the
European Patent No. 2046128 in amended form**

Composition of the Board:

Chairman

M. O. Müller

Members:

P. O'Sullivan

M. Blasi

Summary of Facts and Submissions

- I. The appeal of the opponent (hereinafter: appellant) lies from the decision of the opposition division according to which European patent 2 046 128 in amended form according to the main request was found to meet the requirements of the EPC.
- II. A notice of opposition against the patent was filed in which revocation under *inter alia* Article 100(a) EPC in combination with Article 56 EPC was requested.

According to the decision under appeal, the subject-matter of claim 1 of the main request *inter alia* involved an inventive step over D2 (WO 97/03562 A1) as closest prior art. In particular, a synergistic effect was acknowledged for the combination of herbicides recited therein.

- III. With the statement of grounds of appeal, the appellant filed experimental test results in the form of Annexes I to VIII.
- IV. Requests

The appellant requests that the decision of the opposition division be set aside and that the patent be revoked in its entirety.

In the reply to the statement of grounds of appeal, the patent proprietor (respondent) requested a decision on the file as it stands. It stated that no further submissions would be made.

V. The sole independent claim of the main request reads as follows:

"A method for controlling or modifying the growth of large crabgrass or white clover, comprising applying to the locus of the large crabgrass or white clover, a herbicidally effective amount of a composition comprising a mixture of mesotrione and s-metolachlor, wherein the weight ratio of mesotrione to s-metolachlor is between 1:85 and 1:10, and wherein the combined amount of mesotrione and s-metolachlor applied to the locus of the weeds is between 0.005 kg/ha and 5 kg/ha."

VI. The appellant's arguments, insofar as relevant to the present decision, may be summarised as follows:

Main request - Inventive step, Article 56 EPC

D2 was suitable as the closest prior art. The distinguishing feature over contested claim 1 was the use in D2 of acetochlor instead of s-metolachlor, in combination with mesotrione. In view of the test results set out in Annexes I to VIII, synergy was not exhibited for the combination of mesotrione and s-metolachlor across the whole scope of claim 1. The technical problem was to provide an alternative chloroacetanilide to acetochlor for use with mesotrione. D2 clearly taught the use of metolachlor as an alternative. Consequently, the subject-matter of claim 1 lacked an inventive step pursuant to Article 56 EPC.

VII. In view of the respondent's request for a decision on the state of the file, and the decision of the board (infra) allowing the appellant's main request, there

was no need for the board to summon to oral proceedings pursuant to Article 116(1) EPC.

Reasons for the Decision

Main request - Inventive step, Article 56 EPC

1. Background

1.1 According to the patent, the subject-matter thereof resides in the discovery that mesotrione, or a salt or metal chelate thereof, and s-metolachlor, already known individually for their herbicidal properties, display a synergistic effect when applied in combination to *inter alia* large crabgrass (patent, paragraph [0003]).

1.2 Contested claim 1 (*supra*), in summary, concerns a method for controlling or modifying the growth of *inter alia* large crabgrass by applying to the locus of the weeds a composition comprising:

- a mixture of mesotrione and s-metolachlor;
- at a weight ratio of between 1:85 and 1:10;
- in an combined amount of between 5g and 5kg/ha.

2. Closest prior art

2.1 According to the contested decision, D2 represented the closest prior art. The appellant in the statement of grounds of appeal maintained this view in arguing a lack of inventive step for the claimed subject-matter. Although not setting out its position during appeal proceedings, the respondent during oral proceedings before the opposition division shared this opinion (minutes of oral proceedings, point 5, page 3). The

board sees no reason to doubt the suitability of D2 as a starting point in the assessment of inventive step.

3. Distinguishing features

3.1 The appellant drew attention to the example of D2 (statement of grounds of appeal, page 5, final paragraph - page 6, second paragraph). In the view of the board, this disclosure represents the most reasonable starting point in D2 for the skilled person.

3.2 According to the example, a combination of NMSC (mesotrione) and acetochlor were tested for herbicidal activity against six different weed species. Among these were POROL, the focus of D2, as well as large crabgrass (*Digitaria sanguinalis*) ("DIGSA"), recited in contested claim 1. With regard to the herbicidal activity against *inter alia* large crabgrass (DIGSA), D2 states (without accompanying data) that said combination "*gave various results ... showing antagonism, additivity and synergism or an indication of potential synergy at different levels of application*" (D2, page 9, third full paragraph). In testing herbicidal activity against the weed species mentioned, the combinations were applied in amounts per hectare ranging from 10g to 320g (falling within the amounts in kg/ha recited in contested claim 1), and in ratios of NMSC (mesotrione):acetochlor of from 5:160 (1:32) to 160:5 (32:1) in a complete factorial treatment design (page 9, second paragraph; meaning that all amounts of each herbicidal component mentioned were tested in combination with all amounts of the other component, see for example D2, table I). In particular, the ratios of mesotrione:acetochlor of 5:80 (1:16), 5:160 (1:32) and 10:160 (1:16) tested fall

within the ratios recited for mesotrione:s-metolachlor in contested claim 1.

3.3 It follows that the distinguishing feature of the subject-matter of claim 1 over the example in D2 is the use, in combination with mesotrione, of s-metolachlor instead of acetochlor.

4. The technical effect

4.1 Data regarding the effect of the combination of mesotrione and s-metolachlor on large crabgrass is derivable both from the patent and from among the appellant's data filed with the statement of grounds of appeal.

4.2 Example 1 of the patent concerns the control of large crabgrass. It is demonstrated that treatment with combinations of mesotrione and s-metolachlor in weight ratios of 12g:500g and 24g:500g (i.e. 1:41.7 and 1:20.8 respectively; table 1, row on page 7), in a combined amount of 512g and 524g/ha respectively, is synergistic: the actual level of control at both ratios is higher than the expected (i.e. additive) level (70.0 and 82.0 versus 46.7 and 66.7 respectively; table 1, row on page 7). Similarly, combinations of mesotrione and s-metolachlor in weight ratios of 12g:1000g and 24g:1000g (1:83.3 and 1:41.7 respectively; table 1, row on page 8), in a combined amount of 1012g and 1024g/ha respectively, are also synergistic (75.0 and 85.0 versus 46.7 and 66.7 respectively; table 1, row on page 8). The fact that s-metolachlor provides no control of large crabgrass on its own explains the identical level of "expected" control in table 1 independently of whether the amount thereof applied was 500 or 1000g/ha (paragraph [0052]).

- 4.3 The presence of synergy for further embodiments falling within the claimed scope was also confirmed by some of the appellant's tests (Annex VI, table 2, entry with 10g/ha mesotrione and 160g/ha s-metolachlor; Annex VIII, table 1, all entries with s-metolachlor).
- 4.4 However, other tests in Annex III demonstrate that synergy is not present for some embodiments falling within the claimed scope. Thus, at a ratio of mesotrione to s-metolachlor of 10g:200g (1:20; table 1), the actual activity was 20% ("actual") versus 30% "expected". Similarly for 20g:300g (1:15), 20g:400g (1:20) and 30g:400g (1:13.3) (table 1), the actual activity of the combination was less than that expected (for mesotrione alone, since s-metolachlor provided no control of large crabgrass alone, as noted above). The rate of application for these tests ranged from 210g/ha to 430g/ha, thus falling well within the range recited in contested claim 1. Indeed, the results show that at the ratios and application rates tested, the combination was less effective than expected, i.e. antagonistic (Annex III, table 1; page 2, final paragraph).
- 4.5 Additionally, in some tests of Annex VI, the effect of the combination was found to be additive (Annex VI, table 2, entries with 5g/ha mesotrione and 80 or 160g/ha s-metolachlor; 13% and 44% weed control respectively, both for the actual ("A") and the expected ("E") values). Thus, in these tests, s-metolachlor in the ratios and amounts provided had neither a positive nor a negative effect on the herbicidal activity of mesotrione.

- 4.6 It is established case law that any alleged technical effect must be achievable over the whole area claimed. Since as set out above, the data in Annexes III and VI demonstrate that synergy is not present in at least some embodiments falling within the scope of contested claim 1, it follows that synergy cannot be invoked in the formulation of the objective technical problem.
- 4.7 In view of this data, the effect of the distinguishing features over D2 is therefore merely that a further composition is provided which is herbicidally effective (whether antagonistic, additive, or synergistic) in the treatment of large crabgrass.
- 4.8 The objective technical problem vis à vis D2 consists therefore in the provision of a further composition herbicidally effective in controlling or modifying the growth of large crabgrass.
5. Obviousness
- 5.1 As set out above, the example of D2 teaches that a combination of mesotrione and acetochlor at ratios and in application amounts (in kg/ha) within the ranges and amounts recited in contested claim 1, is herbicidally effective (showing "antagonism, additivity, and synergy..."; page 9, third full paragraph) against the tested weed species, including large crabgrass (DIGSA).
- 5.2 D2 also teaches that although acetochlor is preferred as component (B), metolachlor may be used as an alternative (page 3, last paragraph). Thus, the skilled person wishing to solve the above-mentioned problem would have investigated the replacement of acetochlor with metolachlor. In particular, since the skilled person would have been seeking mere herbicidal

effectiveness as defined above, rather than synergy, the expectation of success would have been high.

- 5.3 To the respondent's advantage however, the board notes the presence of a further feature distinguishing contested claim 1 from the disclosure in D2. Specifically, contested claim 1 recites "s-metolachlor", the *S*-enantiomer of the racemate "metolachlor" disclosed in D2.
- 5.4 In the statement of grounds of appeal, in arguing a lack of inventive step over D2, the appellant did not address this difference. Despite this, the respondent, in reply thereto, chose not to submit a rebuttal of the appellant's arguments, stating instead that it intended to make no further submissions. The respondent in particular did not rely on the specific enantiomer as a distinguishing feature, let alone base any argument in support of inventive step thereon. In the absence of any convincing arguments or evidence therefore, this distinction cannot be used as a basis for acknowledging an inventive step for the subject-matter of contested claim 1. The board furthermore notes that both the patent (paragraphs [0003] and [0004]) and the application as filed (D1, page 1, lines 21-29), acknowledge s-metolachlor as known in the art for its effect on plant growth.
- 5.5 The subject-matter of contested claim 1 therefore lacks inventive step pursuant to Article 56 EPC. The subject-matter of the main and sole request is consequently not allowable.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



N. Maslin

M. O. Müller

Decision electronically authenticated