

**THIS OPINION WAS NOT WRITTEN FOR PUBLICATION**

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte BARBARA H. WELLS, HARRISON R. HAKES,  
DAVID J. MAYONADO and JOHN P. CHUPP

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Appeal No. 95-1189  
Application No. 07/800,471<sup>1</sup>

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ON BRIEF

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Before KIMLIN, SCHAFER and WALTZ, Administrative Patent Judges.

SCHAFER, Administrative Patent Judge.

**DECISION ON APPEAL**

Applicants appeal from a primary examiner's rejection of claims 35, 38 - 40, 61, 64 - 66, 76, and 82 - 86, all the claims remaining in the application.

We have jurisdiction under 35 U.S.C. § 134.

The examiner rejects all claims over the combination of the teachings of the following references:

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<sup>1</sup> Application for patent filed December 6, 1991. According to applicants, this application is a continuation-in-part of Application 07/626,128, filed December 11, 1990, now abandoned.

Appeal No. 95-1189  
Application No. 07/800,471

Brinker et al. (Brinker)	European Application 0,304,409	February 22, 1989
Kleschick et al. (Kleschick)	U.S. Patent 4,818,273	April 4, 1989

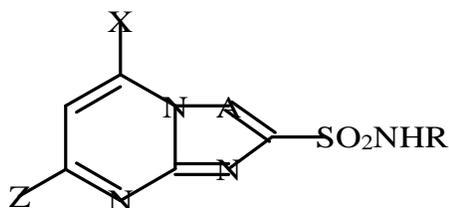
We reverse the examiner's rejection.

**A. Findings of fact**

The Invention

1. According to the specification (page 3), the invention:
  - relates to herbicidal compositions comprising azolopyrimidine sulfonamides and antidotal compounds therefor to reduce injury to various crops, particularly corn, from the phytotoxic effects of said herbicide when used alone or in combination with other compounds, ....
2. The antidotal compounds are said to be referred to as "safeners," "antagonists," or "antidotes." Specification, p. 1.
3. Stated more generally, the invention relates to herbicidal compositions which include a phytotoxic herbicide compound and a compound which acts as an antidote for the herbicide.
4. The two independent claims are 82 and 84, directed to composition and a method of using the composition respectively. Appendix to applicant's supplemental brief, pp. 3 - 4 and 5 - 7.
5. Independent claim 82 provides:
  82. Composition comprising
    - (a) a herbicidally-effective amount which is damaging to crops of a compound according to Formula I or agriculturally acceptable salts thereof:

I



wherein

A is N or C(Cl);

X is H or C<sub>1-4</sub> alkyl or alkoxy;

Z is C<sub>1-4</sub> alkyl or haloalkyl;

R is phenyl substituted in the ortho positions independently with H, chloro, fluoro, nitro, -OCH<sub>3</sub> or -CF<sub>3</sub> groups and in the meta positions with H or CH<sub>3</sub> groups

and

(b) an antidotally-effective amount of one or more of the compounds:

4-Pentenitrile, 2-methyl-2-[(4-methylphenyl)thio],

Acetic acid, (diphenylmethoxy)-, methyl ester,

Benzenemethanamine, N-[4-(dichloromethylene)-1,3-dithiolan-2-ylidene]-" -methyl-, hydrochloride,

Phosphorothioic acid, O,O-diethyl-O-(3-methylphenyl) ester,

5-Thiazolecarboxylic acid, 2-chloro-4-(trifluoromethyl)-, (phenylmethylester),

Pyrimidine, 4,6-dichloro-2-phenyl-,

1H, 3H-Naphtho[1,8-cd]pyran-1,3-dione,

Benzeneacetonitrile, "-{[(1,3-dioxolan-2-yl)methoxy]imino}-,

Acetamide, N,N-Bis(2-propenyl)-" ," -dichloro,

Oxazolidine, 3-(dichloroacetyl)-5-(2-furanyl)-2,2-dimethyl-,

Cis/Trans-piperazine, 1,4-bis(dichloroacetyl)-2,5-dimethyl,

1-Oxa-4-azaspiro[4.5]decane, 4-(dichloroacetyl)-,

Oxazolidine, 3-(dichloroacetyl)-2,2,5-trimethyl,

Oxazolidine, 3-(dichloroacetyl)-2,2-dimethyl,

Acetamide, 2,2-dichloro-N-(1,3-dioxolan-2-yl-methyl)-N-2-propenyl,

Ethanone, 2,2-dichloro-1-(1,2,3,4-tetrahydro-1-methyl-2-isoquinolinyl),

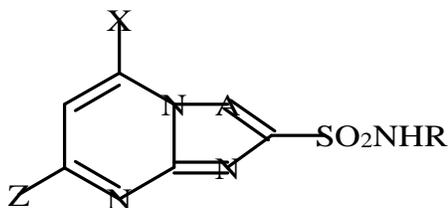
1,3-Dioxolane, 2-(dichloromethyl)-2-methyl-,  
5-Chloro-8-(cyanomethoxy)quinoline,  
1-Methylhexyl-2-(5-chloro-8-quinolinoxy)acetate,  
O-(Methoxycarbonyl)-2-(8-quinolinoxy)-acetamide oxime, or  
4-(Dichloroacetyl)-2,3-dihydro-3-methyl-2H-1,4-benzoxazine.

Appendix to applicants' supplemental brief, pp. 3-4.

6. Independent claim 84 provides:

84. Method for reducing phytotoxicity to crop plants due to herbicidal compounds according to Formula I

I



wherein

A is N or C(Cl);

X is H or C<sub>1-4</sub> alkyl or alkoxy;

Z is C<sub>1-4</sub> alkyl or haloalkyl;

R is phenyl substituted in the ortho positions independently with H, chloro, fluoro, nitro, -OCH<sub>3</sub> or -CF<sub>3</sub> groups and in the meta positions with H or CH<sub>3</sub> groups

which comprises applying to the locus or seeds of the crop an antidotally-effective amount which is damaging to said crop one or more of the compounds

4-Pentenitrile, 2-methyl-2-[(4-methylphenyl)thio],  
Acetic acid, (diphenylmethoxy)-, methyl ester,  
Benzenemethanamine, N-[4-(dichloromethylene)-1,3-dithiolan-2-ylidene]-"-methyl-, hydrochloride,  
Phosphorothioic acid, O,O-diethyl-O-(3-methylphenyl) ester,  
5-Thiazolecarboxylic acid, 2-chloro-4-(trifluoromethyl)-,  
(phenylmethylester),

Pyrimidine, 4,6-dichloro-2-phenyl-,  
1H, 3H-Naphtho[1,8-cd]pyran-1,3-dione,  
Benzeneacetonitrile, "-{[(1,3-dioxolan-2-yl)methoxy]imino}-",  
Acetamide, N,N-Bis(2-propenyl)-", "-dichloro,  
Oxazolidine, 3-(dichloroacetyl)-5-(2-furanyl)-2,2-dimethyl-,  
Cis/Trans-piperazine, 1,4-bis(dichloroacetyl)-2,5-dimethyl,  
1-Oxa-4-azaspiro[4.5]decane, 4-(dichloroacetyl)-,  
Oxazolidine, 3-(dichloroacetyl)-2,2,5-trimethyl,  
Oxazolidine, 3-(dichloroacetyl)-2,2-dimethyl,  
Acetamide, 2,2-dichloro-N-(1,3-dioxolan-2-yl-methyl)-N-2-propenyl,  
Ethanone, 2,2-dichloro-1-(1,2,3,4-tetrahydro-1-methyl-2-  
isoquinolinyl),  
1,3-Dioxolane, 2-(dichloromethyl)-2-methyl-,  
5-Chloro-8-(cyanomethoxy)quinoline,  
1-Methylhexyl-2-(5-chloro-8-quinolinoxy)acetate,  
O-(Methoxycarbonyl)-2-(8-quinolinoxy)-acetamide oxime, or  
4-(Dichloroacetyl)-2,3-dihydro-3-methyl-2H-1,4-benzoxazine.

Appendix to applicants' supplemental brief, pp. 5-6.

7. One herbicide compound said to be preferred by applicants is 5-methyl-N-(2,6-difluorophenyl)-1,2,4 triazolo[1,5-a]pyrimidine-2-sulfonamide. Specification, p. 12, lines 5-6. (This compound will be referred to as herbicide A.)
8. An antidote said to be preferred by applicants is oxazolidine, 3-(dichloroacetyl)-5-(2-furanyl)-2,2-dimethyl-. Specification, p. 30, lines 35-36. (This compound will be referred to as antidote A.)
9. All of the rejected claims include herbicide A and antidote A.
10. Claims 40 and 66 are limited to the combination of herbicide A and antidote A.  
Appendix to applicants' supplemental brief, p. 2.

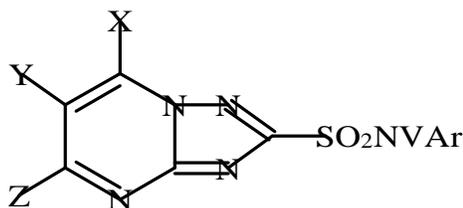
The scope and content of the prior art and the level of ordinary skill in the art

The Kleschick patent

11. The Kleschick patent issued from application 06/940,480. Kleschick, page 1, item [21].
12. Application 06/940,480 is said to be a continuation-in-part of application 06/768,793. Kleschick, col. 1, lines 9-11. (This application will be referred to as the Kleschick parent application.)
13. The Kleschick parent application is said to be continuation-in-part of application 06/551,758. Kleschick, col. 1, lines 11-12. (This application will be referred to as the Kleschick grand-parent application.)
14. Kleschick relates generally to “substituted 1,2,4,-triazolo[1,5-a]pyrimidine-2-sulfonamides, compositions containing them, and their utility as herbicides. Kleschick, col. 1, lines 1-5 (Title).
15. The patent describes the use of the herbicides compounds as follows:

Treatment of the locus of undesired vegetation or weeds with the novel compounds or with compositions containing herbicidally effective amounts of the novel compounds in admixture with one or more inert carriers can be used to obtain broad spectrum or selective weed control depending upon the specific compound and the amount applied. Broadleaf weeds are particularly susceptible to the compounds and control of undesirable vegetation in crops such as wheat, rice, corn, soybeans, and cotton can be achieved. Aquatic vegetation is controlled by the compounds.

Kleschick, col. 3, lines 12-22.
16. Kleschick describes herbicide compounds having the following structure:



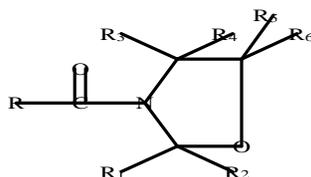
- wherein X, Y, Z, V, and Ar are specifically defined. Kleschick, col. 1, line 42 - col. 3, line 11.
17. Kleschick teaches that herbicide A is one of several “[s]pecifically preferred compounds.” Kleschick, col. 7, lines 10-13 and 22-23 (compound 5).
  18. Kleschick’s example 65 (col. 42, lines 32-53) specifically describes the preparation of herbicide A.
  19. Kleschick teaches some chemical properties of herbicide A. Kleschick, Table VI, cols. 75-76 (compound 157).
  20. Kleschick’s example 118 describes the effects of post-emergent application of herbicide A (compound 157) on a number of crop plants and weeds. Kleschick, Example 118, cols. 116-132, particularly col. 115, line 34 - col. 116, line 43 and cols. 123-124, compound 157.
  21. Kleschick’s example 118 indicates that post emergent application of herbicide A reduced the plant growth of a variety of weeds from 40 to 80%. Kleschick, Example 118, cols. 123-124, compound 157.
  22. Kleschick’s example 118 indicates that post emergent application of herbicide A reduced the plant growth of crop plants in the following amounts: cotton 70%, rape 90%, soybeans 0%, sugar beets 80%, corn 0%, rice 0%, sorghum 80% and wheat 0%. Kleschick, Example 118, particularly cols. 123-124 (compound 157).

23. Kleschick's example 119 describes the effects of the pre-emergent application of herbicide A (compound 157) on the same plants and weeds as example 118. Kleschick, Example 119, cols. 133-142, particularly col. 133, line 6 - col. 134, line 11 and cols. 137-138, compound 157.
24. Kleschick's example 119 indicates that pre-emergent application of herbicide A reduced the plant growth of a variety of weeds from 10 to 100%. Kleschick, Example 119, cols. 137-138, compound 157.
25. Kleschick's example 119 indicates that pre-emergent application of herbicide A reduced the growth of crop plants by the following amounts: cotton 100%, Rape 100%, soy beans 0%, sugar beets 100%, corn 0%, rice 20%, sorghum 50%, and wheat 0%. Kleschick, Example 119, cols. 137-138, compound 157.
26. Kleschick's example 121 indicates the effect of herbicide A in both the acid form and in the form of a variety of its salts on two common weeds and on soy beans. Kleschick, Example 121, col. 143, lines 1-28.

The Brinker reference

27. In the portion of the reference titled "Summary of the Invention" Brinker describes the invention as follows:

A novel family of compounds useful as antidotes against herbicide injury to crops is provided by 5-heterocyclic-substituted oxazolidine dihaloacetamide compounds embraced by the general formula:



and agriculturally-acceptable salts thereof wherein

R is haloalkyl;  
R<sub>1</sub> is C<sub>1-4</sub> alkyl, haloalkyl or phenyl;  
R<sub>2</sub>-R<sub>5</sub> are H or C<sub>1-4</sub> alkyl;  
R<sub>6</sub> is a saturated or unsaturated C<sub>5-10</sub> heterocyclic radical containing 1 or 2 oxygen, nitrogen or sulfur atoms, optionally substituted with a C<sub>1-4</sub> alkyl or haloalkyl radical or halogen atom or with oxygen on a ring nitrogen atom; and R<sub>5</sub> and R<sub>6</sub> may be combined to form a spiroheterocyclic ring as defined for the R<sub>6</sub> radical.

Brinker, p. 2, line 57 - p. 3, line 22.

28. According to Brinker, antidote compounds may be either applied to the seeds (pre-emergent) or to the plants (post-emergent). Thus, Brinker describes various methods of using the antidote compounds as follows:

Effective weed control coupled with low crop injury is a result of treatment of a plant locus with a combination of herbicide compound and antidote compound. By application to the “plant locus” is meant application to the plant growing medium, such as soil, as well as to the seeds, emerging seedlings, roots, stems, leaves, or other plant parts.

The phrase “combination of herbicide compound and antidote compound” embraces various methods of treatment. For example, the soil of a plant locus may be treated with a “tank-mix” composition containing a mixture of the herbicide and the antidote which is “in combination”. Or, the soil may be treated with the herbicide and antidote compounds separately so that the “combination” is made on, or in, the soil. After such treatments of the soil with a mixture of herbicide and antidote or by separate or sequential application of the herbicide and antidote to the soil, the herbicide and antidote may be mixed into or incorporated into the soil either by mechanical mixing of the soil with implements or by “watering in” by rainfall or irrigation. The soil of a plant locus may also be treated with antidote by application of the antidote in a dispersible-concentrate form such as a granule. The granule may be applied to a furrow which is prepared for receipt of the crop seed and the herbicide may be applied to the plant locus either before or after in-furrow placement of the antidote-containing granule so that the herbicide and antidote form a “combination”. Crop seed may be treated or coated with the antidote

compound either while the crop seed is in-furrow just after seeding or, more commonly, the crop seed may be treated or coated with antidote prior to seeding into a furrow. The herbicide may be applied to the soil plant locus before or after seeding and a “combination” is made when both herbicide and antidote-coated seed are in the soil. Also contemplated as a “combination” is a commercially-convenient association or presentation of herbicide and antidote. For example, the herbicide and antidote components in concentrated form may be contained in separate containers, but such containers may be presented for sale or sold together as a “combination”. Or, the herbicide and antidote components in concentrated form may be in a mixture in a single container as a “combination”. Either such “combination” may be diluted or mixed with adjuvants suitable for soil applications. Another example of a commercially presented combination is a container or antidote-coated crop seed sold, or presented for sale, along with a container or herbicide material. These containers may, or may not, be physically attached to each other, but nonetheless constitute a “combination of herbicide and antidote” when intended for use ultimately in the same plant locus.

\* \* \* \* \*

The amount of antidote employed in the methods and compositions of the invention will vary depending upon the particular herbicide with which the antidote is employed, the rate of application of the herbicide, the particular crop to be protected, and the manner of application to the plant locus. In each instance the amount of antidote employed is a safening-effective amount, that is, the amount which reduces, or protects against, crop injury that otherwise would result from the presence of the herbicide. The amount of antidote employed will be less than an amount that will substantially injure the crop plant.

Brinker p. 20, lines 1-42.

29. Brinker indicates that the antidotes disclosed may be used in conjunction with a wide variety of herbicide compounds. Brinker, p. 4, line 13 - p.5, line 37 and p. 451, line 65 - p.452, line 63.

30. Antidote A is indicated to be a preferred species of antidotal compound. Brinker, p. 3, lines 63-65 and p. 5, lines 40-49.
31. Brinker also specifically describes Antidote A in Table 1 (example 3) and a method of producing the compound. Brinker, p. 12 (example 3) and p. 6, lines 20-55.
32. The antidote A compound is referred to by Brinker as antidote 3. Brinker, p. 12, Table 1 (example 3).
33. Brinker further teaches:

As will be appreciated by those skilled in the art, the practice of this invention comprises the use of the novel antidotal compounds disclosed and claimed herein with any herbicidally-active compound. Obviously, the above listings of exemplary [herbicidal] compounds is [sic, are] not intended to be exhaustive, but representative. Again as noted earlier herein, it is expected that not every combination of herbicide and antidote will result in safening of all crops, but is within the skill of the art to test any given herbicide with an invention antidote in plant screens of any spectrum of plants and note the results.

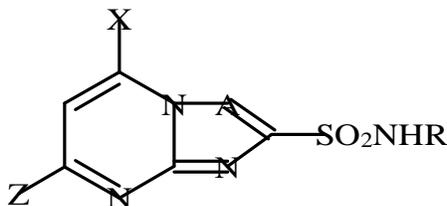
Brinker, p., 452, line 64 - p. 453, line 4.

The difference between the claimed subject matter and the prior art

34. The Brinker reference is the closest prior art.
35. The teachings of the Brinker reference differ from the claimed subject matter in the specific herbicides to be used in conjunction with the disclosed antidotal compounds.
36. Brinker does not teach using antidotes with

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ther

herbicidally-effective amount which is damaging to crops of a  
pound according  
Formula I or  
culturally  
eptable salts  
eof



I

wherein

A is N or C(Cl);

X is H or C<sub>1-4</sub> alkyl or alkoxy;

Z is C<sub>1-4</sub> alkyl or haloalkyl;

R is phenyl substituted in the ortho positions independently with H, chloro, fluoro, nitro, -OCH<sub>3</sub> or -CF<sub>3</sub> groups and in the meta positions with H or CH<sub>3</sub> groups.

37. Kleschick does not expressly teach the use of an antidote compound with the disclosed herbicides.

The examiner's and applicant's positions

38. The examiner's basis for rejecting the claims is set forth in the following excerpt from the supplemental examiner's Answer, pp. 3-4:

Brinker et al teach applicants [sic '] antidotal compounds are known as antidotes for a wide variety of herbicidal agents. (See claim 7).

Kleschick et al teach applicants [sic '] herbicidal agent is known. (See compound # 157.)

It would have been prima facie obvious to one of ordinary skill in that art at the time the instant invention was made to combine the known herbicide of the instant application with the known antidote as motivated by Brinker et al which claims such a combination, i.e. the instantly claimed antidote with a herbicidal agent.

39. Applicant's position is set forth in the following excerpt from the supplemental appeal brief, pp. 6-7:

Appellants' argument summarily stated is three-fold, viz.:

- (1) Brinker et al are absolutely devoid of any disclosure that their safeners would be/could be/should be suitable for use with Appellants' Formula I herbicides;

(2) Kleschick et al are absolutely devoid of any disclosure that their herbicides, overlapping those in Appellants' Formula I, required the presence of a safener. In fact, the Examiner cited Kleschick et al for the very purpose of showing that such herbicides could be used without a safener and

(3) Neither Brinker et al nor Kleschick et al contain any disclosure whatever that their respective teachings could be/or should be adapted to or combined with the teachings of the other.

## **B. Analysis**

We reverse.

The examiner relies on the combination of Brinker and Kleschick in holding that the claimed subject matter would have been prima facie obvious. The Federal Circuit has delineated the standard for establishing a prima facie case under § 103 based on a combination of references:

Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, a proper analysis under § 103 requires, inter alia, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success. See In re Dow Chemical Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure. *Id.*

In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).

In our view, the person having ordinary skill in would have recognized that it might be beneficial to use antidotal compounds with some of Kleschick's herbicides for some crops. For example, the post emergent application of herbicide A is taught to reduce sorghum growth by 50%. Kleschick, Example 119, cols. 137-138, compound 157. This is clearly an undesirable effect. Brinker teaches that the use of an antidote decreases the toxicity against crops while maintaining high toxicity against weeds. For example, Brinker discloses that

antidote A significantly decreases the toxicity of various herbicide compounds to sorghum in preemergent application while maintaining high toxicity against some weeds. Brinker, example 41, p. 146, lines 6-16 and pp. 164 - 173, antidote 3. Thus, the person having ordinary skill in the art would have recognized that the use of antidote compounds such as those taught by Brinker might be useful in diminishing the toxicity of some herbicides. From the combined teachings of the references the person having ordinary skill in the art would recognize that the effectiveness of herbicide A might be improved by the use of antidotes such as those taught by Brinker. It would therefore have been “obvious to try” the Brinker antidotes with herbicide A and Kleschick’s other disclosed herbicides which fall within the scope of applicants’ claims.

However, "obvious to try" does not constitute obviousness. In re O'Farrell, 853 F.2d 894, 903, 7 USPQ2d 1673, 1680-81 (Fed. Cir. 1988). A general incentive does not make obvious a particular result. In re Deuel, 51 F.3d 1552, 1559, 34 USPQ2d 1210, 1216 (Fed. Cir. 1995). The combined teachings of the references do not provide information that would give the hypothetical person of ordinary skill in the art a reasonable expectation of success that the Brinker compounds, such as antidote A, would decrease the toxic effects of the herbicides in applicants’ claims. We note that Brinker does not appear to indicate (and the examiner has not identified a part of Brinker indicating) that Brinker’s antidote compounds would reasonably be expected to be antidotal when used with the specific herbicides set out in applicants’ claims. The herbicide compounds taught by Brinker which are closest to the compounds taught by Kleschick appear to be the sulfonylureas identified at page 452, lines 36-42. While Kleschick also teaches sulfonylurea compounds useful as herbicides (see Kleschick, col. 6, lines 39-50<sup>2</sup>), the compounds set out in applicants’ claims are not

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<sup>2</sup> Note particularly that V (see finding 16) in Kleschick’s general formula may be di C<sub>1</sub>-C<sub>4</sub> alkylaminocarbonyl.

sulfonylureas.<sup>3</sup> Additionally, Brinker expressly teaches that not every combination of disclosed herbicide and antidote will result in safening. Brinker, p. 452, line 64 - 453, line 4. Thus, the combined teachings of the references fail to provide a reasonable expectation that Brinker's antidote compounds would act as safeners for the herbicide compounds set out in applicants' claims.<sup>4</sup>

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<sup>3</sup> Brinker states:  
Important herbicidal sulfonylureas specifically contemplated as useful in compositions with the antidotal compounds of this invention include these disclosed in the following patents: U.S. Patent Numbers . . . and EP Numbers . . . 142152, . . .

We note that EP 142152 claims the Kleschick grand-parent application as its priority document.

<sup>4</sup> We note that Brinker refers throughout the patent refers to a large number of patent publications as teaching various herbicide compounds that may be effectively used in conjunction with the disclosed antidotes. These patents are not of record in the application file and have not been considered by this panel.

Appeal No. 95-1189  
Application No. 07/800,471

The rejection by the primary examiner is reversed.

**REVERSED**

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
RICHARD E. SCHAFER	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
THOMAS WALTZ	)	
Administrative Patent Judge	)	

Appeal No. 95-1189  
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