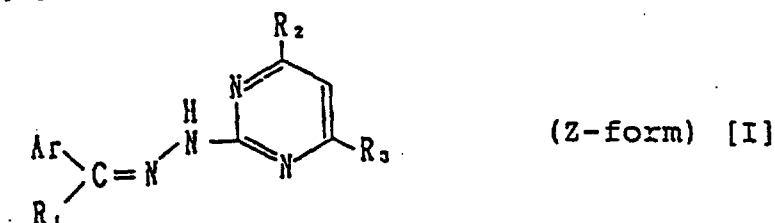


- 1 -

Agrochemical Composition Containing a Pyrimidine
Derivative

This invention relates to stabilized agrochemical compositions, which comprise a pyrimidine derivative of the formula [I]

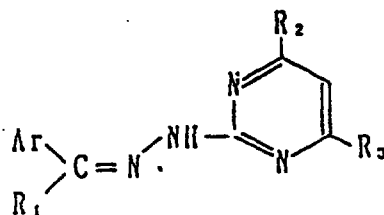


wherein Ar means a phenyl group substituted by at least a lower alkyl; R_1 , R_2 and R_3 independently mean a lower alkyl group or its salt and an amine compound of no less than 4 carbon atoms.

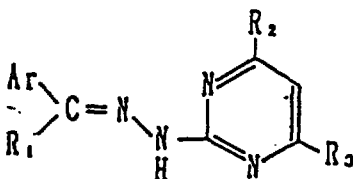
The pyrimidine derivatives of the above formula [I] and their salts (hereinafter referred to briefly as Compounds M) have potent controlling activities against agricultural pests causative of various plant diseases such as blast, leaf spot, stem rot, etc. and are of value as an agricultural and horticultural pesticide, particularly fungicide and/or antimicrobial agent, as disclosed in Japanese Unexamined Patent Application KOKAI 151570/1980 (USP No. 4341782).

However, Compounds M have the disadvantage that when formulated into a preparation, they undergo isomerization under the influence of concomitant ingredients.

In further detail, while Compounds M are Z-forms with respect to the C=N double bond and may be written as



there are E-forms which may be written as



5

These two geometrical isomers can be independently isolated. Compounds M may, on the other hand, occur as a certain equilibrium mixture of these isomers. Depending on types of concomitant ingredients and other conditions, this equilibrium may shift in favor of the E-form and in disfavor of the Z-form. That is to say, the Z-forms of Compounds M in a formulation may be isomerized to the E-forms. Z form and E form are both effective as pesticidal agents. However, since the E-form is not as chemically stable as the Z-form, it is preferable that the isomerization from Z-form to E-form be somehow prevented.

Generally speaking, agrochemically active substances are put to use as formulated with various carriers and auxiliary agents. Compounds M are no exception. The compound is used not only in the form of a composition containing it as an exclusive active ingredient but also in combination with other active ingredients for simultaneous, labor-saving control of pests, particularly fungi and microbes. Once so formulated, Compounds M undergo isomerization on many occasions.

The isomerization of Compounds M occurs particularly in the presence of acid substances. While the demand for a mixture containing a Compound M and other pesticidal or fungicidal agents is great as suggested above, many of the insecticidal and fungicidal agents are either acidic in themselves or substances which are only stable under acidic conditions. Some of the auxiliary agents in prevalent use are also acidic

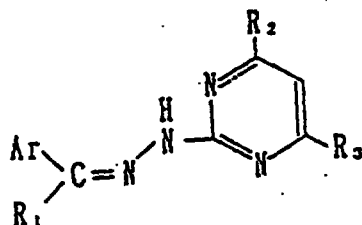
and when mixed with these substances, Compounds M isomerize to a substantial extent. Some of carriers also promote this isomerization of Compounds M to E-form.

5 It is, therefore, an object of the invention to provide an agrochemical composition in which the isomerization of Compound M is prevented.

It is a still important object to provide a stabilized agrochemical composition in which the
10 Compound M has been stabilized against isomerization without adverse effects on concomitant ingredients.

Exploring the technology for providing an agrochemical composition in which Compound M, a chemical substance having an excellent control action against
15 blast and other plant diseases, could be maintained free of isomerization, the present inventors discovered surprisingly that a certain type of amine compound incorporated in such a composition inhibited the isomerization of Compounds M and, yet, caused no toxic
20 effect on the crops, man and domestic animals. The subsequent intensive investigation has led to the completion of the present invention.

Thus, the present invention directed to a stabilized agrochemical composition characterized by containing a pyrimidine derivative of the formula [I].
25



(Z-form) [I]

30 wherein Ar means a phenyl group substituted by at least one lower alkyl; R₁, R₂ and R₃ independently mean a lower alkyl group, or its salt and an amine compound of no less than 4 carbon atoms.

35 The present invention also relates to a process

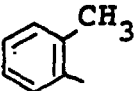
for producing a stabilized agrochemical composition as mentioned above.

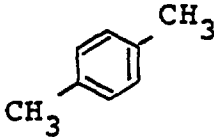
Another aspect of the present invention is concerned with a method combatting against pathogens or pests in the field or the grass which comprises applying the above-mentioned stabilized agrochemical composition to the field or the grass.

Compounds M, the agrochemically active ingredients to be used in the invention, can be prepared by the process described in Japanese Unexamined Patent Application KOKAI 151570/1980 (or USP No. 4341782) referred to above.

As examples of the salts of the pyrimidine compound of the formula [I], there are mentioned salts with hydrochloric acid, phosphoric acid, sulfuric acid, benzenesulfonic acid, methanesulfonic acid, p-toluenesulfonic acid, trichloroacetic acid and oxalic acid etc.

Among various species of Compounds M which are Z-isomers represented by formula (I), the compound in

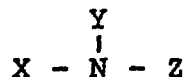
which Ar is  and $R_1 = R_2 = R_3 = CH_3$ (hereinafter referred to sometimes as Compound M₁)

and the compound in which Ar is  and $R_1 = R_2 = R_3 = CH_3$ (hereinafter referred to sometimes as Compound M₂) are particularly desirable for the purposes of the invention.

The aforesaid amine compound to be used in accordance with the invention can be selected from a broad category of primary, secondary and tertiary amines containing 4 or more carbon atoms. Particularly preferred are aliphatic amines and diamine compounds.

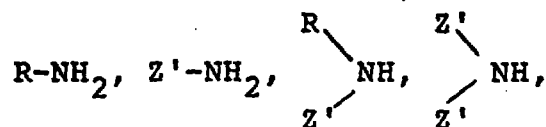
Preferable are amines containing 4 to 150 carbon

atoms of the formula:

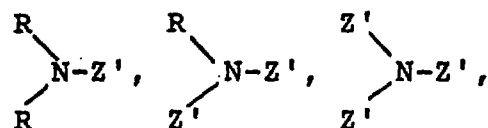


in which X, Y and Z are independently hydrogen or alkyl
 5 provided that at least one of X, Y and Z is an alkyl
 group, and said alkyl group may be interrupted by
 oxygen and may be substituted by hydroxy or amino.
 Particularly preferred are the cases, where one of X, Y
 and Z is hydrogen, and the others are the above defined
 10 alkyl, or two of X, Y and Z are hydrogen, and the other
 is the above-mentioned alkyl group. The aliphatic
 substituents including alkyl represented by X, Y and Z
 of said amines are preferably polyoxyethylene, polyoxy-
 propylene and/or alkyl groups which may be substituted
 15 by hydroxy group or amino group. As to the diamine
 compounds, alkylene diamines such as ethylenediamine,
 trimethylenediamine, etc. are preferred and the substi-
 tuents on these diamines are also preferably polyoxy-
 ethylene, polyoxypropylene and/or alkyl groups. It is
 20 preferable that said polyoxyethylene and polyoxypropy-
 lene groups each consist of more than one oxyethylene
 or oxypropylene units in series terminating with a
 hydrogen atom.

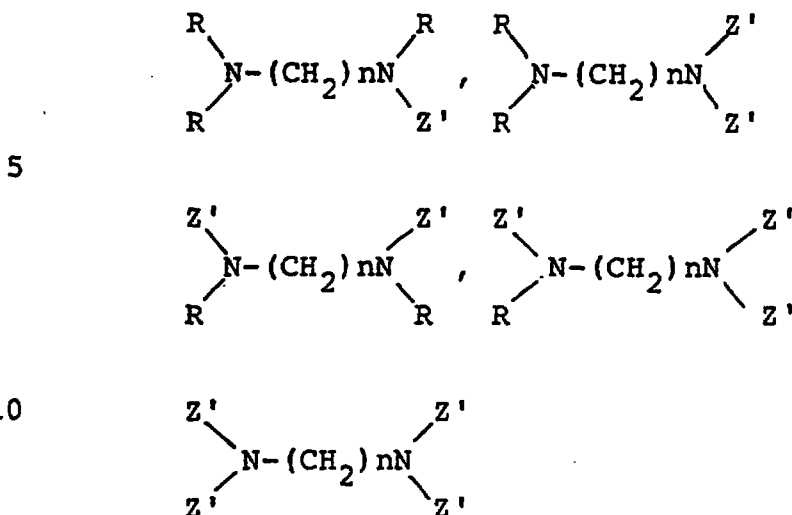
As examples of the amine compound having 4 or more
 25 carbon atoms to be used in accordance with the invention,
 amines of the following formulas can be mentioned.



30



35



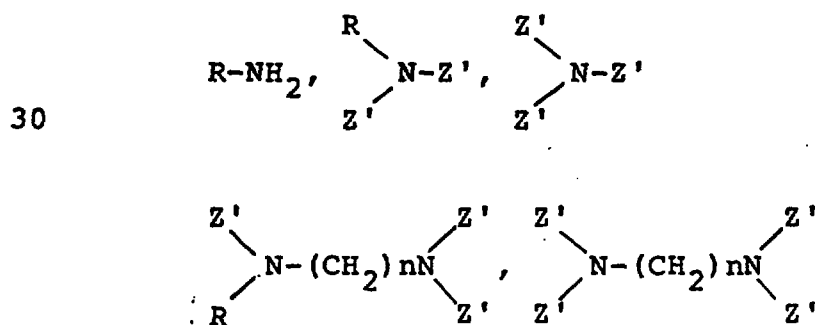
(wherein R means an alkyl group, preferably having 4 to 20 carbon atoms; Z' means a group of $-(\text{CH}_2-\text{CH}_2\text{O})_m\text{H}$ or $-(\text{CH}_2-\text{CH}_2\text{O})_m\text{CH}_3$; m and n independently means a positive integer, preferably m is an integer of 1 to 40 and n is 2 or 3; R, Z', m and n may each mean the same or different members where each occurs more than once; provided that the total number of carbon atoms in each amine is not less than 4).

15

20

Where the agrochemical composition of the invention contains acidic substances in addition to Compounds M, amine compounds of the following formulas, among the amines of the above formulas, are particularly effective in suppressing isomerization of Compound M without adverse effects on the concomitant ingredients.

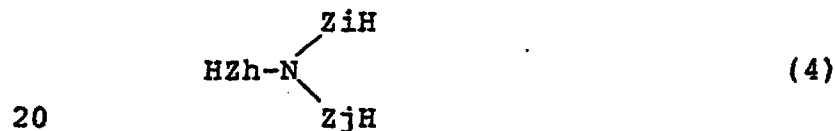
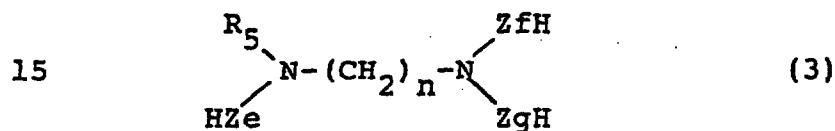
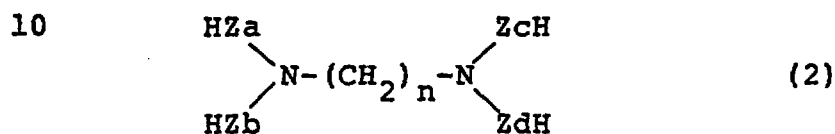
25



(wherein each of the symbols has the same meaning as

defined hereinbefore.)

Furthermore, it has been found that among these amine compounds, amines of the following formulas are most desirable from the standpoint of preventing said isomerization of Compounds M, stabilizing the formula-
tion and assuring a minimum toxicity to crop plants, man and domestic animals.



[In formulas (1) through (5), R_4 , R_5 and R_6 independently mean an alkyl group of 4 to 20 carbon atoms; Z means $-\text{CH}_2\text{CH}_2\text{O}-$ or $-\text{CH}(\text{CH}_3)-\text{CH}_2\text{O}-$; n is 2 or

3; a through l each is an integer not less than 1 and 4
 $\leq a + b + c + d \leq 40$; $3 \leq e + f + g \leq 40$; $3 \leq h + i + j \leq 40$; and $2 \leq k + l \leq 40$].

Taking as an example a mixture containing one of Compounds M, substances showing a remarkable control action against blast, leaf spot, etc., and S,S'-(2-dimethylaminotrimethylene)bis(thiocarbamate)hydrochloro-

ride [hereinafter referred to as cartap hydrochloride (its common name)], a substance showing a marked ontrol action against rice stem borers, planthoppers and other noxious insects, amines of formula (5) are particularly desirable in that they do not adversely affect cartap hydrochloride and is effective n the prevention of isomerization of Compounds M. Preferred examples of amine (5) include polyoxyethylene (hereinafter referred to briefly as POE) (2-40)laurylamine, POE(2-40)stearyl-
10 amine, POE(2-40)oleylamine, polyoxypropylene (briefly POP) (2-40)laurylamine, POP(2-40)stearylamine and POP(2-40)oleylamine.

As the amine compound for use in accordance with the invention, there may be utilized commercial com-
15 pounds which are sold as reagents [for example, amines of formula (1)], surfactants [for example, amines of formulas (2) through (4)] or pigment dispersing agents/-corrosion inhibitors [for example, amines of formula (5)]. Such amines can also be synthesized in accord-
20 ance with the known procedures, which include the process for synthesis of surfactants which comprises adding ethylene oxide or propylene oxide to triethanolamine or ethylenediamine (for example, see H. Horiguchi: Gosei Kaimen Kasseizai (Synthetic Surfactants), Sankyo
25 Shuppan) or the established processes for amine synthesis (for example, The Chemical Society of Japan (ed.): Zikken Kagaku Koza (Experimental Chemistry Series) 20, Synthesis of Organic Compounds (II), Maruzen). The commercially available amines which can be utilized for
30 the practice of the invention include laurylamine, diethanolamine, triethanolamine, ethylenediamine, dimethylaminopropane, dimethylaminopropylamine and so on.

There is no critical limitation on the amount of
35 the amine to be added but it is effective to add the

amine in a proportion of about 0.05 to 10 parts by weight, preferably about 0.1 to 5 parts by weight, relative to 100 parts by weight of the total composition.

5 Usually, the agrochemical composition of this invention is provided in the dosage forms of dusts, wettable powders, granules, aerosols, etc. by formulating a pyrimidine derivative of general formula [I] and its salt (Compound M) and said amine with, if desired,
10 other agrochemically active substances, carriers and auxiliary agents. In the case of dusts, they can be made driftless dusts (DL dusts) by, for example, incorporating appropriate additives (e.g. liquid paraffin) which show drift-decreasing effects. Examples
15 of such carriers and auxiliary agents include various surfactants (for example, ligninsulfonates, alkylbenzenesulfonates, polyoxyethylene alkyl ethers, alkyl-naphthalenesulfonates, etc.), dispersing agents (for example, ethylene glycol, glycerol, etc.), anti-caking
20 agents (for example, white carbon etc.), binders, absorbents and antioxidants (for example, dibutylhydroxytoluene, 4,4'-thiobis-6-tert-butyl-3-methylphenol, pentaerythryl-tetrakis[3-(3,5-di-t-butyl-4-hydroxy-phenyl)propionate] (hereinafter referred to as "Irganox-
25 1010) etc.), preservatives (for example, sorbic acid, potassium sorbate, etc.), synergists, wetting agents, stabilizers, solvents, excipients, diluents, suspending agents, penetration aids, thickeners or viscosity
30 builders, and so on. As examples of the agrochemically active substances other than Compounds M, there may be mentioned organosulfur, organophosphorus, organoarsenic, organochlorine and other fungicides, organophosphorus, organochlorine, carbamate, pyrethroid and other insecticides/miticides, and various antibiotics. As
35 examples of said carriers and auxiliary agents, there

may be mentioned various vegetable powders such as soybean flour, tabacco flour, wheat flour, sawdust, etc., mineral powders such as clays (kaolin, bentonite, acid clay, etc.), talcs (talcum powder, pyrophyllite powder, etc.), silicas (diatomaceous earth (e.g. Radiolite), mica powder, etc.) and so on, as well as other solid carriers/auxiliary agents such as calcium carbonate, sulfur powder, activated carbon and so on. The following is a partial listing of the agrochemically active substances.

Organosulfur fungicides: zinc ethylenebis(dithiocarbamate), manganese ethylenebis(dithiocarbamate), ammonium ethylenebis(dithiocarbamate), dizinc bis(dimethyldithiocarbamate) ethylenebis(dithiocarbamate), etc.

Organophosphorus fungicides: S-benzyl O,O-diisopropyl thiophosphate, S,S-diphenyl O-ethyl dithiophosphate, etc.

Organoarsenic fungicides: ferric methanearsonate, ferric ammonium methanearsonate, etc.

Organochlorine fungicides: pentachlorophenol, tetrachloroisophthalonitrile, 4,5,6,7-tetrachlorophthalide (hereinafter referred to as fthalide), etc.

Other fungicides: 5-methyl-1,2,4-triazolo[3,4-b]-benzothiazole (common name: tricyclazole, hereinafter referred to as tricyclazole), N-(trichloromethylthio)-4-cyclohexene-1,2-dicarboximide, phenazine 5-oxide, methyl 1-(butylcarbamoyl)2-benzimidazolecarbamate, etc.

Organophosphorus insecticides: O,O-dimethyl O-4-nitro-m-tolyl phosphorochioate (hereinafter referred to briefly as MEP), S-[1,2-bis(ethoxycarbonyl)ethyl] O,O-dimethyl dithiophosphate, 2,2-dichlorovinyl dimethylphosphate, dimethyl 2,2,2-trichloro-1-hydroxyethylphosphonate, O,S-dimethyl N-acetylphosphoramidothiolate, dimethyl (E)-1-methyl-2-methylcarbamoylvinyl phosphate,

O,O-dimethyl S[α (ethoxycarbonyl)benzyl] dithiophosphate,
O,O-dimethyl S-(N-methylcarbamoylmethyl) dithiophospha-
te, etc.

5 Organochlorine insecticides: 6,7,8,9,10,10-hexa-
chloro-1,5,5a,9,9a-hexahydro-6,9-methano-2,4,3-benzodi-
oxathiepine 3-oxide (benzoepin), etc.

 Carbamate insecticides: 1-naphthyl N-methylcarba-
mate, m-tolyl N-methylcarbamate, o-sec-butylphenyl
N-methylcarbamate (hereinafter referred to as BPMC),
10 etc.

 Pyrethroid insecticides: pyrethrins, allethrin,
resmethrin, 2-(4-ethoxyphenyl)-2-methylpropyl 3-phenoxy-
benzyl ether (hereinafter referred to as ethophenprox),
etc.

15 Antibiotics: blasticidin S, kasugamycin, polyoxin,
oxytetracycline, validamycin A, etc.

 Other insecticides: cartap hydrochloride, S-methyl
N-(methyl-carbamoyloxy)thioacetimidate, S,S'-[2-(dimethyl-
amino)trimethylene]di(benzenethiosulfonate) [hereinafter
20 referred to as bensultap (its common name)], etc.

 It should be understood that the invention is not
limited to these specific substances. In the practice
of the invention, these agrochemically active substances
may be used singly or in combination. The proportion
25 of Compound M to be contained per 100 weight parts of
the composition is about 0.0001 to 50 parts by weight
for dusts, about 10 to 90 parts by weight for wettable
powders and aerosols, and about 0.1 to 50 parts by
weight for granules. In the case of dusts, the more
30 preferable proportion of content of Compound M ranges
from 0.001 to 20 parts by weight.

 Said other active substance, when used, is incorpo-
rated in a proportion ranging from 10:1 to 1:10, by
weight, Compound M and preferably in a range of 7:1
35 through 1:7 on the same basis.

The agrochemical composition of the invention can be manufactured by processing the aforementioned ingredient materials into a suitable dosage form in accordance with the per se known manufacturing procedures. For example, Compound M and said amine, with, of desired, auxiliary and carrier substances, with or without one or more of other agrochemically active substances, are admixed, for instance in a NAUTA mixer. For the manufacture of dusts and wettable powders, the mixture is further comminuted in a mill. For the manufacture of granules, typically the mixture obtained by means of NAUTA mixer is subjected to a wet granulation process comprising addition of water, kneading, granulation and drying to give granules, but granules can be otherwise prepared, for example by coating grains as cores such as river sand, pumice, etc. with the agrochemically active substance and other additives. Flowables can be manufactured by mixing Compound M, said amine, and other auxiliaries with a liquid (water or oil), either with or without one or more of other agrochemically active substances, and wet-milling the mixture. It should be understood that the method for the production of the agrochemical composition of this invention is by no means limited to the above exemplary procedures.

The dosage of the agrochemical composition of this invention depends on the field conditions, application timing, method of application, diseases or pests to be controlled, crop plants involved, and so on but is generally about 0.05 to 50 g and preferably about 0.1 to 15 g, as active component (Compound M and any other active substance), per are of the field or the grass.

In accordance with the invention, the isomerization of Compounds M which are in z-form to the corresponding E-isomers in a composition can be inhibited even

when the composition is stored for a long time period as shown in the below-mentioned Test Example, and thus stable agrochemical products can be provided.

5 The following Examples, Reference Examples and Test Example are further illustrative of the invention. In these examples, all % and parts are by weight unless therwise specified.

10 In the following Examples, Compound M_1 and Compound M_2 , both of which are species of Compounds M as aforementioned, were employed. Since these compounds are z-isomers, they are designated as $M_1(Z)$ and $M_2(Z)$, respectively, thus being differentiated from the corresponding E-isomers which are designated as $M_1(E)$ and $M_2(E)$, respectively.

15 Example 1

Two parts of Compound $M_1(Z)$, 1.5 parts of fthalide, 2 parts of cartap hydrochloride, 3 parts of BPMC, 0.5 part of isopropyl acid phosphate, 5 parts of white carbon, 1 part of n-amylamine and 85 parts of
20 clay are weighed and milled in a pulverizing mill. The mixture is further milled in a flash mixer to provide a dust.

Example 2

25 Two parts of Compound $M_1(Z)$, 1 part of tricyclazole, 2 parts of cartap hydrochloride, 3 parts of BPMC, 0.5 part of isopropyl acid phosphate, 5 parts of white carbon, 1 part of laurylamine and 85.5 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

30 Example 3

Two parts of Compound $M_1(Z)$, 1.5 parts of fthalide, 2 parts of cartap hydrochloride, 0.5 part of isopropyl acid phosphate, 1 part of polyoxyethylene(5)-triethanolamine, 2 parts of white carbon and 91 parts
35 of clay are weighed and processed in the same manner as

Example 1 to provide a dust.

Example 4

Two parts of Compound $M_1(Z)$, 1.6 parts of fthalide, 2 parts of cartap hydrochloride, 0.3 part of validamycin A, 0.3 part of isopropyl acid phosphate, 2 parts of white carbon, 1 part of polyoxyethylene(5)ethy-
enediamine and 90.9 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Example 5

Two parts of Compound $M_1(Z)$, 1.5 part of fthalide, 2 parts of cartap hydrochloride, 3 parts of BPMC, 0.5 part of isopropyl acid phosphate, 5 parts of white carbon, 1 part of polyoxyethylene(3)coconut oil alkylamino-
propylamine and 85 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Example 6

Two parts of Compound $M_1(Z)$, 1.6 parts of fthalide, 3 parts of BPMC, 0.5 part of isopropyl acid phosphate, 5 parts of white carbon, 1 part of polyoxyethylene(2)laurylamine and 88 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Example 7

Two parts of Compound $M_1(Z)$, 1.6 parts of fthalide, 3 parts of BPMC, 0.5 part of isopropyl acid phosphate, 5 parts of white carbon, 1 part of polyoxyethylene(15)laurylamine and 88 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Example 8

Two parts of Compound $M_1(Z)$, 1.5 parts of fthalide, 2 parts of cartap hydrochloride, 0.3 part of validamycin, 0.3 part of isopropyl acid phosphate, 2

parts of white carbon, 1 part of polyoxyethylene(2)stearylamine and 90.9 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Example 9

5 Two parts of Compound $M_1(Z)$, 1.6 parts of fthalide, 2 parts of cartap hydrochloride, 0.5 part of isopropyl acid phosphate, 2 parts of white carbon, 1 part of polyoxyethylene(40)stearylamine and 91 parts of clay are weighed and processed in the same manner as Example 10 to provide a dust.

Example 10

Two parts of Compound $M_1(Z)$, 1.5 parts of fthalide, 2 parts of cartap hydrochloride, 0.5 part of isopropyl acid phosphate, 2 parts of white carbon, 1 15 part of polypropylene(2)laurylamine and 91 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Example 11

0.6 part of Compound $M_1(E)$, 1.4 parts of Compound 20 $M_1(Z)$, 0.2 part of isopropyl acid phosphate, 1 part of white carbon, 1 part of polyoxyethylene(2)laurylamine and 95.8 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Example 12

25 Two parts of Compound $M_1(Z)$, 2 parts of cartap hydrochloride, 0.5 part of isopropyl acid phosphate, 1 part of polyoxyethylene(5)triethanolamine, 2 parts of white carbon and 94.5 parts of clay are weighed and processed in the same manner as Example 1 to provide a 30 dust.

Example 13

Two parts of Compound $M_1(Z)$, 1.5 parts of fthalide, 2 parts of cartap hydrochloride, 3 parts of BPMC, 0.5 part of isopropyl acid phosphate, 5 parts of 35 white carbon, 1 part of stearylamine and 85 parts of

clay are weighed and processed in the same manner as Example 1 to provide a dust.

Example 14

Two parts of Compound $M_1(Z)$, 1.5 part of fthalide,
5 2 parts of bensultap, 0.3 part of validamycin A, 0.3
part of isopropyl acid phosphate, 3 parts of white
carbon, 1 part of polypropylene(2)laurylamine and 89.9
parts of clay are weighed and processed in the same
manner as Example 1 to provide a dust.

10 Example 15

Two parts of Compound $M_1(Z)$, 1.5 parts of
fthalide, 2 parts of bensultap, 0.2 part of isopropyl
acid phosphate, 1 part of white carbon, 1 part of
polyoxyethylene(5)ethylenediamine and 92.3 parts of
15 clay are weighed and processed in the same as Example 1
to provide a dust.

Example 16

Two parts of Compound $M_1(Z)$, 1.5 parts of
fthalide, 0.3 part of validamycin A, 0.5 part of
20 etofenprox, 0.3 part of isopropyl acid phosphate, 2.0
parts of white carbon, 0.05 part of irganox-1010, 1.0
part of POE(2)laurylamine, 92.35 parts of clay are
weighed and processed in the same manner as Example 1
to provide a dust.

25 Comparative Example 1

Two parts of Compound $M_1(Z)$, 1.5 parts of
fthalide, 2 parts of cartap hydrochloride, 3 parts of
BPMC, 0.5 part of isopropyl acid phosphate, 5 parts of
white carbon and 86 parts of clay are weighed and
30 processed in the same manner as Example 1 to provide a
dust.

Comparative Example 2

0.6 part of Compound $M_1(E)$, 1.4 parts of Compound
 $M_1(Z)$, 0.2 part of isopropyl acid phosphate, 1 part
35 of white carbon and 96.8 parts of clay are weighed and

processed in the same manner as Example 1 to provide a dust.

Comparative Example 3

5 0.4 part of Compound $M_2(E)$, 1.6 parts of Compound $M_2(Z)$,
0.5 part of isopropyl acid phosphate, 1 part of
white carbon and 96.5 parts of clay are weighed and
processed in the same manner as Example 1 to provide a
dust product.

Comparative Example 4

10 Two parts of Compound $M_1(Z)$, 1.0 part of tricycla-
zole, 2.0 parts of cartap hydrochloride, 3.0 parts of
BPMC, 0.5 part of isopropyl acid phosphate, 5.0 parts
of white carbon, 86.5 parts of clay are weighed and
processed in the same manner as Example 1 to provide a
dust.

15 Comparative Example 5

Two parts of Compound $M_1(Z)$, 1.5 parts of
fthalide, 2.0 parts of cartap hydrochloride, 0.5 part
of isopropyl acid phosphate, 2.0 parts of white carbon,
20 92.0 parts of clay are weighed and processed in the
same manner as Example 1 to provide a dust.

Comparative example 6

25 Two parts of Compound $M_1(Z)$, 1.5 parts of
fthalide, 2.0 parts of cartap hydrochloride, 0.3 part
of validamycin, 0.3 part of isopropyl acid phosphate,
2.0 parts of white carbon, 91.9 parts of clay are
weighed and processed in the same manner as Example 1
to provide a dust.

Comparative Example 7

30 Two parts of Compound $M_1(Z)$, 1.5 parts of
fthalide, 3.0 parts of BPMC, 0.5 part of isopropyl acid
phosphate, 5.0 parts of white carbone, 88.0 parts of
clay are weighed and processed in the same manner as
Example 1 to provide a dust.

35 Comparative Example 8

Two parts of Compound $M_1(Z)$, 2.0 parts of cartap hydrochloride, 0.5 part of isopropyl acid phosphate, 2.0 parts of white carbon, 93.5 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Comparative Example 9

Two parts of Compound $M_1(Z)$, 1.5 parts of fthalide, 2.0 parts of bensultap, 0.3 part of validamycin A, 0.3 part of isopropyl acid phosphate, 3.0 parts of white carbon, 90.9 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Comparative Example 10

Two parts of Compound $M_1(Z)$, 1.5 parts of fthalide, 2.0 parts of bensultap, 0.2 part of isopropyl acid phosphate, 1.0 part of white carbon, 93.3 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Comparative Example 11

Two parts of Compound $M_1(Z)$, 1.5 parts of fthalide, 0.3 part of validamycin, 0.5 part of ethofenprox, 0.3 part of isopropyl acid phosphate, 2.0 parts of white carbon, 0.05 part of irganox-1010, 93.35 parts of clay are weighed and processed in the same manner as Example 1 to provide a dust.

Test Example

Twenty grams each of the products according to Examples 1 through 16 and Comparative Examples 1 through 11 were respectively put in sampling bottles, and after hermetic closure, stored at room temperature for one year. Then, the samples were taken out and immediately subjected to high performance liquid chromatography for assaying the content of the E- and Z-isomers of Compounds M_1 and M_2 .

$$\text{Fractional Compound M(E) content (\%)} = \frac{\text{Amount of Compound M(E)}}{\text{Combined amount of Compound M(E) + Compound M(Z)}} \times 100$$

The change in fractional Compound M(E) content was
5 calculated by means of the following equation.

Change in fractional Compound M(E) content =
Fractional Compound M(E) content after 1-year
storage - fractional Compound M(E) content at
beginning of the test

10 The fractional Compound M(E) content at beginning
of the test was 0% in the products of Examples 1
through 10, 12 through 16 and Comparative Examples 1
through 11, 30% in the products of Example 11 and
Comparative Example 2, and 20% in the product of
15 Comparative Example 3.

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Result

	Additive	Proportion of Additives (%)	Change in fractional E-isomer content during 1 year-storage at room temperature
Example 1	n-Amylamine	1	4.7
2	Laurylamine	1	0
3	Polyoxyethylene (POE) (5)-triethanolamine	1	2.4
4	POE(5)ethylenediamine	1	1.0
5	POE(3)N-coconut oil alkylaminopropylamine	1	1.9
6	POE(2) laurylamine	1	1.8
7	POE(15) laurylamine	2	7.6
8	POE(2) stearylamine	1	5.7
9	POE(40) stearylamine	2	6.5
10	Polypropylene (2) laurylamine	1	1.8
11	POE(2) laurylamine	1	0
12	POE(5) triethanolamine	1	1.8
13	Stearylamine	1	2.2
14	Polypropylene (2) laurylamine	1	1.5
15	POE(5) ethylenediamine	1	0.8
16	POE(2) laurylamine	1	0.6

Comparative

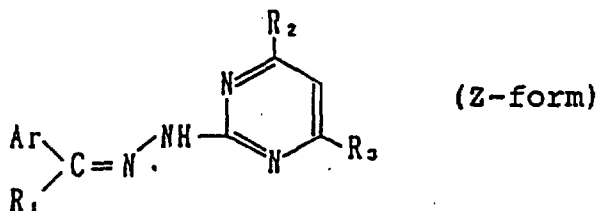
Example 1	-	-	21.5
2	-	-	11.6
3	-	-	20.0
4	-	-	22.3
5	-	-	18.5
6	-	-	20.8
7	-	-	21.7
8	-	-	20.1
9	-	-	16.9
10	-	-	13.1
11	-	-	17.3



claims

1. A stabilized agrochemical composition, which comprises a pyrimidine derivative of the formula

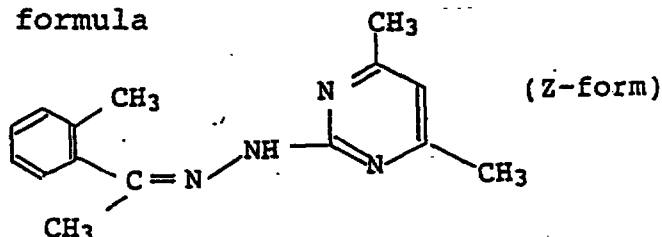
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10 wherein Ar means a phenyl group substituted by at least one lower alkyl; R₁, R₂ and R₃ independently mean a lower alkyl group or its salt and an amine compound having no less than 4 carbon atoms.

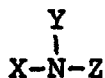
15 2. A stabilized agrochemical composition as claimed in Claim 1 wherein the pyrimidine derivative is the compound of the formula

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3. A stabilized agrochemical composition as claimed in Claim 1 wherein the amine compound is an amine compound having 4 to 150 carbon atoms of the formula

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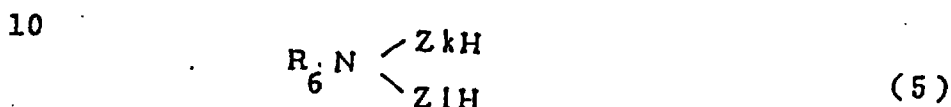
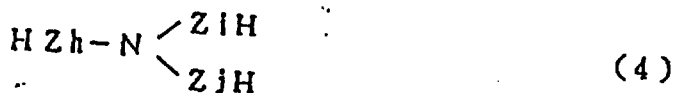
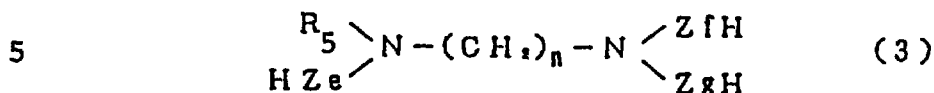
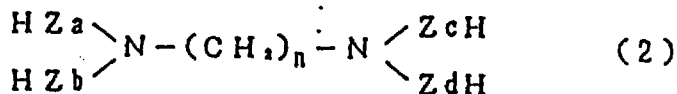


in which X, Y and Z are independently hydrogen or alkyl provided that at least one of X, Y and Z is an alkyl group, and said alkyl group may be interrupted by oxygen and may be substituted by hydroxy or amino.

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4. A stabilized agrochemical composition as claimed in Claim 2 wherein the amine compound is the compound of the formula:

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[In formulas (1) through (5), R_4 , R_5 and R_6 independently mean an alkyl group of 4 to 20 carbon atoms; Z means $-CH_2CH_2O-$ or $-\underset{\text{CH}_3}{\underset{|}{CH}}-CH_2O-$; n is 2 or 3; a through l each is an integer not less than 1 and $3 \leq a + b + c + d \leq 40$; $3 \leq e + f + g \leq 40$; $3 \leq h + i + j \leq 40$; and $2 \leq k + l \leq 40$].

20 5. A stabilized agrochemical composition as claimed in Claim 2 which further comprises 4,5,6,7-tetrachlorophthalide.

25 6. A stabilized agrochemical composition as claimed in Claim 2 which further comprises 5-methyl-1,2,4-triazolo[3,4-b]benzothiazole.

7. A stabilized agrochemical composition as claimed in Claim 5 or 6 which further comprises S,S'-(2-dimethylaminotrimethylene) bis(thiocarbamate)hydrochloride.

30 8. A stabilized agrochemical composition as claimed in Claim 5 or 6 which further comprises S,S'-[2-(dimethylamino)trimethylene] di(benzenethiosulfonate).

9. A stabilized agrochemical composition as claimed in claim 5 or 6 which further comprises 2-(4-ethoxyphenyl)-2-methylpropyl 3-phenoxybenzyl ether.

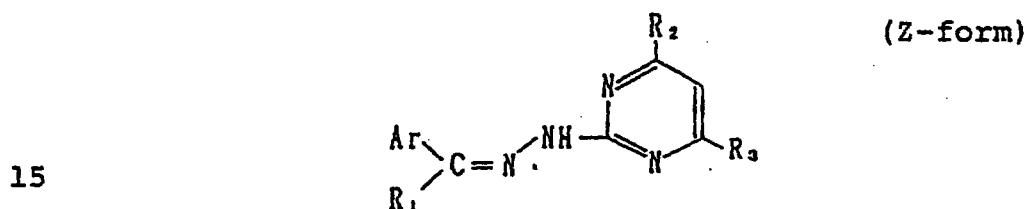
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10. A stabilized agrochemical composition as claimed in Claim 8 which further comprises validamycin A.

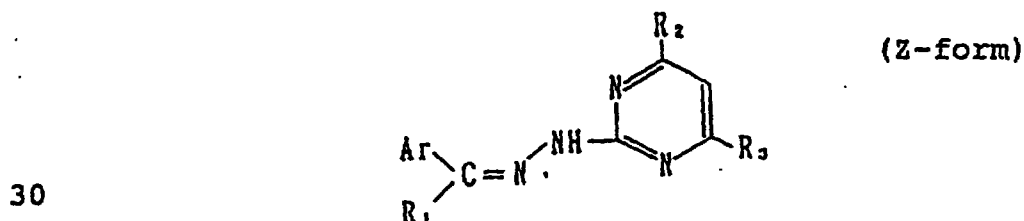
11. A stabilized agrochemical composition as claimed in Claim 1 wherein the amount of the amine compound is
5 in the range of about 0.05 to 10 parts by weight relative to 100 parts by weight of the total composition.

12. A process for producing a stabilized agrochemical composition, which comprises mixing a pyrimidine
10 derivative of the formula



wherein Ar means a phenyl group substituted by at least one lower alkyl; R_1 , R_2 and R_3 independently mean
20 a lower alkyl group, or its salt, an amine compound of no less than 4 carbon atoms and carrier.

13. A method for combatting against plant pathogens or pests in the field or the grass which comprises applying
25 a stabilized agrochemical composition containing a pyrimidine derivative of the formula



wherein Ar means a phenyl group substituted by at least one lower alkyl; R_1 , R_2 and R_3 independently mean
35 a lower alkyl group or its salt and an amine compound



of no less than 4 carbon atoms to the field or the grass at a dosage about 0.05 to 50 g as the active ingredient per are of the field or the grass

5 14. A composition according to claim 1, substantially as hereinbefore described with reference to any of the Examples.

10 15. A process according to claim 12, substantially as hereinbefore described with reference to any of the Examples.

15 16. A composition when prepared by a process according to claim 12 or 15.

17. A method according to claim 13, substantially as hereinbefore described.

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