AU 200074094

(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro

(43) Internationales Veröffentlichungsdatum
8. März 2001 (08.03.2001)

PCT

(10) Internationale Veröffentlichungsnummer
WO 01/15533 A1

(51) Internationale Patentklassifikation[7]: A01N 47/38, 25/32 // (A01N 47/38, 43:653, 43:56, 43:42, 39:04)

(21) Internationales Aktenzeichen: PCT/EP00/07982

(22) Internationales Anmeldedatum:
16. August 2000 (16.08.2000)

(25) Einreichungssprache: Deutsch

(26) Veröffentlichungssprache: Deutsch

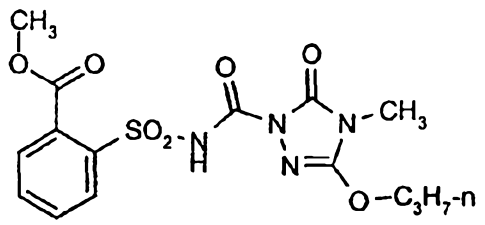
(30) Angaben zur Priorität:
199 40 860.2 27. August 1999 (27.08.1999) DE

(71) Anmelder *(für alle Bestimmungsstaaten mit Ausnahme von US)*: BAYER AKTIENGESELLSCHAFT [DE/DE]; 51368 Leverkusen (DE).

[Fortsetzung auf der nächsten Seite]

(54) Title: SELECTIVE HERBICIDES ON THE BASIS OF A SUBSTITUTED PHENYLSULFONYLAMINOCARBONYLTRIAZOLINONE AND SAFENERS

(54) Bezeichnung: SELEKTIVE HERBIZIDE AUF BASIS EINES SUBSTITUIERTEN PHENYLSULFONYLAMINOCARBONYLTRIAZOLINONS UND SAFENERN



(I)

(57) Abstract: The invention relates to novel selective herbicides that contain an effective amount of an active combination that comprises (a) 2-(2-methoxycarbonyl-phenylsulfonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazole-3-one of the formula (I) and/or one or more salts of the compound of formula (I), especially the sodium salt thereof, and (b) a compound that improves the tolerability for cultivated plants and that is selected from the following groups of compounds: α-(1,3-dioxolane-2-yl-methoximino)-phenylacetonitril (oxabetrinil), α-(cyanomethoximino)-phenylacetonitril (cyometrinil), 4-chloro-N-(1,3-dioxolane-2-yl-methoxy)-α-trifluoro-acetophenonoxim (fluxofenim), 4,6-dichloro-2-phenyl-pyrimidine (fenclorim), 4-dichloroacetyl-3,4-dihydro-3-methyl-2H-1,4-benzoxazine (benoxacor), 5-chloro-quinoxaline-8-oxy acetic acid (1-methyl-hexylester) (cloquintocet), 2,2-dichloro-N-(2-oxo-2-(2-propenylamino)-ethyl)-N-(2-propenyl)-acetamide (DKA-24), 1,8-naphthalic acid anhydride, 1-(2,4-dichloro-phenyl)-5-trichloromethyl-1H-1,2,4-triazole-3 carboxylic acid-ethylester (fenchloroazolethyl), 2-chloro-4-trifluoromethyl-thiazole-5 carboxylic acid-phenylmethylester (flurazole), 3-dichloroacetyl-5-(2-furanyl)-2,2-dimethyl-oxazolidine (furilazole, MON-13900), 4-dichloroacetyl-1-oxa-4-aza-spiro[4.5]-decane (AD-67), 2-dichloromethyl-2-methyl-1,3-dioxolane (MG-191), 2,2-dichloro-N-(1,3-dioxolane-2-yl-methyl)-N-(2-propenyl)-acetamide (PPG-1292), 2,2-dichloro-N,N-di-2-propenyl-acetamide (dichlormide), N-(4-methyl-phenyl)-N'-(1-methyl-1-phenyl-ethyl) urea (dymron), 1-dichloroacetyl-hexahydro-3,3,8a-trimethylpyrrolo[1,2-a]-pyrimidine-6(2H)-one (BAS-145138), N-(2-methoxy-benzoyl)-4-(methylaminocarbonylamino)-benzolsulfonamide and other safeners and antidotes described in the description as well as 2,4-dichlorophenoxy acetic acid (2,4-D) and its derivatives.

(57) Zusammenfassung: Die Erfindung betrifft neue selektiv-herbizide Mittel enthaltend einen wirksamen Gehalt an einer Wirkstoffkombination umfassend (a) 2-(2-Methoxycarbonyl-phenylsulfonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-on der Formel (I) und/oder ein oder mehrere Salze der Verbindung der Formel (I), insbesondere das Natriumsalz, und (b) einer die Kulturpflanzen-Verträglichkeit verbessernden Verbindung aus der folgenden Gruppe von Verbindungen: α-(1,3-Dioxolan-2-yl-methoximino)-phenylacetonitril (Oxabetrinil), α-(Cyanomethoximino)-phenylacetonitril (Oxabetrinil), α- (Cyano-methoximino)-phenylacetonitril (Cyometrinil), 4-Chlor-N-(1,3-dioxolan-2-yl-methoxy)-α-trifluor-acetophenonoxim (Fluxofenim), 4,6-Dichlor-2-phenyl-pyrimidin (Fenclorim), 4-Dichloracetyl-3,4-dihydro-3-methyl-2H-1,4-benzoxazin (Benoxacor), 5-Chlor-chinoxalin-8-oxy-essigsäure-(1-methyl-hexylester) (Cloquintocet), 2,2-Dichlor-N-(2-oxo-2-(2-propenylamino)-ethyl)-N-(2-propenyl)-acetamid (DKA-24), 1,8-Naphthalsäureanhydrid, 1-(2,4-Dichlor-phenyl)-5-trichlormethyl-1H-1,2,4-triazol-3-carbonsäure-ethylester (Fenchlorazol-ethyl), 2-Chlor-4-trifluormethyl-thiazol-5-carbonsäure-phenylmethylester (Flurazole), 3-Dichloracetyl-5-(2-furanyl)-2,2-dimethyl-oxazolidin (Furilazole, MON-13900), 4-Dichloracetyl-1-oxa-4-aza-spiro[4.5]-decan (AD-67),

[Fortsetzung auf der nächsten Seite]

WO 01/15533 A1

(72) **Erfinder; und**

(75) **Erfinder/Anmelder** *(nur für US)*: **FEUCHT, Dieter** [DE/DE]; Ackerweg 9, 40789 Monheim (DE). **DAHMEN, Peter** [DE/DE]; Altebrückerstrasse 61, 41470 Neuss (DE). **DREWES, Mark Wilhelm** [DE/DE]; Goethestrasse 38, 40764 Langenfeld (DE). **KRAUSKOPF, Birgit** [DE/DE]; ~~Oesenauer Strasse 12a, 51519 Odenthal (DE).~~ **KREMER, Mathias** [DE/DE]; Heddinghofener Strasse 31, 51399 Burscheid (DE). **PONTZEN, Rolf** [DE/DE]; Am Kloster 69, 42799 Leichlingen (DE). **SANTEL, Hans-Joachim** [DE/US]; ~~12716 Sagamore Road, Leawood, KS 66209 (US).~~ **WELLMANN, Arndt** [DE/DE]; ~~Neustrasse 3, 40789 Monheim~~ (DE). **KLUTH, Joachim** [DE/DE]; Virneburgstrasse 69, 40764 Langenfeld (DE). **MÜLLER, Klaus-Helmut** [AT/DE]; Solfstrasse 19, 40593 Düsseldorf (DE).

Hoher Wald 21a 51519 Odenthal

(74) **Gemeinsamer Vertreter: BAYER AKTIENGESELLSCHAFT**; 51368 Leverkusen (DE).

(81) **Bestimmungsstaaten** *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

→ 14404 Windsor Leawood KS 66224 (US)

(84) **Bestimmungsstaaten** *(regional)*: ARIPO-Patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), eurasisches Patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI-Patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

→ Grunstrasse 9a 61371 Leverkusen (DE

Veröffentlicht:

— *Mit internationalem Recherchenbericht.*

— *Vor Ablauf der für Änderungen der Ansprüche geltenden Frist; Veröffentlichung wird wiederholt, falls Änderungen eintreffen.*

Zur Erklärung der Zweibuchstaben-Codes, und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

2-Dichlormethyl-2-methyl-1,3-dioxolan (MG-191), 2,2-Dichlor-N-(1,3-dioxolan-2-yl-methyl)-N-(2-propenyl)-acetamid (PPG-1292), 2,2-Dichlor-N,N-di-2-propenyl-acetamid (Dichlormid), N-(4-Methyl-phenyl)-N'-(1-methyl-1-phenyl-ethyl)-harnstoff (Dymron), 1-Dichloracetyl-hexahydro-3,3,8a-trimethylpyrrolo[1,2-a]-pyrimidin-6(2H)-on (BAS-145138), N-(2-Methoxy-benzoyl)-4-(methylaminocarbonylamino)-benzolsulfonamid und anderen in der Beschreibung beschriebenen Safenern und Antidots sowie 2,4-Dichlorophenoxyessigsäure (2,4-D) und dessen Derivate.

Selective herbicides based on a substituted phenylsulphonylaminocarbonyl-triazolinone and safeners

The invention relates to novel selective herbicidal active compound combinations comprising, on the one hand, 2-(2-methoxycarbonyl-phenylsulphonylamino-carbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one and/or its salts, in particular its sodium salt, and, on the other hand, at least one compound which improves crop plant compatibility and which can be used particularly successfully for the selective control of weeds in various crops of useful plants.

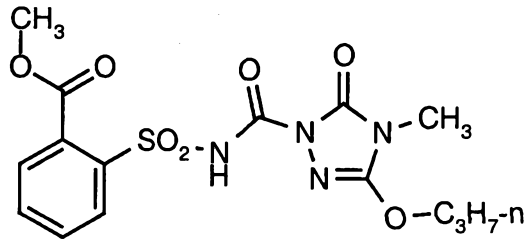
Substituted phenylsulphonylaminocarbonyl-triazolinones are known as effective herbicides (cf., for example, EP-A 507 171). However, the activity of these compounds and/or their compatibility with crop plants are not entirely satisfactory under all conditions.

Furthermore, active compound combinations of substituted phenylsulphonyl-aminocarbonyl-triazolinones and other herbicidally active compounds for obtaining a synergistic effect (cf. DE-A 196 388 87) have been disclosed. However, the use properties of these combination products are likewise not entirely satisfactory under all conditions. Combinations of 2-(2-trifluoromethoxyphenylsulphonylaminocarbonyl)-4-methyl-5-methoxy-2,4-dihydro-3H-1,2,4-triazolin-3-one with several safeners were also described in EP-A 931 456.

Surprisingly, it has now been found that 2-(2-methoxycarbonyl-phenylsulphonyl-aminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one and/or its salts, when used together with the compounds described further below which improve crop plant compatibility (safener/antidotes) prevent damage to the crop plants extremely well and can be used particularly advantageously as a broad-spectrum combination preparation for the selective control of weeds in crops of useful plants, such as, for example, in cereals.

The present invention provides selective herbicidal compositions, characterized in that they comprise an active compound combination comprising

(a) 2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one of the formula (I)



(I)

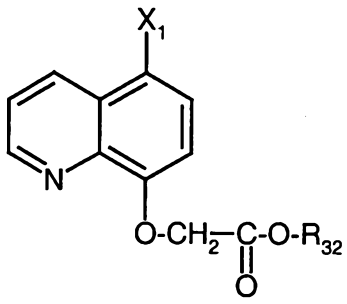
and/or one or more salts of the compound of the formula (I), in particular the sodium salt,

and

(b) at least one crop plant compatibility-improving compound from the following group of compounds:

α-(1,3-dioxolan-2-yl-methoximino)-phenylacetonitrile (oxabetrinil), α-(cyano-methoximino)-phenylacetonitrile (cyometrinil), 4-chloro-N-(1,3-dioxolan-2-yl-methoxy)-α-trifluoro-acetophenone oxime (fluxofenim), 4,6-dichloro-2-phenyl-pyrimidine (fenclorim), 4-dichloroacetyl-3,4-dihydro-3-methyl-2H-1,4-benz-oxazine (benoxacor), 1-methyl-hexyl 5-chloro-quinoxaline-8-oxyacetate (clo-quintocet), 2,2-dichloro-N-(2-oxo-2-(2-propenylamino)-ethyl)-N-(2-propenyl)-acetamide (DKA-24), 1,8-naphthalic anhydride, ethyl 1-(2,4-dichloro-phenyl)-5-trichloromethyl-1H-1,2,4-triazole-3-carboxylate (fenchlorazol-ethyl), phenylmethyl 2-chloro-4-trifluoromethyl-thiazole-5-carboxylate (flurazole), 3-dichloroacetyl-5-(2-furanyl)-2,2-dimethyl-oxazolidine (furilazole, MON-13900), 4-dichloroacetyl-1-oxa-4-aza-spiro[4.5]-decane (AD-67), 2-dichloro-methyl-2-methyl-1,3-dioxolane (MG-191), 2,2-dichloro-N-(1,3-dioxolan-2-yl-methyl)-N-(2-propenyl)-acetamide (PPG-1292), 2,2-dichloro-N,N-di-2-propenyl-acetamide (dichlormid), N-(4-methyl-phenyl)-N'-(1-methyl-1-phenyl-ethyl)-urea (dymron), 1-dichloroacetyl-hexahydro-3,3,8a-trimethylpyrrolo[1,2-a]-pyrimidin-6(2H)-one (BAS-145138), N-(2-methoxy-benzoyl)-4-(methyl-

aminocarbonylamino)-benzenesulphonamide and/or the compounds below, defined by general formulae



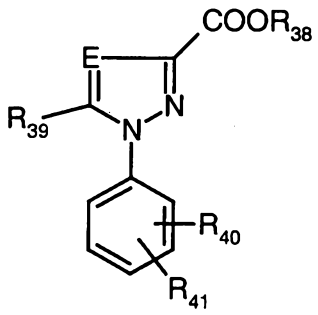
(IIa),

in which

R_{32} represents hydrogen, C_1-C_8-alkyl or C_1-C_6-alkoxy- or C_3-C_6-alkenyl-oxy-substituted C_1-C_8-alkyl and

X_1 represents hydrogen or chlorine;

or of the formula (IIb)



(IIb),

in which

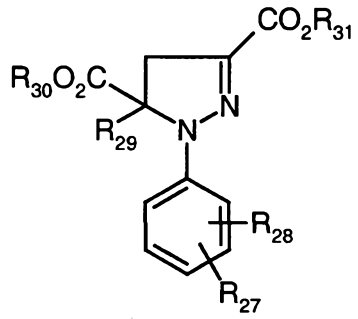
E represents nitrogen or methine;

R_{38} represents C_1-C_4-alkyl;

R_{39} represents $-CCl_3$, phenyl or halogen-substituted phenyl, and

R_{40} and R_{41} independently of one another each represent hydrogen or halogen;

or of the formula (IIc)



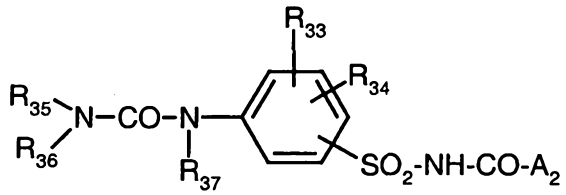
(IIc),

in which

R_{27} and R_{28} independently of one another each represent hydrogen or halogen and

R_{29}, R_{30} and R_{31} independently of one another each represent C_1-C_4-alkyl;

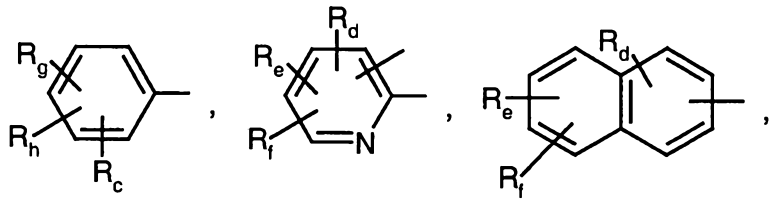
or of the formula (IId)

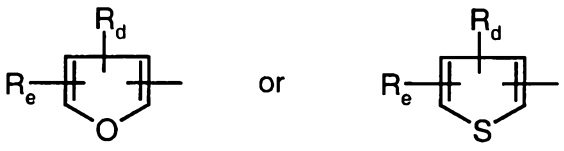


(IId)

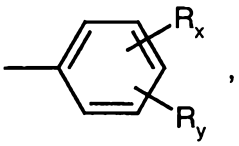
in which

A_2 represents a group

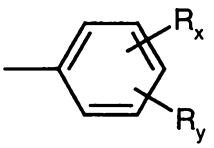




R_{35} and R_{36} independently of one another each represents hydrogen, C_1-C_8-alkyl, C_3-C_8-cycloalkyl, C_3-C_6-alkenyl, C_3-C_6-alkinyl,



or C_1-C_4-alkoxy- or



substituted C_1-C_4-alkyl; or

R_{35} and R_{36} together form a C_4-C_6-alkylene bridge which may be interrupted by oxygen, sulphur, SO, SO_2, NH or -N(C_1-C_4-alkyl)-;

R_{37} represents hydrogen or C_1-C_4-alkyl;

R_{33} represents hydrogen, halogen, cyano, trifluoromethyl, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl, C_1-C_4-alkylsulphonyl, -$COOR_j$, -$CONR_kR_m$, -COR_n, -SO_2-NR_kR_m or -OSO_2-C_1-C_4-alkyl;

R_g represents hydrogen, halogen, cyano, nitro, C_1-C_4-alkyl, C_1-C_4-halogenoalkyl, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl, C_1-C_4-alkylsulphonyl, -$COOR_j$, -$CONR_kR_m$, -COR_n, -$SO_2NR_kR_m$, -OSO_2-C_1-C_4-alkyl, C_1-C_6-alkoxy or C_1-C_6-alkoxy which is substituted by C_1-C_4-alkoxy or halogen, C_3-C_5-alkenyloxy or C_3-C_6-alkenyloxy which is substituted by halogen, or represents C_3-C_6-alkinyloxy or

R_{33} and R_{34} together form a C_3-C_4-alkylene bridge which may be substituted by halogen or C_1-C_4-alkyl, or form a C_3-C_4-alkenylene bridge which may be substituted by halogen or C_1-C_4-alkyl, or form a C_3-C_4-alkadienylene bridge which may be substituted by halogen or C_1-C_4-alkyl;

R_{34} and R_h independently of one another each represent hydrogen, halogen, C_1-C_4-alkyl, trifluoromethyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or -$COOR_j$;

R_c represents hydrogen, halogen, nitro, C_1-C_4-alkyl or methoxy,

R_d represents hydrogen, halogen, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl, C_1-C_4-alkylsulphonyl, -$COOR_j$ or $CONR_kR_m$;

R_e represents hydrogen, halogen, C_1-C_4-alkyl, -$COOR_j$, trifluoromethyl or methoxy, or

R_d and R_e together form a C_3-C_4-alkylene bridge;

R_f represents hydrogen, halogen or C_1-C_4-alkyl;

R_x and R_y independently of one another each represent hydrogen, halogen, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, -$COOR_{38}$, trifluoromethyl, nitro or cyano;

R_j, R_k and R_m independently of one another each represent hydrogen or C_1-C_4-alkyl; or

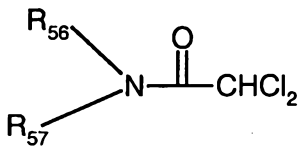
R_k and R_m together form a C_4-C_6-alkylene bridge which may be interrupted by oxygen, NH or -N(C_1-C_4-alkyl)-;

R_n represents C_1-C_4-alkyl, phenyl or halogen-, C_1-C_4-alkyl-, methoxy-, nitro- or trifluoromethyl-substituted phenyl;

R_{38} represents hydrogen, C_1-C_{10}-alkyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, C_1-C_4-alkylthio-C_1-C_4-alkyl, di-C_1-C_4-alkylamino-C_1-C_4-alkyl, halogeno-C_1-C_8-alkyl, C_2-C_8-alkenyl, halogeno-C_2-C_8-alkenyl, C_3-C_8-alkinyl, C_3-C_7-cycloalkyl, halogeno-C_3-C_7-cycloalkyl, C_1-C_8-alkylcarbonyl, allylcarbonyl, C_3-C_7-cycloalkylcarbonyl, benzoyl, which is unsubstituted or substituted up to three times on the phenyl ring by identical or different substituents from the group consisting of halogen, C_1-C_4-alkyl, halogeno-C_1-C_4-alkyl, halogeno-C_1-C_4-alkoxy and C_1-C_4-alkoxy; or represents furoyl, thienyl; or represents C_1-C_4-alkyl substituted by phenyl, halogenophenyl, C_1-C_4-alkylphenyl, C_1-C_4-alkoxyphenyl, halogeno-C_1-C_4-alkylphenyl, halogeno-C_1-C_4-alkoxyphenyl, C_1-C_6-alkoxycarbonyl, C_1-C_4-alkoxy-C_1-C_8-alkoxycarbonyl, C_3-C_8-alkenyloxycarbonyl, C_3-C_8-alkinyloxycarbonyl, C_1-C_8-alkylthiocarbonyl, C_3-C_8-alkenyl-

thiocarbonyl, C_3-C_8-alkinylthiocarbonyl, carbamoyl, mono-C_1-C_4-alkylaminocarbonyl, di-C_1-C_4-alkylaminocarbonyl; or represents phenylaminocarbonyl which is unsubstituted or substituted up to three times on the phenyl by identical or different substituents from the group consisting of halogen, C_1-C_4-alkyl, halogeno-C_1-C_4-alkyl, halogeno-C_1-C_4-alkoxy and C_1-C_4-alkoxy or monosubstituted on the phenyl by cyano or nitro or represents dioxolan-2-yl which is unsubstituted or substituted by one or two C_1-C_4-alkyl radicals, or represents dioxan-2-yl which is unsubstituted or substituted by one or two C_1-C_4-alkyl radicals, or represents C_1-C_4-alkyl which is substituted by cyano, nitro, carboxyl or C_1-C_8-alkylthio-C_1-C_8-alkoxycarbonyl;

or a compound of the formula (IIf)

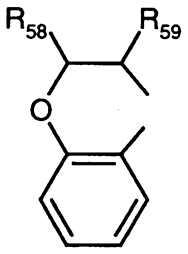


(IIf),

in which

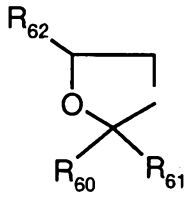
R_{56} and R_{57} independently of one another each represent C_1-C_6-alkyl or C_2-C_6-alkenyl; or

R_{55} and R_{57} together represent

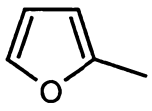


R_{58} and R_{59} independently of one another each represent hydrogen or C_1-C_6-alkyl; or

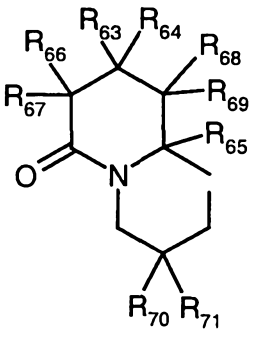
R_{56} and R_{57} together represent



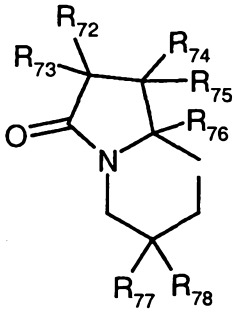
R_{60} and R_{61} independently of one another each represent C_1-C_4-alkyl, or R_{60} and R_{61} together represent $-(CH_2)_5-$; R_{62} represents hydrogen, C_1-C_4-alkyl or



or R_{56} and R_{57} together represent

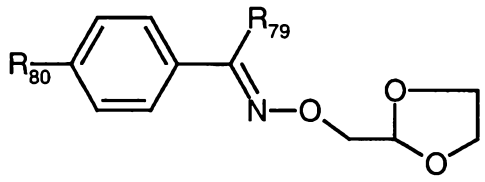


or



R_{63}, R_{64}, R_{65}, R_{66}, R_{67}, R_{68}, R_{69}, R_{70}, R_{71}, R_{72}, R_{73}, R_{74}, R_{75}, R_{76}, R_{77} and R_{78} independently of one another each represent hydrogen or C_1-C_4-alkyl;

or a compound of the formula (IIg)



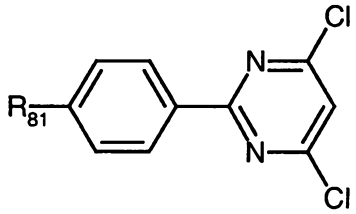
(IIg),

in which

R_{79} represents hydrogen or chlorine and

R_{80} represents cyano or trifluoromethyl,

or a compound of the formula (IIh)

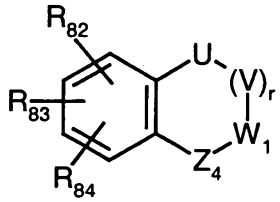


(IIh)

in which

R_{81} represents hydrogen or methyl,

or of the formula (IIj)



(IIj),

in which

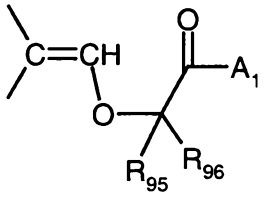
R_{82} represents hydrogen, C_1-C_4-alkyl, C_1-C_4-alkyl substituted by C_1-C_4-alkyl-X_2- or C_1-C_4-halogenoalkyl-X_2-, represents

C_1-C_4-halogenoalkyl, nitro, cyano, $-COOR_{85}$, $-NR_{86}R_{87}$, $-SO_2NR_{88}R_{89}$ or $-CONR_{90}R_{91}$;

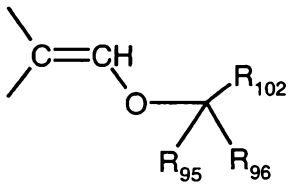
R_{83} represents hydrogen, halogen, C_1-C_4-alkyl, trifluoromethyl, C_1-C_4-alkoxy or C_1-C_4-halogenoalkoxy;

R_{84} represents hydrogen, halogen or C_1-C_4-alkyl;

U, V, W_1 and Z_4 independently of one another each represent oxygen, sulphur, $C(R_{92})R_{93}$, carbonyl, NR_{94}, a group



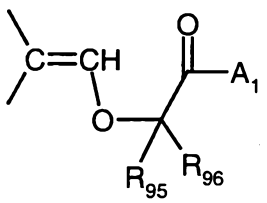
or



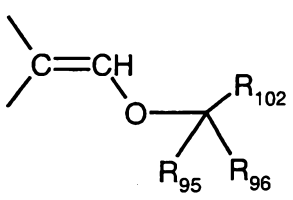
in which

R_{102} represents C_2-C_4-alkenyl or C_2-C_4-alkinyl;

with the proviso that a) at least one of the ring members U, V, W_1 or Z_4 is carbonyl and a ring member adjacent to this or these ring members represents the group



or



where this group occurs only once; and

b) two adjacent ring members U and V, V and W_1 and W_1 and Z may not simultaneously represent oxygen;

R_{95} and R_{96} independently of one another each represent hydrogen or C_1-C_8-alkyl; or

R_{95} and R_{96} together form a C_2-C_6-alkylene group;

A_1 is R_{99}-Y_1- or -$NR_{97}R_{98}$;

X_2 is oxygen or -$S(O)_s$;

Y_1 is oxygen or sulphur;

R_{99} is hydrogen, C_1-C_8-alkyl, C_1-C_8-halogenoalkyl, C_1-C_4-alkoxy-C_1-C_8-alkyl, C_3-C_6-alkenyloxy-C_1-C_8-alkyl or phenyl-C_1-C_8-alkyl, where the phenyl ring may be substituted by halogen, C_1-C_4-alkyl, trifluoromethyl, methoxy or methyl-$S(O)_s$-, represents C_3-C_6-alkenyl, C_3-C_6-halogenoalkenyl, phenyl-C_3-C_6-alkenyl, C_3-C_6-alkinyl, phenyl-C_3-C_6-alkinyl, oxetanyl, furyl or tetrahydrofuryl;

R_{85} represents hydrogen or C_1-C_4-alkyl;

R_{86} represents hydrogen, C_1-C_4-alkyl or C_1-C_4-alkylcarbonyl;

R_{87} represents hydrogen or C_1-C_4-alkyl; or

R_{86} and R_{87} together form a C_4- or C_5-alkylene group;

R_{88}, R_{89}, R_{90} and R_{91} independently of one another each represent hydrogen or C_1-C_4-alkyl; or R_{88} together with R_{89} or R_{90} together with R_{91} independently of one another represent C_4- or C_5-alkylene, where one carbon atom may be replaced by oxygen or sulphur or one or two carbon atoms may be replaced by -NR_{100}-;

R_{92}, R_{100} and R_{93} independently of one another each represent hydrogen or C_1-C_8-alkyl; or

R_{92} and R_{93} together represent C_2-C_6-alkylene;

R_{94} represents hydrogen or C_1-C_8-alkyl;

R_{97} represents hydrogen; C_1-C_8-alkyl, phenyl, phenyl-C_1-C_8-alkyl, where the phenyl rings may be substituted by fluorine, chlorine, bromine, nitro, cyano, -OCH_3, C_1-C_4-alkyl or CH_3SO_2-, represents C_1-C_4-alkoxy-C_1-C_8-alkyl, C_3-C_6-alkenyl or C_3-C_6-alkinyl;

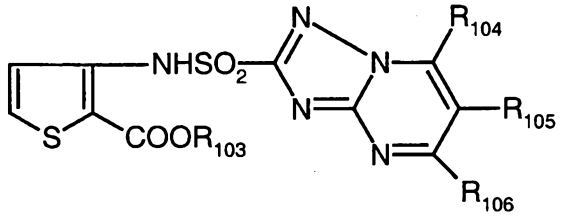
R_{98} represents hydrogen, C_1-C_8-alkyl, C_3-C_6-alkenyl or C_3-C_6-alkinyl, or

R_{97} and R_{98} together represent C_4- or C_5-alkylene, where one carbon atom may be replaced by oxygen or sulphur, or one or two carbon atoms may be replaced by -NR_{101}-;

R_{101} represents hydrogen or C_1-C_4-alkyl;

r represents 0 or 1; and

s represents 0, 1 or 2, or a compound of the formula (IIk)



(IIk),

in which

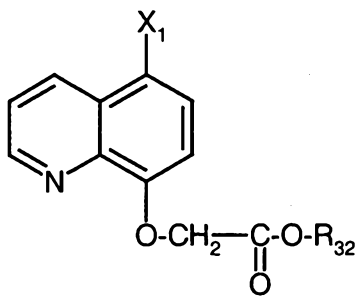
R_{103} represents hydrogen, C_1-C_6-alkyl, C_3-C_6-cycloalkyl, C_3-C_6-alkenyl or C_3-C_6-alkinyl; and

R_{104}, R_{105} and R_{106} independently of one another each represent hydrogen, C_1-C_6-alkyl, C_3-C_6-cycloalkyl or C_1-C_6-alkoxy, with the proviso that one of the substituents R_{104}, R_{105} and R_{106} is different from hydrogen,

where generally from 0.001 to 1000 parts by weight of one of the abovementioned compounds of group (b) are present per part by weight of an active compound 2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one of the formula (I) or its salts.

Among the compounds of group (b) defined by the general formulae, preference is given to those which are listed in the tables below:

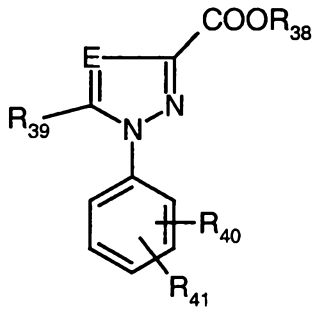
Table 1 Compounds of the formula (IIa)



(IIa)

Comp. No.	X_1	R_{32}
1.01	Cl	$-CH(CH_3)-C_5H_{11}$-n
1.02	Cl	$-CH(CH_3)-CH_2OCH_2CH=CH_2$
1.03	Cl	H
1.04	Cl	C_4H_9-n

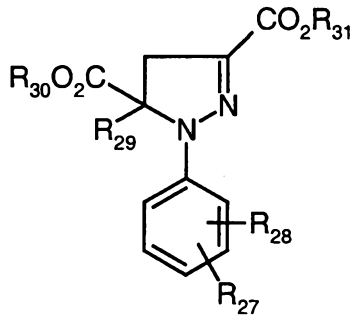
Table 2 Compounds of the formula (IIb)



(IIb)

Comp. No.	R_{38}	R_{39}	R_{40}	R_{41}	E
2.01	CH_3	phenyl	2-Cl	H	CH
2.02	CH_3	phenyl	2-Cl	4-Cl	CH
2.03	CH_3	phenyl	2-F	H	CH
2.04	CH_3	2-chlorophenyl	2-F	H	CH
2.05	C_2H_5	CCl_3	2-Cl	4-Cl	N
2.06	CH_3	phenyl	2-Cl	4-CF_3	N
2.07	CH_3	phenyl	2-Cl	4-CF_3	N
2.08	CH_3	2-fluorophenyl	2-Cl	H	CH

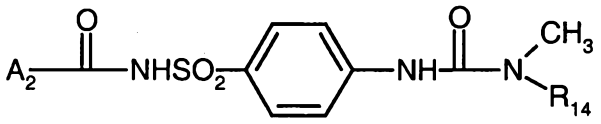
Table 3 Compounds of the formula (IIc)



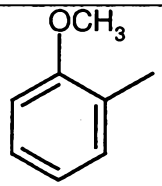
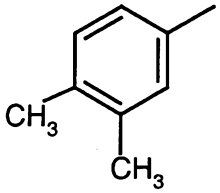
(IIc),

Comp. No.	R_{29}	R_{30}	R_{31}	R_{27}	R_{28}
3.01	CH_3	CH_3	CH_3	2-Cl	4-Cl
3.02	CH_3	C_2H_5	CH_3	2-Cl	4-Cl
3.03	CH_3	C_2H_5	C_2H_5	2-Cl	4-Cl

Table 4 Compounds of the formula (IIe)



(IIe)

Comp. No.	A_2	R_{14}
4.001		H
4.002		H

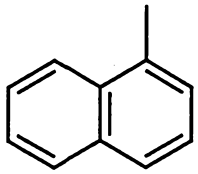
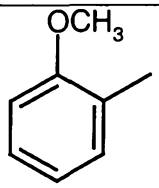
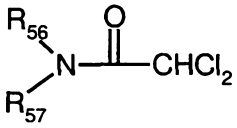
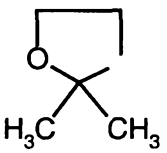
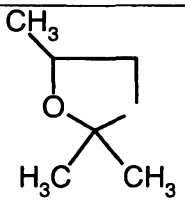
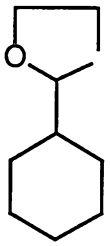
Comp. No.	A_2	R_{14}
4.003		CH_3
4.004		CH_3

Table 5 Compounds of the formula (IIf)



(IIf)

Comp. No.	R_{56}	R_{57}	$R_{56} + R_{57}$
5.001	$CH_2=CHCH_2$	$CH_2=CHCH_2$	-
5.002	-	-	
5.003	-	-	
5.004	-	-	

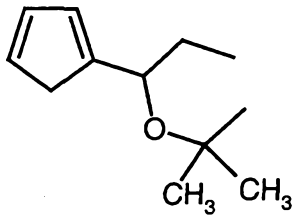
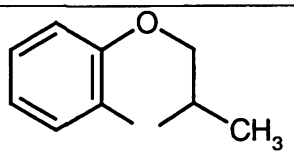
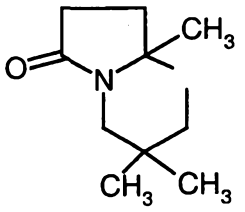
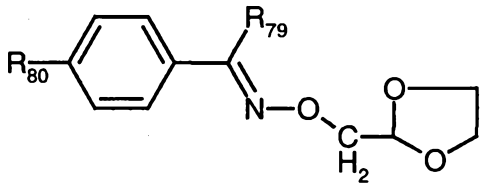
Comp. No.	R_{56}	R_{57}	$R_{56} + R_{57}$
5.005	-	-	
5.006	-	-	
5.007	-	-	

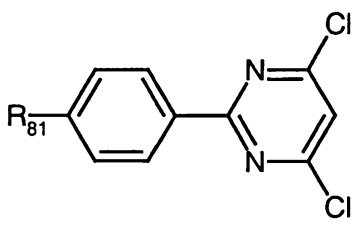
Table 6 Compounds of the formula (IIg)



(IIg),

Comp. No.	R_{80}	R_{79}
6.01	H	CN
6.02	Cl	CF_3

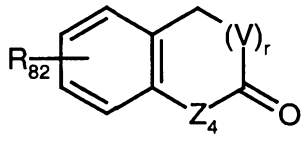
Table 7 Compounds of the formula (IIh)



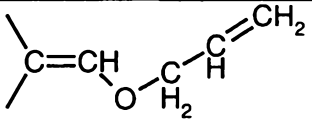
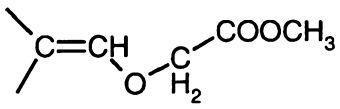
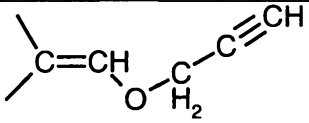
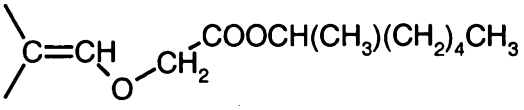
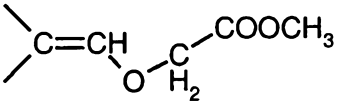
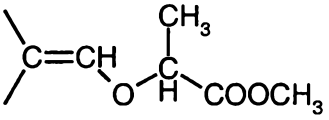
(IIh)

Comp. No.	R_{81}
7.01	H
7.02	CH_3

Table 8 Compounds of the formula (IIm)



(IIm)

Comp. No.	R_{82}	Z_4	V	r
8.001	H		O	1
8.002	H		O	1
8.003	H		O	1
8.004	H		O	1
8.005	H		CH_2	1
8.006	H		CH_2	1

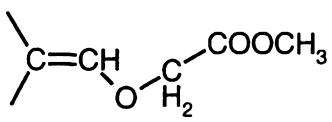
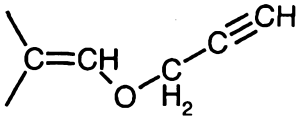
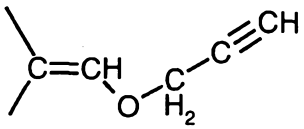
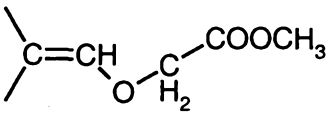
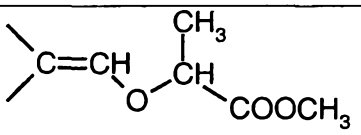
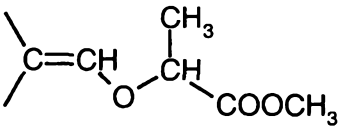
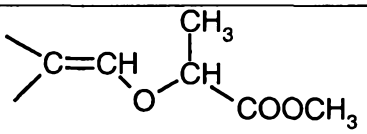
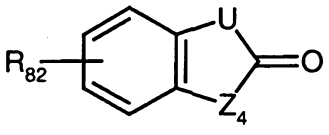
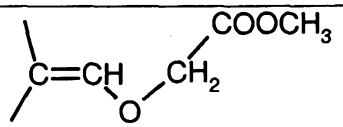
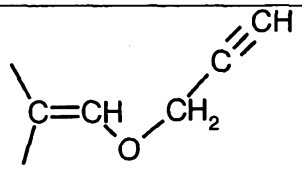
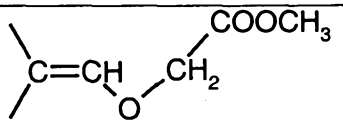
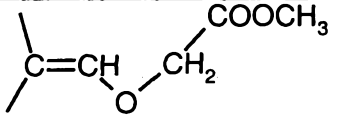
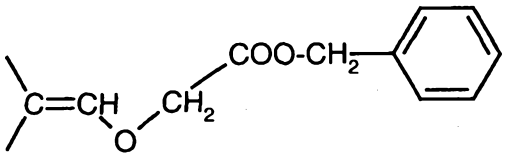
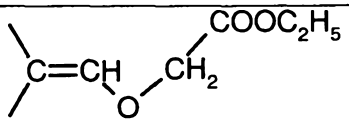
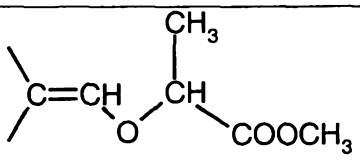
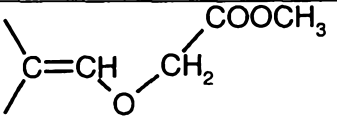
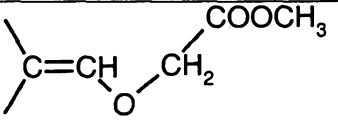
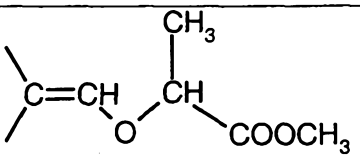
Comp. No.	R_{82}	Z_4	V	r
8.007	H		S	1
8.008	H		S	1
8.009	H		NCH_3	1
8.010	H		NCH_3	1
8.011	H		NCH_3	1
8.012	H		O	1
8.013	H		S	1

Table 9 Compounds of the formula (IIn)



(IIn)

Comp. No.	U	R_{82}	Z_4
9.001	O	H	
9.002	O	H	
9.003	O	5-Cl	
9.004	CH_2	H	
9.005	CH_2	H	
9.006	CH_2	H	
9.007	NH	5-Cl	
9.008	NH	5-Cl	
9.009	NH	H	
9.010	NH	H	

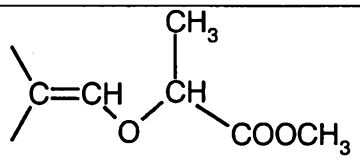
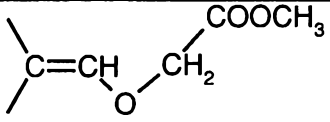
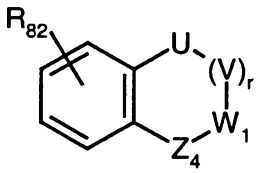
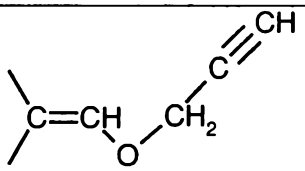
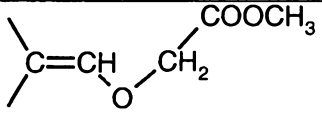
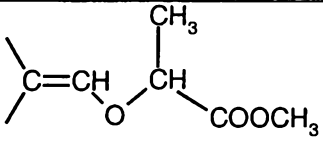
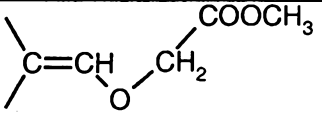
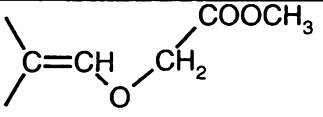
Comp. No.	U	R_{82}	Z_4
9.011	NCH_3	H	
9.012	NCH_3	H	

Table 10 Compounds of the formula (IIo)



(IIo)

Comp. No.	U	V	r	W_1	Z_4	R_{82}
10.001	O	C=O	1		CH_2	H
10.002	O	C=O	1		CH_2	H
10.003	CH_2	C=O	1		CH_2	H
10.004	CH_2	C=O	1		CH_2	H
10.005	CH_2	CH_2	1		C=O	H

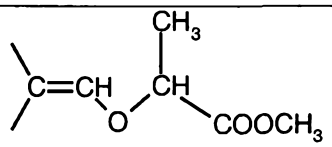
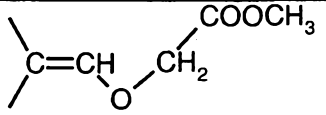
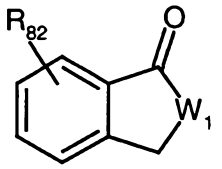
Comp. No.	U	V	r	W_1	Z_4	R_{82}
10.006	CH_2	CH_2	1		C=O	H
10.007	NCH_3	C=O	1		CH_2	H

Table 11 Compounds of the formula (IIp)



(IIp)

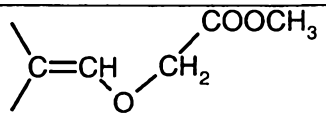
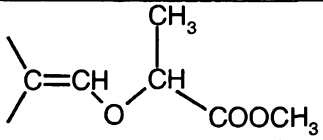
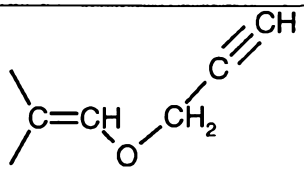
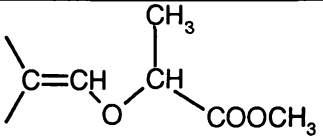
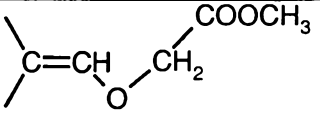
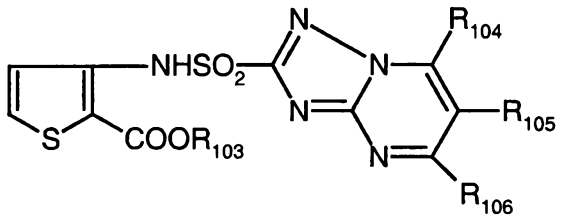
Comp. No.	R_{82}	W_1
11.001	6-Cl	
11.002	6-Cl	
11.003	H	
11.004	H	
11.005	H	

Table 12 Compounds of the formula (IIk)

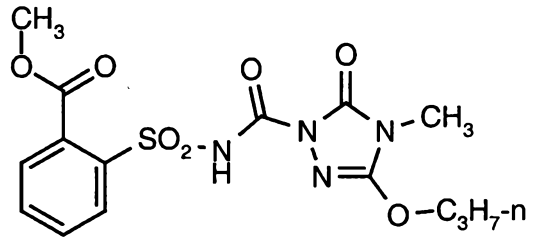


(IIk),

Comp. No.	R_{103}	R_{104}	R_{105}	R_{106}
12.01	CH_3	H	cyclopropyl	H
12.02	CH_3	C_2H_5	cyclopropyl	H
12.03	CH_3	cyclopropyl	C_2H_5	H
12.04	CH_3	CH_3	H	H
12.05	CH_3	CH_3	cyclopropyl	H
12.06	CH_3	OCH_3	OCH_3	H
12.07	CH_3	CH_3	OCH_3	H
12.08	CH_3	OCH_3	CH_3	H
12.09	CH_3	CH_3	CH_3	H
12.10	C_2H_5	CH_3	CH_3	H
12.11	C_2H_5	OCH_3	OCH_3	H
12.12	H	OCH_3	OCH_3	H
12.13	H	CH_3	CH_3	H
12.14	C_2H_5	H	H	CH_3
12.15	H	H	H	CH_3
12.16	CH_3	H	H	CH_3

Particular preference according to the invention is given to selective herbicidal compositions which are characterized in that they comprise an active compound combination comprising

(a) 2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one of the formula (I)



(I)

and/or one or more salts of the compound of the formula (I), in particular the sodium salt,

and

(b) diethyl 1-(2,4-dichlorophenyl)-4,5-dihydro-5-methyl-1H-pyrazole-3,5-dicarboxylate (mefenpyr-diethyl), 1-methylhexyl [(5-chloro-8-quinolinyl)oxy]-acetate (cloquintocet-mexyl) and/or ethyl 1-(2,4-dichlorophenyl)-5-(trichloromethyl)-1H-1,2,4-triazole-3-carboxylate (fenchlorazole-ethyl),

where in general from 0.001 to 1000 parts by weight of one of the abovementioned compounds of the group (b) are present per part by weight of an active compound 2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one of the formula (I).

Surprisingly, it has also been found that the herbicidally active substance 2,4-dichlorophenoxy-acetic acid (2,4-D) and its derivatives can also act as the abovementioned safener.

Another preferred embodiment is therefore a mixture comprising the compound of the formula (I) and/or its salts on the one hand and 2,4-D and/or its derivatives on the other hand. Typical derivatives of 2-4-D are, for example, its esters.

Among the compounds of the group (b), the compound diethyl 1-(2,4-dichlorophenyl)-4,5-dihydro-5-methyl-1H-pyrazole-3,5-dicarboxylate (mefenpyr-diethyl) is most preferred.

The compounds diethyl 1-(2,4-dichlorophenyl)-4,5-dihydro-5-methyl-1H-pyrazole-3,5-dicarboxylate (mefenpyr-diethyl), (1-methylhexyl) [(5-chloro-8-quinolinyl)oxy]acetate (cloquintocet-mexyl) and ethyl 1-(2,4-dichlorophenyl)-5-(trichloromethyl)-1H-1,2,4-triazole-3-carboxylate (fenchlorazole-ethyl) are described in the following patent applications: DE-A 39 395 03, EP-A 191 736 and DE-A 35 252 05, respectively. 2,4-D is a known herbicide.

Preferred salts of the compound of the formula (I) are the sodium, potassium, ammonium, methylammonium, ethylammonium, n- or i-propylammonium, n-, i-, s- or t-butylammonium, dimethylammonium, diethylammonium, di-n-propyl-ammonium, di-i-propylammonium, di-n-butyl-ammonium, di-i-butylammonium, di-s-butylammonium, trimethylammonium, triethylammonium, tripropylammonium, tributylammonium, trimethylsulphonium and triethylsulphonium salts.

Particularly preferred salts of compounds of the formulae (II) or (III) are the sodium, potassium, ammonium, methylammonium, ethylammonium, n- or i-propyl-ammonium, dimethylammonium, diethylammonium, di-n-propylammonium, di-i-propylammonium and trimethylsulphonium salts, in particular the sodium salt.

Surprisingly, it has now been found that the above-defined active compound combinations of 2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one of the formula (I) or its salts and a safener/antidote from the group (b) listed above have, whilst being tolerated very well by crop plants, a particularly high herbicidal activity and can be used in various crops, in particular in cereals, especially wheat, but also in soya, potatoes, maize and rice.

Here, it has to be considered to be surprising that, from a large number of known safeners or antidotes which are capable of antagonizing the damaging effect of a

herbicide on the crop plants, that are in particular the abovementioned compounds of group (b) which neutralize the damaging effect of 2-(2-methoxycarbonyl-phenyl-sulphonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one and its salts, in particular its sodium salt, on the crop plants virtually completely without adversely affecting the herbicidal activity with respect to the weeds.

Emphasis is given here to the particularly advantageous effect of the particularly and most preferred combination partners from group (b), in particular in respect of sparing cereal plants, such as, for example, wheat, barley and rye, as crop plants.

The active compound combinations according to the invention can be used, for example, in connection with the following plants:

Dicotyledonous weeds of the genera: Sinapis, Lepidium, Galium, Stellaria, Matricaria, Anthemis, Galinsoga, Chenopodium, Urtica, Senecio, Amaranthus, Portulaca, Xanthium, Convolvulus, Ipomoea, Polygonum, Sesbania, Ambrosia, Cirsium, Carduus, Sonchus, Solanum, Rorippa, Rotala, Lindernia, Lamium, Veronica, Abutilon, Emex, Datura, Viola, Galeopsis, Papaver, Centaurea, Trifolium, Ranunculus, Taraxacum.

Dicotyledonous crops of the genera: Gossypium, Glycine, Beta, Daucus, Phaseolus, Pisum, Solanum, Linum, Ipomoea, Vicia, Nicotiana, Lycopersicon, Arachis, Brassica, Lactuca, Cucumis, Cuburbita, Helianthus.

Monocotyledonous weeds of the genera: Echinochloa, Setaria, Panicum, Digitaria, Phleum, Poa, Festuca, Eleusine, Brachiaria, Lolium, Bromus, Avena, Cyperus, Sorghum, Agropyron, Cynodon, Monochoria, Fimbristylis, Sagittaria, Eleocharis, Scirpus, Paspalum, Ischaemum, Sphenoclea, Dactyloctenium, Agrostis, Alopecurus, Apera.

Monocotyledonous crops of the genera: Oryza, Zea, Triticum, Hordeum, Avena, Secale, Sorghum, Panicum, Saccharum, Ananas, Asparagus, Allium.

However, the use of the active compound combinations according to the invention is in no way restricted to these genera, but also extends in the same manner to other plants.

According to the invention, crop plants are all plants and plant varieties including transgenic plants and plant varieties.

The advantageous effect of the crop plant compatibility of the active compound combinations according to the invention is particularly highly pronounced at certain concentration ratios. However, the weight ratios of the active compounds in the active compound combinations can be varied within relatively wide ranges. In general, 0.001 to 1000 parts by weight, preferably 0.01 to 100 parts by weight, and particularly preferably 0.1 to 10 parts by weight of one of the compounds which improve crop plant compatibility mentioned under (b) above (antidotes/safeners) are present per part by weight of active compound of the formula (I) or its salts.

The active compounds or active compound combinations can be converted into the customary formulations, such as solutions, emulsions, wettable powders, suspensions, powders, dusting agents, pastes, soluble powders, granules, suspoemulsion concentrates, natural and synthetic materials impregnated with active compound, and very fine capsules in polymeric substances.

These formulations are produced in a known manner, for example by mixing the active compounds with extenders, that is liquid solvents and/or solid carriers, optionally with the use of surfactants, that is emulsifiers and/or dispersants and/or foam-formers.

If the extender used is water, it is also possible to use, for example, organic solvents as auxiliary solvents. Suitable liquid solvents are essentially: aromatics, such as xylene, toluene or alkylnaphthalenes, chlorinated aromatics and chlorinated aliphatic hydrocarbons, such as chlorobenzenes, chloroethylenes or methylene chloride, aliphatic hydrocarbons, such as cyclohexane or paraffins, for example petroleum fractions, mineral and vegetable oils, alcohols, such as butanol or glycol, and also their ethers and esters, ketones, such as acetone, methyl ethyl ketone, methyl isobutyl ketone or cyclohexanone, strongly polar solvents, such as dimethylformamide and dimethyl sulphoxide, and also water.

Suitable solid carriers are:
for example ammonium salts and ground natural minerals, such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite or diatomaceous earth, ground synthetic minerals, such as finely divided silica, alumina and silicates, suitable solid carriers for granules are: for example crushed and fractionated natural rocks such as calcite, marble, pumice, sepiolite and dolomite, and also synthetic granules of inorganic and organic meals, and granules of organic material such as sawdust, coconut shells, maize cobs and

tobacco stalks; suitable emulsifiers and/or foam-formers are: for example non-ionic and anionic emulsifiers, such as polyoxyethylene fatty acid esters, polyoxyethylene fatty alcohol ethers, for example alkylaryl polyglycol ethers, alkylsulphonates, alkyl sulphates, arylsulphonates and protein hydrolysates; suitable dispersants are: for example lignosulphfite waste liquors and methylcellulose.

Tackifiers such as carboxymethylcellulose and natural and synthetic polymers in the form of powders, granules or latices, such as gum arabic, polyvinyl alcohol and polyvinyl acetate, and also natural phospholipids, such as cephalins and lecithins, and synthetic phospholipids, can be used in the formulations. Other possible additives are mineral and vegetable oils.

It is possible to use colorants such as inorganic pigments, for example iron oxide, titanium oxide and Prussian Blue, and organic dyestuffs, such as alizarin dyestuffs, azo dyestuffs and metal phthalocyanine dyestuffs, and trace nutrients such as salts of iron, manganese, boron, copper, cobalt, molybdenum and zinc.

The formulations generally comprise from 0.1 to 95 per cent by weight of active compounds including the safeners, preferably between 0.5 and 90%.

The active compound combinations according to the invention are generally used in the form of finished formulations. However, the active compounds contained in the active compound combinations can also be mixed in individual formulations when used, i.e. in the form of tank mixes.

The novel active compound combinations, as such or in their formulations, can furthermore be used as a mixture with other known herbicides, finished formulations or tank mixes again being possible. A mixture with other known active compounds, such as fungicides, insecticides, acaricides, nematicides, bird repellents, growth factors, plant nutrients and agents which improve soil structure, is also possible. For certain intended uses, in particular in the post-emergence method, it may furthermore be advantageous to include, as further additives in the formulations, mineral or vegetable oils which are tolerated by plants (for example the commercial preparation "Oleo® DuPont 11E"), or ammonium salts such as, for example, ammonium sulphate or ammonium thiocyanate.

The novel active compound combinations can be used as such, in the form of their formulations or the use forms prepared therefrom by further dilution, such as ready-to-

use solutions, suspensions, emulsions, powders, pastes and granules. They are used in the customary manner, for example by pouring, spraying, atomizing, dusting or scattering.

The amounts of the active compound combinations according to the invention applied can be varied within a certain range; they depend, inter alia, on the weather and on soil factors. In general, the application rates are between 0.05 and 5 kg per ha, preferably between 0.05 and 2 kg per ha, particularly preferably between 0.1 and 1.0 kg per ha.

The active compound combinations according to the invention can be applied before and after emergence of the plants, that is to say by the pre-emergence and post-emergence method.

Use Examples:

The active compounds in question were used in the form of customary formulations. The sodium salt of the compound of the formula (I) was applied as 70 WG or 70 WP, mefenpyr-diethyl was applied as 100 EC and fenchlorazole-ethyl and cloquintocet-mexyl were applied as a laboratory formulation of the active compound produced by ourselves. The active compounds and, if appropriate, the safeners were used to prepare an aqueous spray liquor comprising 0.1% of the additive Renex-36.

Example A

Post-emergence test

The active compound preparation is used to spray test plants which were grown in 10 x 10 cm pots (growth medium: soil or vermiculte), such that the particular amounts of active compound desired are applied per unit area. The concentration of the spray liquor is chosen such that the particular amounts of active compound desired are applied in 500 l of water/ha.

After approximately 18 days the degree of damage to the crop plants was rated in % damage in comparison with the development of the untreated control.

The figures denote:

0 % = no damage (like untreated control)
100 % = total destruction/damage

Active compounds, application rates, test plants and results are shown in the tables below, the terms used in the tables having the following meaning:

wheat = wheat of the cultivar Orestis
barley = barley of the cultivar Coronar
a.i. = active ingredient = active compound/safener

Sodium salt of the compound (I) =

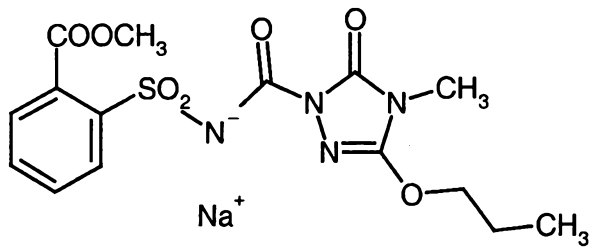


Table A1 post emergence test/ greenhouse

Active compound(s)	Application rate (g of a.i./ha)	Damage wheat [in %]
Sodium salt of the compound of the formula (I)	180	30
	90	20
Sodium salt of the compound of the formula (I) + fenchlorazole-ethyl	180 + 500	10
	90 + 500	10
	180 + 45	10
	90 + 45	10

Table A2 post emergence test/ greenhouse

Active compound(s)	Application rate (g of a.i./ha)	Damage wheat [in %]
Sodium salt of the compound of the formula (I)	250	50
	125	30
	60	20
Sodium salt of the compound of the formula (I) + mefenpyr-diethyl	250 + 250	20
	125 + 125	0
	60 + 60	0

Table A3 post emergence test/greenhouse

Active compound(s)	Application rate (g of a.i./ha)	Damage wheat [in %]
Sodium salt of the compound of the formula (I)	125	50
	60	10
	30	5
Sodium salt of the compound of the formula (I) + mefenpyr-diethyl	125 + 125	10
	60 + 60	5
	30 + 30	0

Table A4 **post emergence test/greenhouse**

Active compound(s)	Application rate (g of a.i./ha)	Damage wheat [in %]
Sodium salt of the compound of the formula (I)	125	40
	60	30
Sodium salt of the compound of the formula (I) + mefenpyr-diethyl	125 + 250	10
	60 + 250	0

Table A5 **post emergence test/greenhouse**

Active compound(s)	Application rate (g of a.i./ha)	Damage barley [in %]
Sodium salt of the compound of the formula (I)	60	70
	30	70
	15	50
Sodium salt of the compound of the formula (I) + mefenpyr-diethyl	60 + 60	60
	30 + 30	50
	15 + 15	30

Table A6 **post emergence test/greenhouse**

Active compound(s)	Application rate (g of a.i./ha)	Damage barley [in %]
Sodium salt of the compound of the formula (I)	60	60
	30	60
	15	50
	8	50
Sodium salt of the compound of the formula (I) + mefenpyr-diethyl	60 + 200	50
	30 + 200	30
	15 + 200	30
	8 + 200	5
	60 + 50	60
	30 + 50	40
	15 + 50	30
	8+ 50	10

Table A7 **post emergence test/greenhouse**

Active compound(s)	Application rate (g of a.i./ha)	Damage wheat [in %]
Sodium salt of the compound of the formula (I)	250	50
	125	30
	60	20
Sodium salt of the compound of the formula (I) + chloquintocet-mexyl	250 + 250	20
	125 + 125	10
	60 + 60	0

Table A8 **post emergence test/greenhouse**

Active compound(s)	Application rate (g of a.i./ha)	Damage wheat [in %]
Sodium salt of the compound of the formula (I)	125	50
	60	10
	30	5
Sodium salt of the compound of the formula (I) + chloquintocet-mexyl	125 + 125	10
	60 + 60	5
	30 + 30	0

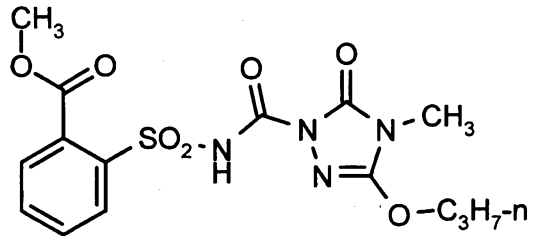
Table A9 **post emergence test/greenhouse**

Active compound(s)	Application rate (g of a.i./ha)	Damage barley [in %]
Sodium salt of the compound of the formula (I)	60	70
	30	70
	15	50
Sodium salt of the compound of the formula (I) + chloquintocet-mexyl	60 + 60	60
	30 + 30	50
	15 + 15	30

Patent Claims

1. Composition, comprising an effective amount of an active compound combination comprising

(a) 2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one of the formula (I)



(I)

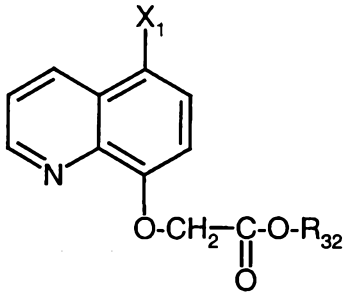
and/or one or more salts of the compound of the formula (I)

and

(b) at least one crop plant compatibility-improving compound from the following group of compounds:

α-(1,3-dioxolan-2-yl-methoximino)-phenylacetonitrile (oxabetrinil), α-(cyanomethoximino)-phenylacetonitrile (cyometrinil), 4-chloro-N-(1,3-dioxolan-2-yl-methoxy)-α-trifluoro-acetophenone oxime (fluxofenim), 4,6-dichloro-2-phenyl-pyrimidine (fenclorim), 4-dichloroacetyl-3,4-dihydro-3-methyl-2H-1,4-benzoxazine (benoxacor), 1-methyl-hexyl 5-chloro-quinoxaline-8-oxyacetate (cloquintocet), 2,2-dichloro-N-(2-oxo-2-(2-propenylamino)-ethyl)-N-(2-propenyl)-acetamide (DKA-24), 1,8-naphthalic anhydride, ethyl 1-(2,4-dichloro-phenyl)-5-trichloromethyl-1H-1,2,4-triazole-3-carboxylate (fenchlorazol-ethyl), phenylmethyl 2-chloro-4-trifluoromethyl-thiazole-5-carboxylate (flurazole), 3-dichloro-acetyl-5-(2-furanyl)-2,2-dimethyl-oxazolidine (furilazole, MON-13900), 4-dichloroacetyl-1-oxa-4-aza-spiro[4.5]-decane (AD-67), 2-dichloro-

methyl-2-methyl-1,3-dioxolane (MG-191), 2,2-dichloro-N-(1,3-dioxolan-2-yl-methyl)-N-(2-propenyl)-acetamide (PPG-1292), 2,2-dichloro-N,N-di-2-propenyl-acetamide (dichlormid), N-(4-methylphenyl)-N'-(1-methyl-1-phenyl-ethyl)-urea (dymron), 1-dichloroacetyl-hexahydro-3,3,8a-trimethylpyrrolo[1,2-a]-pyrimidin-6(2H)-one (BAS-145138), N-(2-methoxy-benzoyl)-4-(methylaminocarbonylamino)-benzenesulphonamide and/or the compounds below, defined by general formulae,



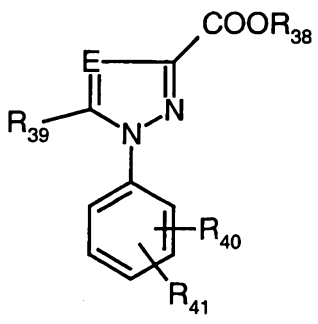
(IIa),

in which

R_{32} represents hydrogen, C_1-C_8-alkyl or C_1-C_6-alkoxy- or C_3-C_6-alkenyloxy-substituted C_1-C_8-alkyl and

X_1 represents hydrogen or chlorine;

or of the formula (IIb)



(IIb),

in which

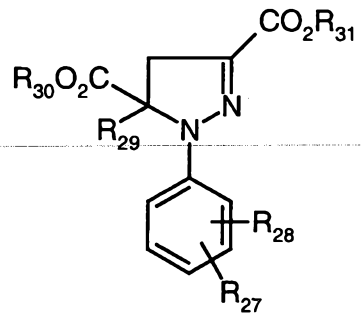
E represents nitrogen or methine;

R_{38} represents C_1-C_4-alkyl;

R_{39} represents $-CCl_3$, phenyl or halogen-substituted phenyl, and

R_{40} and R_{41} independently of one another each represent hydrogen or halogen;

or of the formula (IIc)



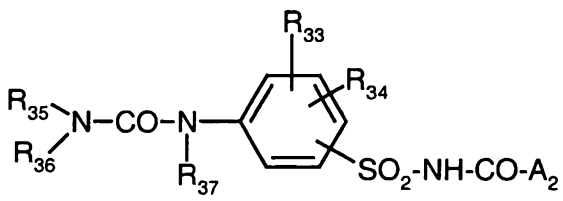
(IIc),

in which

R_{27} and R_{28} independently of one another each represent hydrogen or halogen and

R_{29}, R_{30} and R_{31} independently of one another each represent C_1-C_4-alkyl;

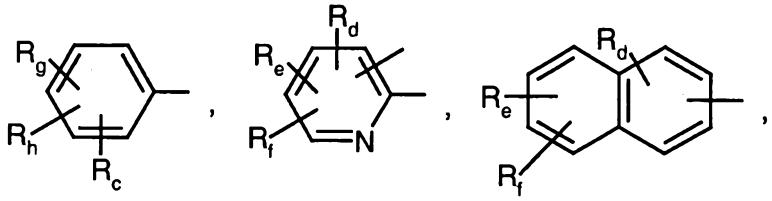
or of the formula (IId)



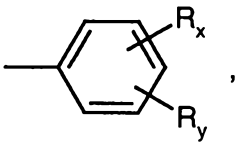
(IId)

in which

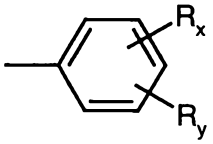
A_2 represents a group



R_{35} and R_{36} independently of one another each represents hydrogen, C_1-C_8-alkyl, C_3-C_8-cycloalkyl, C_3-C_6-alkenyl, C_3-C_6-alkinyl,



or C_1-C_4-alkoxy- or



-substituted C_1-C_4-alkyl; or

R_{35} and R_{36} together form a C_4-C_6-alkylene bridge which may be interrupted by oxygen, sulphur, SO, SO_2, NH or -N(C_1-C_4-alkyl)-;

R_{37} represents hydrogen or C_1-C_4-alkyl;

R_{33} represents hydrogen, halogen, cyano, trifluoromethyl, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl, C_1-C_4-alkylsulphonyl, -$COOR_j$, -$CONR_kR_m$, -COR_n, -SO_2-NR_kR_m or -OSO_2-C_1-C_4-alkyl;

R_g represents hydrogen, halogen, cyano, nitro, C_1-C_4-alkyl, C_1-C_4-halogenoalkyl, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl, C_1-C_4-alkylsulphonyl, -$COOR_j$, -$CONR_kR_m$, -COR_n, -$SO_2NR_kR_m$, -OSO_2-C_1-C_4-alkyl, C_1-C_6-alkoxy or C_1-C_6-alkoxy which is substituted by C_1-C_4-alkoxy or halogen, C_3-C_5-alkenyloxy or C_3-C_6-alkenyloxy which is substituted by halogen, or represents C_3-C_6-alkinyloxy or

R_{33} and R_{34} together form a C_3-C_4-alkylene bridge which may be substituted by halogen or C_1-C_4-alkyl, or form a C_3-C_4-alkenylene bridge which may be substituted by halogen or C_1-C_4-alkyl, or form a C_3-C_4-alkadienylene bridge which may be substituted by halogen or C_1-C_4-alkyl;

R_{34} and R_h independently of one another each represent hydrogen, halogen, C_1-C_4-alkyl, trifluoromethyl, C_1-C_6-alkoxy, C_1-C_6-alkylthio or -$COOR_j$;

R_c represents hydrogen, halogen, nitro, C_1-C_4-alkyl or methoxy;

R_d represents hydrogen, halogen, nitro, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulphinyl, C_1-C_4-alkylsulphonyl, -$COOR_j$ or $CONR_kR_m$;

R_e represents hydrogen, halogen, C_1-C_4-alkyl, -$COOR_j$, trifluoromethyl or methoxy, or

R_d and R_e together form a C_3-C_4-alkylene bridge;

R_f represents hydrogen, halogen or C_1-C_4-alkyl;

R_x and R_y independently of one another each represent hydrogen, halogen, C_1-C_4-alkyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, -$COOR_{38}$, trifluoromethyl, nitro or cyano;

R_j, R_k and R_m independently of one another each represent hydrogen or C_1-C_4-alkyl; or

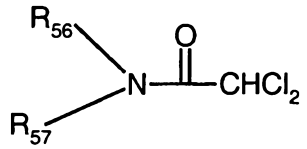
R_k and R_m together form a C_4-C_6-alkylene bridge which may be interrupted by oxygen, NH or -N(C_1-C_4-alkyl)-;

R_n represents C_1-C_4-alkyl, phenyl or halogen-, C_1-C_4-alkyl-, methoxy-, nitro- or trifluoromethyl-substituted phenyl;

R_{38} represents hydrogen, C_1-C_{10}-alkyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, C_1-C_4-alkylthio-C_1-C_4-alkyl, di-C_1-C_4-alkylamino-C_1-C_4-alkyl, halogeno-C_1-C_8-alkyl, C_2-C_8-alkenyl, halogeno-C_2-C_8-alkenyl, C_3-C_8-alkinyl, C_3-C_7-cycloalkyl, halogeno-C_3-C_7-cycloalkyl, C_1-C_8-alkylcarbonyl, allylcarbonyl, C_3-C_7-cycloalkylcarbonyl, benzoyl, which is unsubstituted or substituted up to three times on the phenyl ring by identical or different substituents from the group consisting of halogen, C_1-C_4-alkyl, halogeno-C_1-C_4-alkyl, halogeno-C_1-C_4-alkoxy and C_1-C_4-alkoxy; or represents furoyl, thienyl; or represents

C_1-C_4-alkyl substituted by phenyl, halogenophenyl, C_1-C_4-alkylphenyl, C_1-C_4-alkoxyphenyl, halogeno-C_1-C_4-alkylphenyl, halogeno-C_1-C_4-alkoxyphenyl, C_1-C_6-alkoxycarbonyl, C_1-C_4-alkoxy-C_1-C_8-alkoxycarbonyl, C_3-C_8-alkenyloxycarbonyl, C_3-C_8-alkinyloxycarbonyl, C_1-C_8-alkylthiocarbonyl, C_3-C_8-alkenylthiocarbonyl, C_3-C_8-alkinylthiocarbonyl, carbamoyl, mono-C_1-C_4-alkylaminocarbonyl, di-C_1-C_4-alkylaminocarbonyl; or represents phenylaminocarbonyl which is unsubstituted or substituted up to three times on the phenyl by identical or different substituents from the group consisting of halogen, C_1-C_4-alkyl, halogeno-C_1-C_4-alkyl, halogeno-C_1-C_4-alkoxy and C_1-C_4-alkoxy or monosubstituted on the phenyl by cyano or nitro or represents dioxolan-2-yl which is unsubstituted or substituted by one or two C_1-C_4-alkyl radicals, or represents dioxan-2-yl which is unsubstituted or substituted by one or two C_1-C_4-alkyl radicals, or represents C_1-C_4-alkyl which is substituted by cyano, nitro, carboxyl or C_1-C_8-alkylthio-C_1-C_8-alkoxycarbonyl;

or a compound of the formula (IIf)

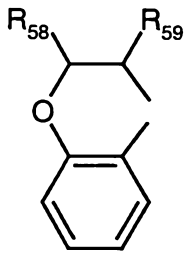


(IIf),

in which

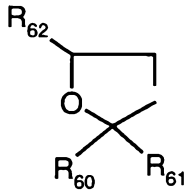
R_{56} and R_{57} independently of one another each represent C_1-C_6-alkyl or C_2-C_6-alkenyl; or

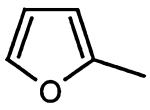
R_{55} and R_{57} together represent



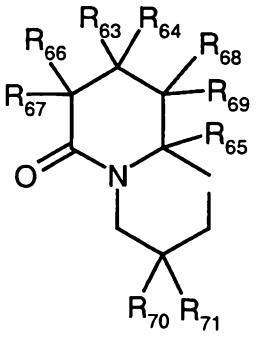
R_{58} and R_{59} independently of one another each represent hydrogen or C_1-C_6-alkyl; or

R_{56} and R_{57} together represent

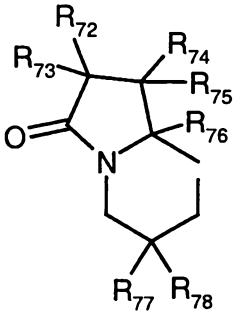


R_{60} and R_{61} independently of one another each represent C_1-C_4-alkyl, or R_{60} and R_{61} together represent $-(CH_2)_5-$; R_{62} represents hydrogen, C_1-C_4-alkyl or 

or R_{56} and R_{57} together represent

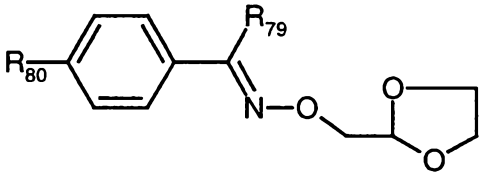


or



R_{63}, R_{64}, R_{65}, R_{66}, R_{67}, R_{68}, R_{69}, R_{70}, R_{71}, R_{72}, R_{73}, R_{74}, R_{75}, R_{76}, R_{77} and R_{78} independently of one another each represent hydrogen or C_1-C_4-alkyl;

or a compound of the formula (IIg)



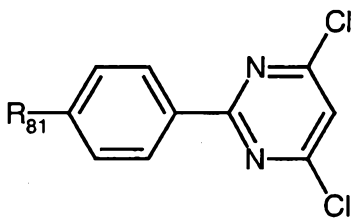
(IIg),

in which

R_{79} represents hydrogen or chlorine and

R_{80} represents cyano or trifluoromethyl,

or a compound of the formula (IIh)

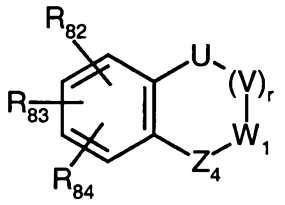


(IIh)

in which

R_{81} represents hydrogen or methyl,

or of the formula (IIj)



(IIj),

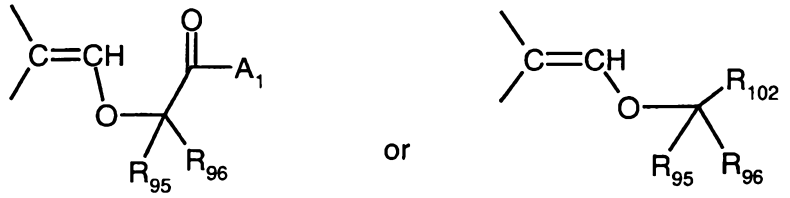
in which

R_{82} represents hydrogen, C_1-C_4-alkyl, C_1-C_4-alkyl substituted by C_1-C_4-alkyl-X_2- or C_1-C_4-halogenoalkyl-X_2-, represents C_1-C_4-halogenoalkyl, nitro, cyano, -$COOR_{85}$, -$NR_{86}R_{87}$, -$SO_2NR_{88}R_{89}$ or -$CONR_{90}R_{91}$;

R_{83} represents hydrogen, halogen, C_1-C_4-alkyl, trifluoromethyl, C_1-C_4-alkoxy or C_1-C_4-halogenoalkoxy;

R_{84} represents hydrogen, halogen or C_1-C_4-alkyl;

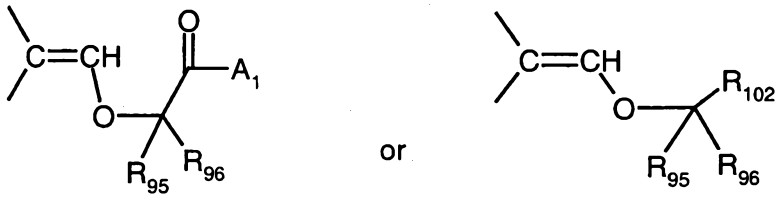
U, V, W_1 and Z_4 independently of one another each represent oxygen, sulphur, $C(R_{92})R_{93}$, carbonyl, NR_{94}, a group



in which

R_{102} represents C_2-C_4-alkenyl or C_2-C_4-alkinyl;

with the proviso that a) at least one of the ring members U, V, W_1 or Z_4 is carbonyl and a ring member adjacent to this or these ring members represents the group



where this group occurs only once; and

b) two adjacent ring members U and V, V and W_1 and W_1 and Z may not simultaneously represent oxygen;

R_{95} and R_{96} independently of one another each represent hydrogen or C_1-C_8-alkyl; or

R_{95} and R_{96} together form a C_2-C_6-alkylene group;

A_1 is R_{99}-Y_1- or -$NR_{97}R_{98}$;

X_2 is oxygen or -$S(O)_s$;

Y_1 is oxygen or sulphur;

R_{99} is hydrogen, C_1-C_8-alkyl, C_1-C_8-halogenoalkyl, C_1-C_4-alkoxy-C_1-C_8-alkyl, C_3-C_6-alkenyloxy-C_1-C_8-alkyl or phenyl-C_1-C_8-alkyl, where the phenyl ring may be substituted by

halogen, C_1-C_4-alkyl, trifluoromethyl, methoxy or methyl-$S(O)_s$-, represents C_3-C_6-alkenyl, C_3-C_6-halogeno-alkenyl, phenyl-C_3-C_6-alkenyl, C_3-C_6-alkinyl, phenyl-C_3-C_6-alkinyl, oxetanyl, furyl or tetrahydrofuryl;

R_{85} represents hydrogen or C_1-C_4-alkyl;

R_{86} represents hydrogen, C_1-C_4-alkyl or C_1-C_4-alkylcarbonyl;

R_{87} represents hydrogen or C_1-C_4-alkyl; or

R_{86} and R_{87} together form a C_4- or C_5-alkylene group;

R_{88}, R_{89}, R_{90} and R_{91} independently of one another each represent hydrogen or C_1-C_4-alkyl; or R_{88} together with R_{89} or R_{90} together with R_{91} independently of one another represent C_4- or C_5-alkylene, where one carbon atom may be replaced by oxygen or sulphur or one or two carbon atoms may be replaced by -NR_{100}-;

R_{92}, R_{100} and R_{93} independently of one another each represent hydrogen or C_1-C_8-alkyl; or

R_{92} and R_{93} together represent C_2-C_6-alkylene;

R_{94} represents hydrogen or C_1-C_8-alkyl;

R_{97} represents hydrogen; C_1-C_8-alkyl, phenyl, phenyl-C_1-C_8-alkyl, where the phenyl rings may be substituted by fluorine, chlorine, bromine, nitro, cyano, -OCH_3, C_1-C_4-alkyl or

CH_3SO_2-, represents C_1-C_4-alkoxy-C_1-C_8-alkyl, C_3-C_6-alkenyl or C_3-C_6-alkinyl;

R_{98} represents hydrogen, C_1-C_8-alkyl, C_3-C_6-alkenyl or C_3-C_6-alkinyl, or

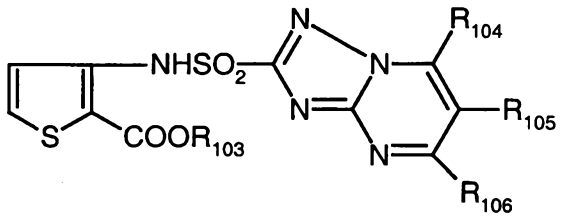
R_{97} and R_{98} together represent C_4- or C_5-alkylene, where one carbon atom may be replaced by oxygen or sulphur, or one or two carbon atoms may be replaced by -NR_{101}-;

R_{101} represents hydrogen or C_1-C_4-alkyl;

r represents 0 or 1; and

s represents 0, 1 or 2,

or a compound of the formula (IIk)



(IIk),

in which

R_{103} represents hydrogen, C_1-C_6-alkyl, C_3-C_6-cycloalkyl, C_3-C_6-alkenyl or C_3-C_6-alkinyl; and

R_{104}, R_{105} and R_{106} independently of one another each represent hydrogen, C_1-C_6-alkyl, C_3-C_6-cycloalkyl or C_1-C_6-alkoxy,

with the proviso that one of the substituents R_{104}, R_{105} and R_{106} is different from hydrogen,

where generally from 0.001 to 1000 parts by weight of one of the abovementioned compounds of group (b) are present per part by weight of an active compound 2-(2-methoxycarbonyl-phenylsulphonylamino-carbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one of the formula (I) or its salts.

2. Composition according to Claim 1, characterized in that the component (b) is one of the compounds diethyl 1-(2,4-dichlorophenyl)-4,5-dihydro-5-methyl-1H-pyrazole-3,5-dicarboxylate (mefenpyr-diethyl), 1-methylhexyl [(5-chloro-8-quinolinyl)oxy]acetate (cloquintocet-mexyl) and/or ethyl 1-(2,4-dichloro-phenyl)-5-(trichloromethyl)-1H-1,2,4-triazole-3-carboxylate (fenchlorazole-ethyl).

3. Composition according to Claim 1, characterized in that the component (b) is the compound diethyl 1-(2,4-dichlorophenyl)-4,5-dihydro-5-methyl-1H-pyrazole-3,5- dicarboxylate (mefenpyr-diethyl).

4. Composition, comprising an effective amount of an active compound combination comprising

(a) 2-(2-methoxycarbonyl-phenylsulphonylaminocarbonyl)-4-methyl-5-propoxy-2,4-dihydro-3H-1,2,4-triazol-3-one

and

(b) 2,4-dichlorophenoxyacetic acid (2,4-D) and/or its derivatives.

5. Use of a composition according to any of Claims 1 to 4 for controlling undesirable vegetation.

6. Method for controlling weeds, characterized in that compositions according to any of Claims 1 to 4 are allowed to act on the undesirable plants and/or their habitat.

7. Process for preparing a herbicidal composition, characterized in that a composition according to any of Claims 1 to 4 is mixed with surfactants and/or extenders.