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(71) Applicant: **BASF SE** [DE/DE]; Carl-Bosch-Strasse 38,
67056 Ludwigshafen Am Rhein (DE).

(72) Inventors: **XU, Wen**; 2 T.W.Alexander Drive, Durham,
North Carolina 27709 (US). **BENTON, Kara Walden**;
2 T.W.Alexander Drive, Durham, North Carolina 27709
(US).

(74) Agent: **BASF IP ASSOCIATION**; BASF SE GBI - C006,
67056 Ludwigshafen (DE).

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(54) Title: NEW AGROCHEMICAL FORMULATIONS

(57) Abstract: Solid composition comprising A) at least one pesticide P in solid form, where pesticide P is water insoluble, and where
pesticide P does not comprise any sulfonyl urea herbicides, B) at least one alkyl polyglycoside, C) a water soluble carrier.



New Agrochemical Formulations

The present invention is directed to solid compositions comprising

A) at least one pesticide P in solid form,

B) at least one alkyl polyglycoside,

C) optionally a water soluble carrier,

D) optionally a water insoluble carrier,

wherein at least one carrier selected from water soluble carriers C) and water insoluble carriers D) is present and wherein the composition comprises at least one water insoluble

pesticide P or at least one water insoluble carrier or both.

The present invention is further directed to methods for producing such compositions and for methods of using such compositions.

The efficacy and the handling of agrochemical active ingredients are significantly influenced by the composition in which they are provided. There is a constant demand for improved compositions of pesticides that allow efficient use of pesticides and that are easy to handle and to apply by the farmer. One common way of applying concentrated pesticidal compositions involves the preparation of a spray liquid from such concentrated composition. The spray liquid is also referred to as spray solution or spray liquor. Normally, this is done by contacting (diluting) concentrated pesticidal compositions with water, typically under stirring. When solid and water insoluble components are present in such concentrated compositions, it is important that such water insoluble components do not agglomerate or separate but stay homogeneously distributed in the spray liquid over a sufficiently long period of time. Otherwise, there is the risk that the spraying devices may be blocked or that the composition is applied to the field in an uneven manner. In recent years, this problem has become even more prominent with the increased use of drones. Drones typically have a small storage tank for the spray solution so that the spray solution often comprises a high loading of the pesticides. This poses difficult challenges for the preparation of stable compositions. In addition, the storage tanks in drones normally do not comprise a stirring device, making it more difficult to provide compositions that form stable spray solutions over the required time period.

It was therefore the objective of the present invention to provide solid compositions comprising water insoluble components, especially one or more water insoluble pesticides, that remain homogeneous in the spray solution.

This objective has been achieved by an solid composition comprising

A) at least one pesticide P in solid form,

B) at least one alkyl polyglycoside,

- C) optionally a water soluble carrier,
D) optionally a water insoluble carrier,
wherein at least one carrier selected from water soluble carriers C) and water insoluble carriers D) is present and wherein the composition comprises at least one water insoluble pesticide P or at least one water insoluble carrier or both.

In one embodiment, solid compositions of the invention comprise

- A) at least one pesticide P in solid form, where pesticide P is water insoluble,
B) at least one alkyl polyglycoside,
C) a water soluble carrier,
D) optionally a water insoluble carrier.

In one embodiment, solid compositions of the invention comprise

- A) at least one pesticide P in solid form, where pesticide P is water insoluble,
B) at least one alkyl polyglycoside,
C) a water soluble carrier.

In one embodiment, solid compositions of the invention comprise

- A) at least one pesticide P in solid form, where pesticide P is water insoluble,
B) at least one alkyl polyglycoside,
C) a water soluble carrier,

with the proviso that said solid composition does not comprise any water soluble pesticides.

In one embodiment, solid compositions of the invention comprise

- A) at least one pesticide P in solid form,
B) at least one alkyl polyglycoside,
C) a water soluble carrier,
D) optionally a water insoluble carrier.

In one embodiment, solid compositions of the invention comprise

- A) at least one water insoluble pesticide P in solid form,
B) at least one alkyl polyglycoside,
C) a water soluble carrier,
D) optionally a water insoluble carrier.

In one embodiment, solid compositions of the invention comprise

- A) at least one water soluble pesticide P and in solid form,
B) at least one alkyl polyglycoside,

- C) optionally a water soluble carrier,
- D) a water insoluble carrier.

In one embodiment, compositions of the invention comprise

- 5 A) at least one water soluble pesticide P and no water insoluble pesticide in solid form,
- B) at least one alkyl polyglycoside,
- C) optionally a water soluble carrier,
- D) a water insoluble carrier.

10 In one embodiment, solid compositions of the invention comprise

- A) at least one pesticide P in solid form, where pesticide P is water insoluble and where
 pesticide P does not comprise any sulfonyl urea herbicides,
- B) at least one alkyl polyglycoside,
- C) a water soluble carrier,
- 15 D) optionally a water insoluble carrier.

In one embodiment, solid compositions of the invention comprise

- A) at least one pesticide P in solid form, where pesticide P is water insoluble and where
 pesticide P does not comprise any sulfonyl urea herbicides,
- 20 B) at least one alkyl polyglycoside,
- C) a water soluble carrier.

In one embodiment, solid compositions of the invention comprise

- A) at least one pesticide P in solid form, where pesticide P is water insoluble and where
25 pesticide P does not comprise any sulfonyl urea herbicides,
- B) at least one alkyl polyglycoside,
- C) a water soluble carrier,

with the proviso that said solid composition does not comprise any water soluble pesticides.

30 In one embodiment, solid compositions of the invention comprise

- A) at least one pesticide P in solid form and where pesticide P does not comprise any
 sulfonyl urea herbicides,
- B) at least one alkyl polyglycoside,
- C) a water soluble carrier,
- 35 D) optionally a water insoluble carrier.

In one embodiment, solid compositions of the invention comprise

- A) at least one water insoluble pesticide P in solid form and where pesticide P does not comprise any sulfonyl urea herbicides,
B) at least one alkyl polyglycoside,
C) a water soluble carrier,
5 D) optionally a water insoluble carrier.

In one embodiment, solid compositions of the invention comprise

- A) at least one water soluble pesticide P and in solid form and where pesticide P does not comprise any sulfonyl urea herbicides,
10 B) at least one alkyl polyglycoside,
C) optionally a water soluble carrier,
D) a water insoluble carrier.

In one embodiment, compositions of the invention comprise

- 15 A) at least one water soluble pesticide P and no water insoluble pesticide in solid form and where pesticide P does not comprise any sulfonyl urea herbicides,
B) at least one alkyl polyglycoside,
C) optionally a water soluble carrier,
D) a water insoluble carrier.

20 Herein, the terms “compositions” and “formulations” are used synonymously.

When reference is made herein to a state of aggregation (e.g. “solid state”) or to other physical
25 parameters like solubilities, this shall be, unless stated otherwise, at a temperature of 20 °C.

Preferably, compositions of the invention are granular compositions. Preferably, compositions of the invention comprise granules having an average size D50 from 0.05 to 10 mm, preferably from 0.1 to 5 mm, more preferably 1 to 5 mm. The granules typically have an average particle size D90 from 0.1 to 15 mm, preferably from 0.3 to 7 mm, more preferably 1 to 5 mm. The average
30 size of granules can for example be determined by sieving screens.

When compositions of the inventions are granular compositions, such granules in one embodiment comprise solid particles of at least one pesticide P. Such particles of pesticide P typically have an average diameter d50 of 2 to 6 µm, preferably 2.5 to 4.5 µm. Particle size distributions
35 of solid particles as recited herein are determined by statistic laser scattering using a Malvern Mastersizer 200 according to European norm ISO 13320 EN.

Preferably, solid compositions of the invention are agrochemical compositions.

In one embodiment, compositions of the invention, in particular granular compositions of the inventions, are water dispersible. Upon mixing with water, compositions of the inventions typically yield dispersions of solid particles in water.

- 5 In one embodiment, compositions of the invention are WG formulations, also referred to as “water dispersible granules”.

In one embodiment, compositions of the invention are WP formulations, also referred to as “wettable powders”.

- 10 Compositions of the invention comprise at least one pesticide P.

The term **pesticides** refers to at least one active substance selected from the group of the fungicides, insecticides, nematocides, herbicides, safeners and/or growth regulators.

- 15 Pesticide P can in principle be any kind of pesticide, provided it is solid at 30 °C. Pesticide P is typically present in granular or particulate form or as a powder. Preferably, pesticide P is chemically stable in granular state, meaning it does not chemically decay under the conditions of standard granules, meaning it is stable with respect to oxidation and moisture content of up to 1wt% in the granules. “Stable” in this context means that less than 1 wt% of the pesticides decay in 1 week.

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Preferred pesticides P are fungicides, insecticides, herbicides and growth regulators. In one embodiment, pesticides P are insecticides. In one embodiment, pesticides P are fungicides. In one embodiment, pesticides P are herbicides. Mixtures of pesticides from two or more of the abovementioned classes may also be used. The skilled worker is familiar with such pesticides, which can be found, for example, in Pesticide Manual, 15th Ed. (2009), The British Crop Protection Council, London.

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Pesticide P may have a **melting point** of at least 30 °C, preferably at least 45 °C and in particular of at least 60 °C. In case the composition contains a mixture of pesticides usually all pesticides may have a melting point of at least 30 °C, preferably at least 45 °C and in particular of at least 60 °C.

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Suitable insecticides include insecticides from the class of the carbamates, organophosphates, organochlorine insecticides, phenylpyrazoles, pyrethroids, neonicotinoids, spinosins, avermectins, milbemycins, juvenile hormone analogs, alkyl halides, organotin compounds nereistoxin analogs, benzoylureas, diacylhydrazines, METI acarizides, and insecticides such as chloropicrin, pymetrozin, flonicamid, clofentezin, hexythiazox, etoxazole, diafenthiuron, propargite, tetradifon, chlorofenapyr, DNOC, buprofezine, cyromazine, amitraz, hydramethylnon, acequinocyl,

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fluacrypyrim, rotenone, or their derivatives. Suitable fungicides include fungicides from the classes of dinitroanilines, allylamines, anilinopyrimidines, antibiotics, aromatic hydrocarbons, benzenesulfonamides, benzimidazoles, benzisothiazoles, benzophenones, benzothiadiazoles, benzotriazines, benzyl carbamates, carbamates, carboxamides, carboxylic acid diamides, chloronitriles cyanoacetamide oximes, cyanoimidazoles, cyclopropanecarboxamides, dicarboximides, dihydrodioxazines, dinitrophenyl crotonates, dithiocarbamates, dithiolanes, ethylphosphonates, ethylaminothiazolecarboxamides, guanidines, hydroxy-(2-amino)pyrimidines, hydroxyanilides, imidazoles, imidazolinones, inorganic substances, isobenzofuranones, methoxyacrylates, methoxycarbamates, morpholines, N-phenylcarbamates, oxazolidinediones, oximinoacetates, oximinoacetamides, peptidylpyrimidine nucleosides, phenylacetamides, phenylamides, phenylpyrroles, phenylureas, phosphonates, phosphorothiolates, phthalamic acids, phthalimides, piperazines, piperidines, propionamides, pyridazinones, pyridines, pyridinylmethylbenzamides, pyrimidinamines, pyrimidines, pyrimidinonehydrazones, pyrroloquinolinones, quinazolinones, quinolines, quinones, sulfamides, sulfamoyltriazoles, thiazolecarboxamides, thiocarbamates, thiophanates, thiophenecarboxamides, toluamides, triphenyltin compounds, triazines, triazoles. Suitable herbicides include herbicides from the classes of the acetamides, amides, aryloxyphenoxypionates, benzamides, benzofuran, benzoic acids, benzothiadiazinones, bipyridylum, carbamates, chloroacetamides, chlorocarboxylic acids, cyclohexanediones, dinitroanilines, dinitrophenol, diphenyl ether, glycines, imidazolinones, isoxazoles, isoxazolidinones, nitriles, N-phenylphthalimides, oxadiazoles, oxazolidinediones, oxyacetamides, phenoxycarboxylic acids, phenylcarbamates, phenylpyrazoles, phenylpyrazolines, phenylpyridazines, phosphinic acids, phosphoroamidates, phosphorodithioates, phthalamates, pyrazoles, pyridazinones, pyridines, pyridinecarboxylic acids, pyridinecarboxamides, pyrimidinediones, pyrimidinyl(thio)benzoates, quinolinecarboxylic acids, semicarbazones, sulfonylaminocarbonyltriazolinones, tetrazolinones, thiadiazoles, thiocarbamates, triazines, triazinones, triazoles, triazolinones, triazolocarbonyl amides, triazolopyrimidines, triketones, uracils, ureas.

The composition may comprise one or more pesticides.

The following pesticides are suitable, by way of example (pesticides A) to K) are fungicides):

A) Respiration inhibitors

- complex-III-inhibitors at the Q_o-site (for example strobilurins): azoxystrobin, coumethoxystrobin, coumoxystrobin, dimoxystrobin, enestroburin, fenaminstrobin, fenoxystrobin/flufenoxystrobin, fluoxastrobin, kresoxim-methyl, metominostrobin, orysastrobin, picoxystrobin, pyraclostrobin, pyrametostrobin, pyraoxystrobin, trifloxystrobin, methyl 2-[2-(2,5-dimethylphenyloxymethyl)phenyl]-3-methoxyacrylate, 2-(2-(3-(2,6-dichlorophenyl)-1-methylallylideneaminooxymethyl)phenyl)-2-methoxyimino-N-methylacetamide, pyribencarb, triclopyricarb/chlorodincarb, famoxadon, fenamidon;
- complex-III-inhibitors at the Q_i-site: cyazofamid, amisulbrom;

- complex-II-inhibitors (for example carboxamides): benodanil, bixafen, boscalid, carboxin, fenfuram, fluopyram, flutolanil, fluxapyroxad, furametpyr, mepronil, oxycarboxin, penflufen, penthiopyrad, sedaxane, tecloftalam, thifluzamide, N-(4'-trifluoromethylthiobiphenyl-2-yl)-3-difluoromethyl-1-methyl-1H-pyrazole-4-carboxamide, N-(2-(1,3,3-trimethylbutyl)phenyl)-1,3-dimethyl-5-fluoro-1H-pyrazole-4-carboxamide and N-[9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide;
- other respiration inhibitors (for example complex I, decouplers): diflumetorim; nitrophenyl derivatives: binapacryl, dinobuton, dinocap, fluazinam; ferimzone; organometal compounds: fentin salts such as fentin acetate, fentin chloride or fentine hydroxide; ametoctradin; and silthiofam;

B) Sterol biosynthesis inhibitors (SBI fungicides)

- C14-demethylase inhibitors (DMI fungicides): triazoles: azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, diniconazole-M, epoxiconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, oxpoconazole, paclobutrazole, penconazole, propiconazole, prothioconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, uniconazole; imidazoles: imazalil, pefurazoate, prochloraz, triflumizole; pyrimidines, pyridines and piperazines: fenarimol, nuarimol, pyrifenoxy, triforine;
- delta14-reductase inhibitors: aldimorph, dodemorph, dodemorph acetate, fenpropimorph, tridemorph, fenpropidin, piperalin, spiroxamine;
- 3-ketoreductase inhibitors: fenhexamid;

C) Nucleic acid synthesis inhibitors

- phenylamides or acylamino acid fungicides: benalaxyl, benalaxyl-m, kiralaxyl, metalaxyl, metalaxyl-M (mefenoxam), ofurace, oxadixyl;
- others: hymexazole, octhilinone, oxolinic acid, bupirimate;

D) Cell division and cytoskeleton inhibitors

- tubulin inhibitors such as benzimidazoles, thiophanates: benomyl, carbendazim, fuberidazole, thiabendazole, thiophanate-methyl; triazolopyrimidines: 5-chloro-7-(4-methylpiperidin-1-yl)-6-(2,4,6-trifluorophenyl)-[1,2,4]triazolo[1,5-a]pyrimidine;
- further cell division inhibitors: diethofencarb, ethaboxam, pencycuron, fluopicolid, zoxamid, metrafenon, pyriofenon;

E) Amino acid synthesis and protein synthesis inhibitors

- methionine synthesis inhibitors (anilinoypyrimidines): cyprodinil, mepanipyrim, pyrimethanil;
- protein synthesis inhibitors: blasticidin-S, kasugamycin, kasugamycin hydrochloride hydrate, mildiomyacin, streptomycin, oxytetracyclin, polyoxin, validamycin A;

F) Signal transduction inhibitors

- MAP/histidine kinase inhibitors: fluoroimide, iprodione, procymidone, vinclozolin, fenpiclonil,

fludioxonil;

- G-protein inhibitors: quinoxifen;

G) Lipid and membrane synthesis inhibitors

- phospholipid biosynthesis inhibitors: edifenphos, iprobenfos, pyrazophos, isoprothiolane;
- 5 - lipid peroxidation: dicloran, quintozone, tecnazene, tolclofos-methyl, biphenyl, chloroneb, etridiazole;
- phospholipid biosynthesis and cell wall attachment: dimethomorph, flumorph, mandipropamid, pyrimorph, benthiavalicarb, iprovalicarb, valifenalate and 4-fluorophenyl N-(1-(1-(4-cyanophenyl)ethanesulfonyl)but-2-yl)carbamate;
- 10 - compounds which affect cell membrane permeability and fatty acids: propamocarb, propamocarb hydrochloride

H) "Multi-site" inhibitors

- inorganic active substances: Bordeaux mixture, copper acetate, copper hydroxide, copper oxychloride, basic copper sulfate, sulfur;
- 15 - thio- and dithiocarbamates: ferbam, mancozeb, maneb, metam, metiram, propineb, thiram, zineb, ziram;
- organochlorine compounds (for example phthalimides, sulfamides, chloronitriles): anilazine, chlorothalonil, captan, folpet, dichlofluanid, dichlorophen, flusulfamide, hexachlorobenzene, pentachlorophenol and its salts, phthalid, tolylfluanid,
- 20 N-(4-chloro-2-nitrophenyl)-N-ethyl-4-methylbenzenesulfonamide;
- guanidines and others: guanidine, dodine, dodine-free base, guazatin, guazatin acetate, iminoctadin, iminoctadin triacetate, iminoctadin tris(albesilate), dithianon;

I) Cell wall biosynthesis inhibitors

- glucan synthesis inhibitors: validamycin, polyoxin B; melanin synthesis inhibitors: pyroquilon,
- 25 tricyclazole, carpropamid, dicyclomet, fenoxanil;

J) Resistance inductors

- acibenzolar-S-methyl, probenazol, isotianil, tiadinil, prohexadione-calcium; phosphonates: fosetyl, fosetyl-aluminum, phosphorous acid and its salts;

K) Unknown mode of action

- 30 - bronopol, quinomethionate, cyflufenamid, cymoxanil, dazomet, debacarb, diclomezin, difenzoquat, difenzoquat-methyl sulfate, diphenylamine, fenpyrazamine, flumetover, flusulfamid, flutianil, methasulfocarb, nitrapyrin, nitrothal-isopropyl, oxine-copper, proquinazid, tebufloquin, tecloftalam, triazoxide, 2-butoxy-6-iodo-3-propylchromene-4-one, N-(cyclopropylmethoxyimino-(6-difluoromethoxy-2,3-difluorophenyl)methyl)-2-phenylacetamide, N'-(4-(4-chloro-3-trifluoromethylphenoxy)-2,5-dimethylphenyl)-N-ethyl-N-methylformamidine, N'-(4-(4-fluoro-3-trifluoromethylphenoxy)-2,5-dimethylphenyl)-N-ethyl-N-methylformamidine, N'-(2-methyl-5-trifluoromethyl-4-(3-trimethylsilylpropoxy)phenyl)-N-ethyl-N-methylformamidine, N'-(5-difluoromethyl-2-methyl-4-(3-trimethylsilylpropoxy)-
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phenyl)-N-ethyl-N-methylformamidine, N-methyl-(1,2,3,4-tetrahydronaphthalen-1-yl)-2-{1-[2-(5-methyl-3-trifluoromethylpyrazol-1-yl)acetyl]piperidin-4-yl}thiazole-4-carboxamide, N-methyl-(R)-1,2,3,4-tetrahydronaphthalen-1-yl 2-{1-[2-(5-methyl-3-trifluoromethylpyrazol-1-yl)acetyl]piperidin-4-yl}thiazole-4-carboxamide, 1-[4-[4-[5-(2,6-difluorophenyl)-4,5-dihydro-3-isoxazolyl]-2-thiazolyl]-1-piperidinyl]-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone, 6-tert.-butyl-8-fluoro-2,3-dimethylquinolin-4-yl methoxyacetate, N-methyl-2-{1-[(5-methyl-3-trifluoromethyl-1H-pyrazol-1-yl)acetyl]piperidin-4-yl}-N-[(1R)-1,2,3,4-tetrahydronaphthalen-1-yl]-4-thiazolecarboxamide, 3-[5-(4-methylphenyl)-2,3-dimethylisoxazolidin-3-yl]-pyridine, 3-[5-(4-chlorophenyl)-2,3-dimethylisoxazolidin-3-yl]-pyridine (pyrisoxazol), N-(6-methoxypyridin-3-yl) cyclopropanecarboxamide, 5-chloro-1-(4,6-dimethoxypyrimidin-2-yl)-2-methyl-1H-benzoimidazole, 2-(4-chlorophenyl)-N-[4-(3,4-dimethoxyphenyl)isoxazol-5-yl]-2-prop-2-ynyloxyacetamide;

M) Growth regulators

- abscisic acid, amidochlor, ancymidole, 6-benzylaminopurine, brassinolide, butralin, chlormequat (chlormequat chloride), choline chloride, cyclanilid, daminozide, dikegulac, dimethipin, 2,6-dimethylpuridine, ethephon, flumetralin, flurprimidol, fluthiacet, forchlorfenuron, gibberellic acid, inabenfid, indole-3-acetic acid, maleic hydrazide, mefluidid, mepiquat (mepiquat chloride), metconazole, naphthaleneacetic acid, N-6-benzyladenine, paclobutrazole, prohexadione (prohexadione-calcium), prohydrojasmon, thidiazuron, triapenthenol, tributylphosphorotrithioate, 2,3,5-triiodobenzoic acid, trinexapac-ethyl and uniconazole;

N) Herbicides

- acetamides: acetochlor, alachlor, butachlor, dimethachlor, dimethenamid, flufenacet, mefenacet, metolachlor, metazachlor, napropamid, naproanilid, pethoxamid, pretilachlor, propachlor, thenylchlor;

- amino acid analogs: bilanafos, glyphosate, glufosinate, sulfosate;

- aryloxyphenoxypropionates: clodinafop, cyhalofop-butyl, fenoxaprop, fluazifop, haloxyfop, metamifop, propaquizafop, quizalofop, quizalofop-P-tefuryl;

- bipirydyls: diquat, paraquat;

- carbamates and thiocarbamates: asulam, butylate, carbetamide, desmedipham, dimepiperat, eptam (EPTC), esprocarb, molinate, orbencarb, phenmedipham, prosulfocarb, pyributicarb, thiobencarb, triallate;

- cyclohexanediones: butoxydim, clethodim, cycloxydim, profoxydim, sethoxydim, tepraloxym, tralkoxydim;

- dinitroanilines: benfluralin, ethalfluralin, oryzalin, pendimethalin, prodiamine, trifluralin;

- diphenyl ethers: acifluorfen, aclonifen, bifenox, diclofop, ethoxyfen, fomesafen, lactofen, oxyfluorfen;

- hydroxybenzonitriles: bromoxynil, dichlobenil, ioxynil;

- imidazolinones: imazamethabenz, imazamox, imazapic, imazapyr, imazaquin, imazethapyr;

- phenoxyacetic acids: clomeprop, 2,4-dichlorophenoxyacetic acid (2,4-D), 2,4-DB, dichlorprop, MCPA, MCPA-thioethyl, MCPB, mecoprop;
- pyrazines: chloridazon, flufenpyr-ethyl, fluthiacet, norflurazon, pyridate;
- pyridines: aminopyralid, clopyralid, diflufenican, dithiopyr, fluridone, fluroxypyr, picloram, picolinafen, thiazopyr;
- triazines: ametryne, atrazine, cyanazine, dimethametryne, ethiozine, hexazinone, met amitron, metribuzine, prometryne, simazine, terbuthylazine, terbutryne, triaziflam;
- ureas: chlortoluron, daimuron, diuron, fluometuron, isoproturon, linuron, methabenzthiazuron, tebuthiuron;
- other acetolactate synthase inhibitors: bispyribac-sodium, cloransulam-methyl, diclosulam, florasulam, flucarbazone, flumetsulam, metosulam, orthosulfamuron, penoxsulam, propoxycarbazone, pyribambenz-propyl, pyribenzoxim, pyriftalide, pyriminobac-methyl, pyrimisulfan, pyri thio bac, pyroxasulfon, pyroxsulam;
- others: amicarbazone, aminotriazole, anilofos, beflubutamid, benazolin, bencarbazone, benfluresate, benzofenap, bentazone, benzobicyclon, bromacil, bromobutide, butafenacil, butamifos, cafenstrole, carfentrazone, cinidon-ethyl, chlorthal, cinmethylin, clomazone, cumyluron, cyprosulfamid, dicamba, difenzoquat, diflufenzopyr, *Drechslera monoceras*, endothal, ethofumesate, etobenzanid, fentrazamide, flumiclorac-pentyl, flumioxazin, flupoxam, fluorochloridon, flurtamon, indanofan, isoxaben, isoxaflutol, lenacil, propanil, propyzamide, quinclo rac, quinmerac, mesotrione, methylarsenic acid, naptalam, oxadiargyl, oxadiazone, oxaziclomefon, pentoxazone, pinoxaden, pyraclo nil, pyraflufen-ethyl, pyrasulfotol, pyrazoxyfen, pyrazolynate, quinclamin, saflufenacil, sulcotrione, sulfentrazone, terbacil, tefuryltrione, tembotrione, thienicarbazone, topramezone, 4-hydroxy-3-[2-(2-methoxyethoxymethyl)-6-trifluoromethylpyridin-3-carbonyl]bicyclo[3.2.1]oct-3-en-2-one, ethyl (3-[2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-trifluoromethyl-3,6-dihydro-2H-pyrimidin-1-yl)phenoxy]pyridin-2-yloxy)acetate, methyl 6-amino-5-chloro-2-cyclopropylpyrimidine-4-carboxylate, 6-chloro-3-(2-cyclopropyl-6-methylphenoxy)pyridazin-4-ol, 4-amino-3-chloro-6-(4-chlorophenyl)-5-fluoropyridin-2-carboxylic acid, methyl 4-amino-3-chloro-6-(4-chloro-2-fluoro-3-methoxyphenyl)pyridin-2-carboxylate and methyl 4-amino-3-chloro-6-(4-chloro-3-dimethylamino-2-fluorophenyl)pyridin-2-carboxylate;

O) Insecticides

- organo(thio)phosphates: acephate, azamethiphos, azinphos-methyl, chlorpyrifos, chlorpyrifos-methyl, chlorfenvinphos, diazinon, dichlorvos, dicrotophos, dimethoate, disulfoton, ethion, fenitrothion, fenthion, isoxathion, malathion, methamidophos, methidathion, methylparathion, mevinphos, monocrotophos, oxydemeton-methyl, paraoxon, parathion, phenthoate, phosalone, phosmet, phosphamidon, phorate, phoxim, pirimiphos-methyl, profenofos, prothiofos, sulprophos, tetrachlorvinphos, terbufos, triazophos, trichlorfon;
- carbamates: alanycarb, aldicarb, bendiocarb, benfuracarb, carbaryl, carbofuran, carbosul-

fan, fenoxycarb, furathiocarb, methiocarb, methomyl, oxamyl, pirimicarb, propoxur, thiodi-carb, triazamate;

- pyrethroids: allethrin, bifenthrin, cyfluthrin, cyhalothrin, cyphenothrin, cypermethrin, alpha-cypermethrin, beta-cypermethrin, zeta-cypermethrin, deltamethrin, esfenvalerate,
- 5 etofenprox, fenpropathrin, fenvalerate, imiprothrin, lambda-cyhalothrin, permethrin, prallethrin, pyrethrin I and II, resmethrin, silafluofen, tau-fluvalinate, tefluthrin, tetramethrin, tralomethrin, transfluthrin, profluthrin, dimefluthrin,
- insect growth inhibitors: a) chitin synthesis inhibitors: benzoylureas: chlorfluazuron, cy-ramazin, diflubenzuron, flucyclohexuron, flufenoxuron, hexaflumuron, lufenuron, novaluron,
- 10 teflubenzuron, triflumuron; buprofezin, diofenolan, hexythiazox, etoxazole, clofentazin; b) ecdysone antagonists: halofenozide, methoxyfenozide, tebufenozide, azadirachtin; c) juve-noids: pyriproxyfen, methoprene, fenoxycarb; d) lipid biosynthesis inhibitors: spirotetramate, spiromesifen, spirotetramate;
- nicotine receptor agonists/antagonists: clothianidin, dinotefuran, imidacloprid, thiamethoxam,
- 15 nitenpyram, acetamiprid, thiocloprid, 1-(2-chlorothiazol-5-ylmethyl)-2-nitrimino-3,5-dimethyl-[1,3,5]triazinane;
- GABA antagonists: endosulfan, ethiprole, fipronil, vaniliprole, pyrafluprole, pyriprole, N-5-amino-1-(2,6-dichloro-4-methylphenyl)-4-sulfinamoyl-1H-pyrazole-3-thiocarboxamide;
- macrocyclic lactones: abamectin, emamectin, milbemectin, lepimectin, spinosad, spineto-
- 20 ram;
- mitochondrial electron transport chain inhibitor (METI) I acaricides: fenazaquin, pyridaben, tebufenpyrad, tolfenpyrad, flufenimer;
- METI II and III substances: acequinocyl, fluacyprim, hydramethylnone;
- decouplers: chlorfenapyr;
- 25 - inhibitors of oxidative phosphorylation: cyhexatin, diafenthiuron, fenbutatin oxide, propargite;
- insect ecdysis inhibitors: cryomazine;
- 'mixed function oxidase' inhibitors: piperonyl butoxide;
- sodium channel blockers: indoxacarb, metaflumizone;
- others: benclothiaz, bifenazate, cartap, flonicamid, pyridalyl, pymetrozin, sulfur, thiocyclam,
- 30 flubendiamide, chlorantraniliprole, cyazypyr (HGW86); cyenopyrafen, flupyrazofos, cyflumetofen, amidoflumet, imicyafos, bistrifluron and pyrifluquinazone.

In one embodiment, pesticide P does not comprise any sulfonyl urea herbicides.

In one embodiment, pesticide P does not comprise any Isopyrazam.

In one embodiment, pesticide P is water insoluble.

The term “water insoluble” as used herein means that a component has a solubility in water at 20 °C and at neutral pH of 10 g/l or less, preferably 1 g/l or less or of 0.1 g/l or less or of 0.01 g/l or less.

- 5 In one embodiment, all pesticides P comprised in compositions of the invention are water soluble, meaning they have a solubility in water of more than 10 g/l at 20 °C at neutral pH. Compositions of the invention comprising only water soluble pesticides P comprise other water insoluble components such as water insoluble carriers as described below.
- 10 Preferably, pesticide P is selected from pyraclostrobin, metyltetraprol, fluxapyroxad, saflufenacil, fenmezoditiaz, mefentrifluconazole, broflanilide, dimpropyridaz, afidopyropen, alpha-cypermethrin, fipronil, cyflumetofen, boscalid, epoxiconazole, metconazole, metrafenone, prothioconazole, bentazone, dimethenamide, tembotrione, trifludimoxazin, or mixtures thereof.

- 15 In one embodiment, pesticide P is broflanilide, fenmezoditiaz, alpha-cypermethrin or a mixture thereof.
- In one embodiment, pesticide P is broflanilide. In one embodiment, pesticide P is a mesoionic compound. In one embodiment, pesticide P is fenmezoditiaz. In one embodiment, pesticide P is alpha-cypermethrin.

20

Typically, solid compositions of the invention comprise 1 to 70, preferably 5 to 60 wt% of pesticide P. In one embodiment, solid compositions of the invention comprise 10 to 50 wt% of pesticide P.

- 25 Compositions of the invention further comprise alkyl polyglycoside as component B). Alkyl polyglycosides are also referred to as “APGs”.

APGs contain an polysaccharide backbone that is partly etherified with fatty alcohols.

- 30 APGs can be characterized by the structure of the glycoside units, the type of fatty alcohol, the degree of etherification with fatty alcohols and the degree of polymerization with respect to the glycoside units, i.e. the average number of glycoside units per molecule.

Preferred APGs are alkyl polyglucosides. Polyglucosides are polyglycosides based on glucose.

- 35 Glucose is also called dextrose.

Typically, the fatty alcohols comprised in APGs in etherified form are C6 to C18 fatty alcohol, preferably C8 to C16 fatty alcohols. In one embodiment, such fatty alcohols are C8-C10 alco-

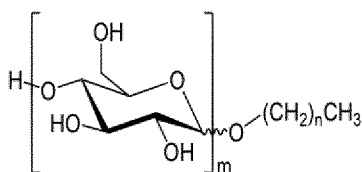
holds. In one embodiment, such fatty alcohols are C9 to C11 alcohols. In one embodiment, such fatty alcohols are C12-C14 alcohols. In one embodiment, such fatty alcohols are C12-C16 alcohols.

In one embodiment, APGs comprise a number average of 0.5 to 1.5 etherified fatty alcohols per molecule. In one embodiment, APGs comprise a number average of 0.8 to 1.2 etherified fatty alcohols per molecule. In one embodiment, APGs comprise a number average of 0.9 to 1.1 etherified fatty alcohols per molecule.

In one embodiment, APGs comprise a number average of 1 to 5 monoglycoside units, preferably 1.3 to 2 and more preferably 1.4 to 1.7.

Typically, suitable APGs have an HLB value of 11 to 15, preferably 11.5 to 14.

In one embodiment, APGs have the following structure:



Alkyl Polyglucoside

with n being a number average from 7 to 17, preferably 7 to 15 and m being a number from 1 to 5, preferably 1.3 to 2, more preferably 1.4 to 1.7. n and m are number averages.

For example, APGs with the following characteristics are suitable:

Etherified alkyl group	C8-C10	C8-C10	C9-C11	C8-C16	C12-C14	C12-C16
Degree of polymerization (no. of mono glycoside units)	1.5	1.7	1.6	1.6	1.4	1.6
HLB	13.2	13.6	13.1	12.8	11.6	12.8

Alkyl glycosides are typically produced by combining a sugar such as glucose with a fatty alcohol in the presence of acid catalysts at elevated temperatures.

APGs are in one embodiment obtained from renewable resources. For example, the sugar component can be obtained from sugar beet or sugar cane or from starch, e.g. corn starch. Fatty alcohols can for example be obtained from natural oils or fats, e.g. coconut or palm oil.

APGs are in one embodiment obtained through hydrolysis of polysaccharides starch (e.g. corn starch) to obtain short polyglycoside fragments, and reacting such short polyglycoside fragments with fatty alcohols. In one embodiment, APGs are obtained from starch and fat as raw materials.

In one embodiment, APGs are obtained from sugars, e.g. from sugar beet or sugar cane, and fatty alcohols, e.g. from palm oil, coconut.

Typically, APGs are comprised in compositions of the invention in an amount of 2 to 15 wt%, preferably 5 to 12 wt%, in each case based on the solid composition.

Suitable APGs are in one embodiment liquid at 20°C. It was a surprising finding of the present invention that liquid APGs are suitable for solid compositions of the invention.

10

Compositions of the invention may further comprise a water soluble carrier as component C). In one embodiment, water suitable carriers comprise inorganic salts (e.g. ammonium sulfate, ammonium phosphate, ammonium nitrate, sodium chloride), ureas (especially urea), sugars, e.g. mono- or di-saccharides, oligosaccharides.

15 When used herein in the context of carriers, "sugars" shall mean sugars that are solid and that are not etherified with fatty alcohols. "Sugars" or "mono- or di-saccharides", "oligosaccharides" when used in this context shall not include APGs.

In one embodiment, the water soluble carrier comprises inorganic salts. Suitable water soluble inorganic salts include ammonium sulfate, ammonium phosphate and ammonium nitrate.

In one embodiment, the water soluble carrier comprises a urea. In one embodiment, the water soluble carrier comprises urea.

In one embodiment, the water soluble carrier comprises a sugar, such as mono- or disaccharides (e.g. lactose, fructose, saccharose, maltose, glucose), especially disaccharides, such as lactose. Mixtures of sugars are also possible. More preferred sugars are lactose, fructose, saccharose, maltose, glucose, or mixtures thereof.

In one less preferred embodiment, the water soluble carrier comprises a water soluble organic polymer like polyvinylpyrrolidone ("PVP").

30 "Carriers" comprised in solid formulations are sometimes also referred to as "fillers".

Typically, compositions of the invention comprise 1 to 80 wt%, preferably 10 to 60, more preferably 15 to 50 wt% of water soluble carrier, in each case based on the formulation.

35 When compositions of the invention comprise a water insoluble pesticide P, they comprise water soluble carriers but preferably only less than 5 wt%, more preferably less than 2 wt%, even more preferably less than 1 wt% of water insoluble carriers. In one preferred embodiment, com-

positions of the invention comprising a water insoluble pesticide P comprise no water insoluble carrier.

In one embodiment, compositions of the invention further may comprise water insoluble carriers as component D).

For water *soluble* carriers, especially for ionic water soluble carriers like inorganic salts, it is known that these can, due to their high concentration in the composition, partially inhibit the dispersing properties of many surfactants. This may lead to incomplete dispersion of the solid composition upon dilution with water and to an inhomogenous spray solution. Granular compositions known from the art normally comprise water insoluble carriers. However, water insoluble solid carriers remain undissolved upon dilution of the solid composition with water and are present in the spray solution as dispersed solid. Since any dispersed solid is a potential source of clogging that may block the spray nozzles, it is desirable to reduce the amount of solids in the spray solution. It is one of the surprising results of the present invention that through the use of APGs it is possible to replace water insoluble carriers with water soluble carriers. This brings about several advantages. For example, the amount of dispersed solid in the spray solution is reduced and the dilution of the solid composition with water leads to a homogenous spray solution with less effort.

While it is possible that compositions of the invention comprise some water insoluble carrier, it is desirable to limit the amount of water insoluble carrier in compositions of the invention.

In one embodiment, composition of the invention comprise 0 to 10 wt% of water insoluble carrier.

Suitable water insoluble carriers comprise for example clays (e.g. kaolines, ASP-NC clay, Van Gel B, Van Gel ES, Veegum T, Veegum K, attagel 50, gelwhite, bentonite clay, diatomaceous earth), silicates (e.g. calcium silicates, synthetic calcium silicate), hydrophilic fumed silica (e.g., aerosil 200), hydrophobic fumed silica.

In case compositions of the invention comprise water soluble pesticides P and only small amounts of water insoluble pesticide P, compositions of the invention comprise water insoluble carriers, typically in amounts of 1 to 80 wt%, preferably 10 to 60, more preferably 15 to 50 wt% of water insoluble carrier, in each case based on the formulation

Compositions of the invention may further comprise one or more further surfactants different from alkyl polyglycosides.

Typically, compositions of the invention comprise 0 to 20 wt % , preferable 0.1 to 10 wt% one or more surfactants different from alkyl polyglycosides

In one embodiment, the composition comprises an anionic **dispersant**. The composition comprises preferably a solid water-soluble anionic dispersant. The dispersant is usually solid at 25 °C, or it may have a melting point of at least 30 °C, preferably at least 50 °C, and in particular at least 100 °C. The dispersant is soluble in water, e.g. at least 50 g/l, preferably at least 100 g/l, each at 20 °C, and e.g. at pH 7.

Suitable dispersants include alkali, alkaline earth or ammonium salts of sulfonates, sulfates, phosphates, polycarboxylate, and mixtures thereof.

Examples of **sulfates** are sulfates of fatty acids and oils, of ethoxylated alkylphenols, of alcohols, of ethoxylated alcohols, or of fatty acid esters. Examples of phosphates are phosphate esters.

Examples of **sulfonates** are sulfonated phenol-formaldehyde condensation products, sulfonated cresol-formaldehyde condensation products, alkylarylsulfonates, diphenylsulfonates, alpha-olefin sulfonates, lignine sulfonates, sulfonates of fatty acids and oils, sulfonates of ethoxylated alkylphenols, sulfonates of alkoxyated arylphenols, sulfonates of condensed naphthalenes or alkylnaphthalenes, sulfonates of dodecyl- and tridecylbenzenes, sulfonates of naphthalenes and alkylnaphthalenes, sulfosuccinates or sulfosuccinamates. Typically, the sulfonates have a molecular weight from 200 to 2000 g/mol, preferably from 250 to 1000 g/mol.

Preferred sulfonates are alkali, alkaline earth or ammonium salts of sulfonates, more preferably sulfonated aryl-formaldehyde condensation products, such as alkali salts of sulfonated phenol-formaldehyde condensation products (e.g. CAS 102980-04-1), sulfonated naphthalene-formaldehyde condensation products (e.g. CAS 9084-06-4, 68425-94-5, 83453-42-3, or 9008-63-3), sulfonated alkylnaphthalene condensation products, and/or sulfonated cresol-formaldehyde condensation products (e.g. CAS 115535-44-9).

Examples of **polycarboxylates** are polymers, which may comprise several carboxylic acid groups in free acid form and/or as salt. In particular, polycarboxylates are copolymers of ethylenically unsaturated carboxylic acid and/or anhydride. Preferred polycarboxylates are copolymers of at least one ethylenically unsaturated carboxylic acid and/or anhydride, and of at least one ethylenically unsaturated nonionic monomer. More preferred polycarboxylates are copolymers of an ethylenically unsaturated, linear or branched aliphatic, cycloaliphatic or aromatic monocarboxylic or polycarboxylic acid or anhydride and of alpha -monoolefins containing from 2 to 20 carbon atoms. Suitable acid or anhydride monomers are selected from acrylic, methacrylic, crotonic, maleic, fumaric, citraconic or itaconic acid or anhydride, wherein maleic acid and/or

its anhydride are most preferred. Suitable ethylenically unsaturated nonionic monomers are alpha-monoolefin monomers, such as ethylene, propylene, 1-butene, isobutylene, n-1-pentene, 2-methyl-1-butene, n-1-hexene, 2-methyl-1-pentene, 4-methyl-1-pentene, 2-ethyl-1-butene, diisobutylene (or 2,4,4-trimethyl-1-pentene) and 2-methyl-3,3-dimethyl-1-pentene. Mixtures of such monomers are also suitable. The molar ratio between ethylenically unsaturated nonionic monomers and acid or anhydride monomers may be in the range from 20/80 to 80/20, preferably from 30/70 to 70/30, and in particular from 40/60 to 60/40. The molecular weight of the polycarboxylate may be 1 to 40 kDa, preferably 2 to 20 kDa, and in particular 3 to 14 kDa.

In a preferred form, the dispersant comprises a sulfate, a sulfonate, a polycarboxylate, or mixtures thereof.

In another preferred form, the dispersant comprises a polycarboxylate (such as a copolymer of at least one ethylenically unsaturated carboxylic acid and/or anhydride, and of at least one ethylenically unsaturated nonionic monomer) and sulfonate (e.g. sulfonated aryl-formaldehyde condensation products, and/or sulfonates of alkylnaphthalenes).

In a more preferred form the dispersant comprises a polycarboxylate (such as a copolymer of at least one ethylenically unsaturated carboxylic acid and/or anhydride, and of at least one ethylenically unsaturated nonionic monomer) and sulfonate (e.g. sulfonated aryl-formaldehyde condensation products and/or sulfonates of alkylnaphthalenes), and where the composition comprises less than 5 wt% of the sulfonate.

In another preferred form, the dispersant consists of at least one sulfonate (e.g. sulfonated aryl-formaldehyde condensation products and/or sulfonates of alkylnaphthalenes), and at least one polycarboxylate (such as a copolymer of at least one ethylenically unsaturated carboxylic acid and/or anhydride, and of at least one ethylenically unsaturated nonionic monomer). In case the dispersant consists of at least one sulfonate and at least one polycarboxylate it usually means that the composition is free of any other anionic dispersants beside the at least one sulfonate and the at least one polycarboxylate.

In a preferred form, the composition is free of an anionic dispersant selected from sulfates, such as sulfates of fatty acids, in particular lauryl sulfate.

In one embodiment, compositions of the invention comprise one or more nonionic surfactant as further surfactants. Suitable nonionic **amphiphilic polyalkoxylate** are usually free of ionic groups. The polyalkoxylate is amphiphilic, which usually means that it has surfactant properties and lowers the surface tension of water. Usually, the polyalkoxylate is obtainable by alkoxylation using alkyleneoxides, such as C₂-C₆-alkylene oxide, preferably ethylene oxide, propylene oxide,

or butylene oxide. Examples of polyalkoxylates are block polymers or compounds such as alcohols, alkylphenols, amines, amides, arylphenols, fatty acids or fatty acid esters which have been alkoxylated with 1 to 50 equivalents.

- 5 The polyalkoxylate typically has a **melting point** of at least 35 °C, preferably at least 43 °C, more preferably at least 48 °C and in particular at least 50 °C.

The polyalkoxylate is usually **soluble in water** at 20 °C, and e.g. at pH 7. Preferably, the solubility in water of the polyalkoxylate is at least 3 wt%, more preferably at least 7 wt%, and in particular at least 10 wt%.

The **molecular weight** of the polyalkoxylate is usually in the range of from 0.5 to 50 kDa, preferably from 2 to 35 kDa, and in particular from 5 to 20 kDa.

- 15 The polyalkoxylate is preferably a **block polymer**, which may contain a hydrophilic block and a hydrophobic block. Suitable block polymers are block polymers of the A-B or A-B-A type comprising blocks of polyethylene oxide and polypropylene oxide, or of the A-B-C type comprising alkanol, polyethylene oxide and polypropylene oxide.

- 20 Preferably, the polyalkoxylate is a block polymer comprising at least one polyethoxylate block and at least one poly-C₃-C₅-alkoxylate block (e.g. polypropoxylate or polybutoxylate). In particular, the polyalkoxylate is a triblock polymer of A-B-A type comprising a polyethoxylate type A block and a poly-C₃-C₅-alkoxylate block (preferably polypropoxylate) type B block.

- 25 The composition may further comprise a **fatty acid salt**. Suitable fatty acid salts are alkali, alkaline earth or ammonium salts of fatty acids, wherein alkali salts are preferred. The term fatty acid usually refers to C₁₀ to C₂₂ alkyl carboxylic acid, preferably to C₁₄ to C₂₀ alkyl carboxylic acid. Fatty acids are typically mixtures of the alkyl carboxylic acid. The composition may comprise from 0.1 to 8 wt%, preferably from 0.3 to 5 wt%, and in particular from 0.5 to 3 wt% of the fatty acid salt.

- The composition may also comprise **further auxiliaries** as they customarily used in agrochemical formulations, such as bactericides, anti-foaming agents or colorants. Typically, compositions of the invention comprise 0 to 10 wt% of further formulation auxiliaries, preferably 0 to 5, more preferably 0.1 to 2 wt%, based on the composition.

Suitable bactericides include bronopol and isothiazolinone derivatives such as alkylisothiazolinones and benzisothiazolinones.

Suitable anti-foaming agents include silicones or long chain alcohols.

Suitable colorants (e.g. in red, blue, or green) are pigments of low water solubility and water-soluble dyes. Examples are inorganic colorants (e.g. iron oxide, titan oxide, iron hexacyanoferrate) and organic colorants (e.g. alizarin-, azo- and phthalocyanine colorants).

In a preferred form, compositions of the invention comprise less than 3 wt%, preferably less than 1 wt% of solvents or are entirely free of solvents.

In a preferred form, compositions of the invention comprise less than 3 wt%, preferably less than 1 wt% of water soluble solvents or are entirely free of a water-soluble solvent.

In a preferred form, compositions of the invention comprise less than 3 wt%, preferably less than 1 wt% of water insoluble solvents or are entirely free of a water-insoluble solvent. The term water-insoluble solvent usually refers to solvents which have a solubility in water of less than 10 g/l at 20 °C. Examples of water-insoluble solvents are

- N-C₄-C₁₂-alkylpyrrolidone, preferably N-C₆-C₁₀-alkylpyrrolidone, e.g. N-octylpyrrolidone;
- N,N-dimethyl C₆-C₁₄ alkanamides, preferably N,N-dimethyl C₈-C₁₂ alkanamides;
- C₅-C₁₂-alkyl lactates, preferably C₆-C₁₀-alkyl lactates, e.g. 2-ethylhexyl lactate;
- aliphatic and/or aromatic hydrocarbons having a boiling point of at least 140 °C, preferably aromatic hydrocarbons having a boiling point of at least 180 °C;
- C₁-C₁₂ alkylphenols, preferably C₂-C₁₀ alkylphenols, e.g. 2-(1-methylpropyl)phenol;
- C₄-C₂₂ alkyl or C₆-C₂₂ aryl benzoate, preferably C₆-C₁₂ aryl benzoate, e.g. benzyl benzoate; and
- di-C₄-C₂₂ alkyl phthalates, preferably di-C₆-C₁₄ alkyl phthalates, e.g. diisononyl phthalate.

In one preferred embodiment, compositions of the invention comprise less than 10 wt%, preferably less than 5 wt%, and in particular less than 3 wt% or 1 wt% water or less.

In one embodiment, compositions of the invention comprise

- A) 1 to 70 wt%, preferably 5 to 60 wt% of at least one pesticide in solid form,
- B) 2 to 15 wt%, preferably 5 to 12 wt% of at least one alkyl polyglycoside,
- C) 0 to 80 wt% of water soluble carrier,
- D) 0 to 80wt% of water insoluble carrier,
- E) 0 to 20 wt % , preferably 0.1 to 10 wt% of one or more surfactants different from alkyl polyglycosides,
- F) 0 to 10 wt% of further formulation auxiliaries,

wherein at least one carrier selected from water soluble carriers C) and water insoluble carriers D) is present and wherein the composition comprises at least one water insoluble pesticide P or at least one water insoluble carrier or both

5 In one embodiment, compositions of the invention comprise

A) 5 to 60 wt% of at least one pesticide in solid form,

B) 5 to 12 wt% of at least one alkyl polyglycoside,

C) 0 to 80 wt% of water soluble carrier,

D) 0 to 80wt% of water insoluble carrier,

10 E) preferably 0.1 to 10 wt% of one or more surfactants different from alkyl polyglycosides,

F) 0 to 10 wt% of further formulation auxiliaries,

wherein at least one carrier selected from water soluble carriers C) and water insoluble carriers D) is present and wherein the composition comprises at least one water insoluble pesticide P or

15 at least one water insoluble carrier or both

In one embodiment, compositions of the invention comprise

A) 1 to 70 wt%, preferably 5 to 60 wt% of at least one water insoluble pesticide in solid form,

20 B) 2 to 15 wt%, preferably 5 to 12 wt% of at least one alkyl polyglycoside,

C) 1 to 80 wt%, preferably 10 to 60 wt%, more preferably 15 to 50 wt% of water soluble carrier,

D) 0 to 10 wt% of water insoluble carrier,

25 E) 0 to 20 wt % , preferably 0.1 to 10 wt% of one or more surfactants different from alkyl polyglycosides,

F) 0 to 10 wt% of further formulation auxiliaries,

wherein percentages are in each case given relative to the formulation.

In one embodiment, compositions of the invention comprise

30 A) 5 to 60 wt% of at least one water insoluble pesticide in solid form,

B) 5 to 12 wt% of at least one alkyl polyglycoside,

C) 10 to 60 wt%, more preferably 15 to 50 wt% of water soluble carrier,

D) 0 to 10wt% of water insoluble carrier,

E) 0 to 10 wt% of one or more surfactants different from alkyl polyglycosides,

35 F) 0 to 5 wt% of further formulation auxiliaries,

wherein percentages are in each case given relative to the formulation.

In one embodiment, compositions of the invention comprise

- A) 5 to 60 wt% of at least one water soluble pesticide in solid form,
 - B) 5 to 12 wt% of at least one alkyl polyglycoside,
 - C) 0 to 30 wt% of water soluble carrier,
 - D) 1 to 80 wt%, preferably 10 to 60 wt%, more preferably 15 to 50 wt% of water insoluble carrier,
 - E) 0 to 10 wt% of one or more surfactants different from alkyl polyglycosides,
 - F) 0 to 5 wt% of further formulation auxiliaries,
- wherein percentages are in each case given relative to the formulation.

10 In one embodiment, compositions of the invention comprise

- A) 5 to 60 wt% of at least one water soluble pesticide in solid form,
 - B) 5 to 12 wt% of at least one alkyl polyglycoside,
 - C) 0 to 20 wt% of water soluble carrier,
 - D) 10 to 60 wt%, preferably 15 to 50 wt % of water insoluble carrier,
 - E) 0 to 10 wt% of one or more surfactants different from alkyl polyglycosides,
 - F) 0 to 5 wt% of further formulation auxiliaries,
- wherein percentages are in each case given relative to the formulation.

20 In one embodiment, compositions of the invention comprise

- A) 1 to 70 wt%, preferably 5 to 60 wt% of at least one pesticide P in solid form where pesticide P does not comprise any sulfonyl urea herbicides,
- B) 2 to 15 wt%, preferably 5 to 12 wt% of at least one alkyl polyglycoside,
- C) 0 to 80 wt% of water soluble carrier,
- D) 0 to 80wt% of water insoluble carrier,
- E) 0 to 20 wt % , preferably 0.1 to 10 wt% of one or more surfactants different from alkyl polyglycosides,
- F) 0 to 10 wt% of further formulation auxiliaries,

wherein at least one carrier selected from water soluble carriers C) and water insoluble carriers

30 D) is present and wherein the composition comprises at least one water insoluble pesticide P or at least one water insoluble carrier or both

In one embodiment, compositions of the invention comprise

- A) 5 to 60 wt% of at least one pesticide P in solid form where pesticide P does not comprise any sulfonyl urea herbicides,
- B) 5 to 12 wt% of at least one alkyl polyglycoside,
- C) 0 to 80 wt% of water soluble carrier,
- D) 0 to 80wt% of water insoluble carrier,

E) preferably 0.1 to 10 wt% of one or more surfactants different from alkyl polyglycosides,

F) 0 to 10 wt% of further formulation auxiliaries,

wherein at least one carrier selected from water soluble carriers C) and water insoluble carriers

5 D) is present and wherein the composition comprises at least one water insoluble pesticide P or at least one water insoluble carrier or both

In one embodiment, compositions of the invention comprise

10 A) 1 to 70 wt%, preferably 5 to 60 wt% of at least one water insoluble pesticide P in solid form where pesticide P does not comprise any sulfonyl urea herbicides,

B) 2 to 15 wt%, preferably 5 to 12 wt% of at least one alkyl polyglycoside,

C) 1 to 80 wt%, preferably 10 to 60 wt%, more preferably 15 to 50 wt% of water soluble carrier,

D) 0 to 10 wt% of water insoluble carrier,

15 E) 0 to 20 wt % , preferably 0.1 to 10 wt% of one or more surfactants different from alkyl polyglycosides,

F) 0 to 10 wt% of further formulation auxiliaries,

wherein percentages are in each case given relative to the formulation.

20 In one embodiment, compositions of the invention comprise

A) 5 to 60 wt% of at least one water insoluble pesticide P in solid form where pesticide P does not comprise any sulfonyl urea herbicides,

B) 5 to 12 wt% of at least one alkyl polyglycoside,

C) 10 to 60 wt%, more preferably 15 to 50 wt% of water soluble carrier,

25 D) 0 to 10wt% of water insoluble carrier,

E) 0 to 10 wt% of one or more surfactants different from alkyl polyglycosides,

F) 0 to 5 wt% of further formulation auxiliaries,

wherein percentages are in each case given relative to the formulation.

30 In one embodiment, compositions of the invention comprise

A) 5 to 60 wt% of at least one water soluble pesticide P in solid form where pesticide P does not comprise any sulfonyl urea herbicides,

B) 5 to 12 wt% of at least one alkyl polyglycoside,

C) 0 to 30 wt% of water soluble carrier,

35 D) 1 to 80 wt%, preferably 10 to 60 wt%, more preferably 15 to 50 wt% of water insoluble carrier,

E) 0 to 10 wt% of one or more surfactants different from alkyl polyglycosides,

F) 0 to 5 wt% of further formulation auxiliaries,

wherein percentages are in each case given relative to the formulation.

In one embodiment, compositions of the invention comprise

- A) 5 to 60 wt% of at least one water soluble pesticide P in solid form where pesticide P does not comprise any sulfonyl urea herbicides,
 - B) 5 to 12 wt% of at least one alkyl polyglycoside,
 - C) 0 to 20 wt% of water soluble carrier,
 - D) 10 to 60 wt%, preferably 15 to 50 wt % of water insoluble carrier,
 - E) 0 to 10 wt% of one or more surfactants different from alkyl polyglycosides,
 - F) 0 to 5 wt% of further formulation auxiliaries,
- wherein percentages are in each case given relative to the formulation.

According to the invention, the composition comprises at least one water insoluble pesticide or at least one water insoluble carrier or both.

Another aspect of the present invention are processes for making compositions of the invention comprising the following steps:

- i) Mixing and homogenizing all solid components of the composition
- ii) Milling the so obtained mixture so that the one or more pesticide has an average particle size of 1 to 10 μm ,
- iii) Adding the alkyl polyglycosides and a solvent, preferably water, to obtain an extrudable paste,
- iv) Granulating to so obtained mixture to obtain granules,
- v) Drying the so obtained granules.

Step ii) comprises milling of all components to obtain particles of a homogenous particle size distribution with an average particle size d_{50} of 1 to 10 μm , preferably 2 to 6, more preferably 2.5 to 4.5 μm . In one embodiment, the milling step is carried out by air milling. Typically the average particle size of the pesticides in granular compositions is higher than in suspension concentrate compositions.

The method for the preparation usually comprises a granulation step. The granulation may be done by any known granulation technology, such as pan or drum granulation, mixing agglomeration, extrusion granulation, fluid bed granulation, tableting, or spray drying granulation. Preferably this is done by extruding.

Typically, the method for the preparation of the composition comprises the contacting of the pesticide, APG, the water soluble carrier, and the further components, extrusion granulation, and optionally drying and sieving of the granules.

- 5 Another aspect of the present invention are aqueous compositions obtained by contacting the solid compositions of the invention, especially the water dispersible granules of the invention, and water.

- 10 Another aspect of the present invention are spray liquids obtained by contacting the solid compositions of the invention, especially the water dispersible granules of the invention, and water

Another aspect of the present invention are spray liquids comprising

- 15 A) at least one pesticide P,
B) at least one alkyl polyglycoside,
C) optionally a water soluble carrier,
D) optionally a water insoluble carrier,
E) an aqueous liquid phase
wherein at least one carrier selected from water soluble carriers C) and water insoluble carriers D) is present and wherein the composition comprises at least one water insoluble
20 pesticide P or at least one water insoluble carrier or both with the proviso that said spray liquid comprises 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid particles suspended in the aqueous liquid phase.

- 25 The solid particles suspended in the aqueous liquid phase are in particular water insoluble pesticides and water insoluble carriers. In one embodiment, the solid particles suspended in the aqueous liquid phase consist of water insoluble pesticides.

In the spray liquid, the water soluble carrier is present in dissolved form in the aqueous liquid phase.

- 30 In one embodiment, spray liquids comprise

- 35 A) at least one water insoluble pesticide P,
B) at least one alkyl polyglycoside,
C) a water soluble carrier,
D) optionally a water insoluble carrier,
E) an aqueous liquid phase
with the proviso that said spray liquid comprises 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid particles suspended in the aqueous liquid phase.

In one embodiment, spray liquids comprise

- A) at least one water insoluble pesticide P,
- B) 0.01 to 5 wt of at least one alkyl polyglycoside,
- C) a water soluble carrier,
- 5 D) optionally a water insoluble carrier,
- E) an aqueous liquid phase

with the proviso that said spray liquid comprises 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid particles suspended in the aqueous liquid phase.

10 In one embodiment, spray liquids comprise

- A) at least one water insoluble pesticide P,
- B) 0.1 to 1 wt% of at least one alkyl polyglycoside,
- C) a water soluble carrier,
- D) optionally a water insoluble carrier,
- 15 E) an aqueous liquid phase

with the proviso that said spray liquid comprises 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid particles suspended in the aqueous liquid phase.

20 In one embodiment, spray liquids comprise

- A) 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt of at least one water insoluble pesticide P,
- B) at least one alkyl polyglycoside,
- C) a water soluble carrier,
- 25 D) optionally a water insoluble carrier,
- E) an aqueous liquid phase.

In one embodiment, spray liquids comprise

- A) 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of at least one water insoluble pesticide P,
- 30 B) 0.01 to 5 wt% of at least one alkyl polyglycoside,
- C) a water soluble carrier,
- D) optionally a water insoluble carrier,
- E) an aqueous liquid phase.

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In one embodiment, spray liquids comprise

- A) 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of at least one water insoluble pesticide P,

- B) 0.1 to 1 wt% of at least one alkyl polyglycoside,
- C) a water soluble carrier,
- D) optionally a water insoluble carrier,
- E) an aqueous liquid phase.

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In one embodiment, spray liquids comprise

- A) at least one water insoluble pesticide P, where pesticide P does not comprise any sulfonyl urea herbicides,
 - B) 0.01 to 5 wt of at least one alkyl polyglycoside,
 - C) a water soluble carrier,
 - D) optionally a water insoluble carrier,
 - E) an aqueous liquid phase
- with the proviso that said spray liquid comprises 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid particles suspended in the aqueous liquid phase.

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In one embodiment, spray liquids comprise

- A) at least one water insoluble pesticide P, where pesticide P does not comprise any sulfonyl urea herbicides,
 - B) 0.1 to 1 wt% of at least one alkyl polyglycoside,
 - C) a water soluble carrier,
 - D) optionally a water insoluble carrier,
 - E) an aqueous liquid phase
- with the proviso that said spray liquid comprises 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid particles suspended in the aqueous liquid phase.

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In one embodiment, spray liquids comprise

- A) 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt of at least one water insoluble pesticide P, where pesticide P does not comprise any sulfonyl urea herbicides,
- B) at least one alkyl polyglycoside,
- C) a water soluble carrier,
- D) optionally a water insoluble carrier,
- E) an aqueous liquid phase.

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In one embodiment, spray liquids comprise

- A) 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of at least one water insoluble pesticide P, where pesticide P does not comprise any sulfonyl urea herbicides,
- B) 0.01 to 5 wt% of at least one alkyl polyglycoside,
- 5 C) a water soluble carrier,
- D) optionally a water insoluble carrier,
- E) an aqueous liquid phase.

In one embodiment, spray liquids comprise

- 10 A) 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of at least one water insoluble pesticide P, where pesticide P does not comprise any sulfonyl urea herbicides,
- B) 0.1 to 1 wt% of at least one alkyl polyglycoside,
- C) a water soluble carrier,
- 15 D) optionally a water insoluble carrier,
- E) an aqueous liquid phase.

All amounts com components in solid formulations or spay liquid given herein are, unless stated otherwise, based on the solid formulation or the spray liquid respectively.

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In one embodiment spray liquids of the invention are obtained in a process comprising the following steps:

- a. Providing a solid composition according to the invention as described above,
- 25 b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid components.

In one embodiment spray liquids of the invention are obtained in a process comprising the following steps:

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- a. Providing a water dispersible granule composition according to the invention as described above,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5
- 35 wt%, more preferably 0.2 to 2 wt% of solid components.

In one embodiment spray liquids of the invention are obtained in a process comprising the following steps:

- a. Providing a water dispersible granule composition according to the invention as described above,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of water insoluble pesticides P.

Spray liquids of the invention are typically prepared from solid formulations of the invention. Herein, "spray liquids" are also referred to as "tank mixes", "spray liquors" or "spray solutions".

Another aspect of the present invention is the use of compositions of the invention or of spray liquids of the invention for controlling pests.

Another aspect of the present invention is a method of controlling phytopathogenic fungi and/or undesired plant growth and/or undesired insect or mite attack and/or for regulating the growth of plants, wherein the compositions of the invention or the spray liquids of the invention are allowed to act on the respective pests, their environment or the crop plants to be protected from the respective pest, on the soil and/or on undesired plants and/or on the crop plants and/or on their environment.

The method for controlling phytopathogenic fungi and/or undesired plant growth and/or undesired attack by insects or mites and/or for regulating the growth of plants typically excludes a therapeutic use.

When employed in plant protection, the amounts of pesticide applied are, depending on the kind of effect desired, from 0.001 to 2 kg per ha, preferably from 0.005 to 2 kg per ha, more preferably from 0.02 to 0.5 kg per ha, in particular from 0.2 to 0.2 kg per ha.

Various types of oils, wetters, adjuvants, fertilizer, or micronutrients, and other pesticides (e.g. herbicides, insecticides, fungicides, growth regulators, safeners) may be added to the active substances or the compositions comprising them as premix or, if appropriate not until immediately prior to use (tank mix). These agents can for example be admixed with the compositions according to the invention in a weight ratio of 1:100 to 100:1, preferably 1:10 to 10:1.

The user applies the composition according to the invention usually from a predosage device, a knapsack sprayer, a spray tank, a spray plane, a drone or an irrigation system. Usually, the agrochemical composition is made up with water, buffer, and/or further auxiliaries to the desired application concentration and the ready-to-use spray liquor or the agrochemical composition according to the invention is thus obtained. Usually, 20 to 2000 liters, preferably 50 to 400 liters,

of the ready-to-use spray liquor are applied per hectare of agricultural useful area.

In one preferred embodiment, compositions of the invention are used for applications from a flying device. In one embodiment, compositions of the invention are applied by a manned aircraft such as a plane or helicopter. In one embodiment, compositions of the invention are applied by an airplane. In one embodiment, compositions of the invention are applied by a drone. Drones are also referred to as unmanned aerial vehicles (UAV).

In one embodiment the method of controlling phytopathogenic fungi and/or undesired plant growth and/or undesired insect or mite attack and/or for regulating the growth of plants comprises the following steps:

- a. Providing a solid composition according to the invention as described above,
- b. Contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid components,
- c. Applying the spray liquid obtained in step b. on the respective pests, their environment or the crop plants to be protected from the respective pest, on the soil and/or on undesired plants and/or on the crop plants and/or on their environment by a manned or unmanned aerial vehicle, such as a plane or drone, preferably using an unmanned aerial vehicle.

In one embodiment the method of controlling phytopathogenic fungi and/or undesired plant growth and/or undesired insect or mite attack and/or for regulating the growth of plants comprises the following steps:

- a. Providing a solid composition comprising
 - A. at least one pesticide P in solid form, where pesticide P is water insoluble and where pesticide P does not comprise any sulfonyl urea herbicides,
 - B. at least one alkyl polyglycoside,
 - C. a water soluble carrier,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid components,
- c. Applying the spray liquid obtained in step b. on the respective pests, their environment or the crop plants to be protected from the respective pest, on the soil and/or on undesired plants and/or on the crop plants and/or on their environment by a manned or unmanned aerial vehicle, such as a plane or drone, preferably using an unmanned aerial vehicle.

In one embodiment the method of controlling phytopathogenic fungi and/or undesired plant growth and/or undesired insect or mite attack and/or for regulating the growth of plants comprises the following steps:

- a. Providing a water dispersible granule composition according to the invention as described above,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid components,
- c. Applying the spray liquid obtained in step b. by a manned or unmanned aerial vehicle, such as a plane or drone, preferably using an unmanned aerial vehicle.

In one embodiment the method of controlling phytopathogenic fungi and/or undesired plant growth and/or undesired insect or mite attack and/or for regulating the growth of plants comprises the following steps:

- a. Providing a solid composition according to the invention as described above,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of pesticides,
- c. Applying the spray liquid obtained in step b. by a manned or unmanned aerial vehicle, such as a plane or drone, preferably using an unmanned aerial vehicle, so that the compositions are allowed to act on the respective pests, their environment or the crop plants to be protected from the respective pest, on the soil and/or on undesired plants and/or on the crop plants and/or on their environment.

In one embodiment the method of controlling phytopathogenic fungi and/or undesired plant growth and/or undesired insect or mite attack and/or for regulating the growth of plants comprises the following steps:

- a. Providing a water dispersible granule according to the invention as described above,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of pesticides,
- c. Applying the spray liquid obtained in step b. by a manned or unmanned aerial vehicle, such as a plane or drone, preferably using an unmanned aerial vehicle, so that the compositions are allowed to act on the respective pests, their environment or the crop plants to be protected from the respective pest, on the soil and/or on undesired plants and/or on the crop plants and/or on their environment.

In one embodiment the method of controlling phytopathogenic fungi and/or undesired plant growth and/or undesired insect or mite attack and/or for regulating the growth of plants comprises the following steps:

- a. Providing a water dispersible granule composition comprising
 - 5 A. 5 to 60 wt% of at least one water insoluble pesticide P in solid form where pesticide P does not comprise any sulfonyl urea herbicides,
 - B. 5 to 12 wt% of at least one alkyl polyglycoside,
 - C. 10 to 60 wt%, more preferably 15 to 50 wt% of water soluble carrier,
 - D. 0 to 10wt% of water insoluble carrier,
 - 10 E. 0 to 10 wt% of one or more surfactants different from alkyl polyglycosides,
 - F. 0 to 5 wt% of further formulation auxiliaries,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid components,
- 15 c. applying the spray liquid obtained in step b. by a manned or unmanned aerial vehicle, such as a plane or drone, preferably using an unmanned aerial vehicle, so that the compositions are allowed to act on the respective pests, their environment or the crop plants to be protected from the respective pest, on the soil and/or on undesired plants and/or on the crop plants and/or on their environment.

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In one embodiment the method of controlling phytopathogenic fungi and/or undesired plant growth and/or undesired insect or mite attack and/or for regulating the growth of plants comprises the following steps:

- a. Providing a water dispersible granule composition comprising
 - 25 A. 5 to 60 wt% of at least one water insoluble pesticide P in solid form, where pesticide P does not comprise any sulfonyl urea herbicides,
 - B. 5 to 12 wt% of at least one alkyl polyglycoside,
 - C. 10 to 60 wt%, more preferably 15 to 50 wt% of water soluble carrier,
 - D. 0 to 10wt% of water insoluble carrier,
 - 30 E. 0 to 10 wt% of one or more surfactants different from alkyl polyglycosides,
 - F. 0 to 5 wt% of further formulation auxiliaries,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of pesticides,
- 35 c. applying the spray liquid obtained in step b. by a manned or unmanned aerial vehicle, such as a plane or drone, preferably using an unmanned aerial vehicle, so that the compositions are allowed to act on the respective pests, their environment or the crop plants to be protected from the respective pest, on the soil and/or on undesired plants and/or

on the crop plants and/or on their environment.

Application of agrochemical compositions by a drone or plane or other flying devices poses particular challenges. The challenges described below for drones may also apply to other flying vehicles like planes. Typically, the tanks of drones that contain the spray solution are not stirred. At the same time, the capacity of the spray tanks of drones is limited so that spray solutions prepared drone application comprise high concentration of pesticides. However, in many cases the spray solution is stored in the spray tank of a drone for several hours, for example for longer than 1 hour, longer than 2 hours, longer than 3 hours, longer than 4 hours, longer than 5 hours or longer than 8 hours. It is important that that spray solution remains homogenous over the entire period the spray solution is stored in the spray tank. If no stirring of the spray solution is carried out, it is important that any solid comprised in the spray solution, in particular any solid pesticide, does not separate at the bottom of the spray tank.

For these reasons, it is especially desirable to reduce the amount of solids dispersed in the spray solution as much as possible. It was a surprising result of the present invention that water insoluble carriers like clays that are customarily comprised in water dispersible granule compositions can be at least partly if not completely replaced by water soluble carriers.

Solid Compositions and spray liquids of the invention offer various advantages:

They are easy and economical to make.

They are environmentally friendly.

They can be easily diluted with water to form a spray solution.

They form stable spray solutions with high concentration of pesticides.

They form stable spray solutions in which the solids contained do not separate.

They are suitable for application by manned or unmanned aerial vehicles, such as planes or drones.

They show high biological activities for controlling pests. In many cases compositions of the invention have a higher efficacy for controlling pests than suspension concentrate compositions of WG formulations known from the art with similar pesticide contents.

Compositions of the invention result in only a small amount of dispersed solid in the spray solution.

Compositions of the invention can be diluted easily to obtain a spray solution.

Dilution of the solid compositions of the invention with water leads to a homogenous spray solution.

The examples which follow illustrate the invention without imposing any limitation.

Examples

Materials used:

Dispersing agent A: lignosulfonate

5 Wetting agent A: sodium alkyl naphthalene sulfonate blend

Disintegrant A: sodium salt of a highly sulfonated kraft lignin

Antifoam A: Sodium Tallowate

Stabilizer Surfactant A: lignosulfonate

Stabilizer Surfactant B: sodium salt of a highly sulfonated kraft lignin

10 Stabilizer Surfactant C: polyacrylic acid

ASP-NC Kaolin Clay: delaminated pulverized kaolin clay

Stabilizer Surfactant D: C9-11 Alkyl Poly Glucoside, degree of polymerization 1.6, HLB 13.1, liquid at 20°C

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Example 1: Effect of Surfactants on Sediment after Dilution

Formulations with the following recipe were prepared to demonstrate the suspensibility of Fenmezoditiaz granules:

WG formulation	Concentration (w/w)	Function
Fenmezoditiaz	40.00%	active ingredient
Dispersing agent A	4.00%	dispersing agent
Wetting agent A	2.00%	wetting agent
Disintegrant A	3.00%	disintegrant
Antifoam A	0.40%	antifoam
Surfactant	See Below	stabilizer
Ammonium Sulfate	Add to 100%	filler

20

The formulations were prepared by mixing the dry ingredients together and hammer-milling it to deagglomerate the powders and homogenize the mixture. Next the hammer-milled mixture was air-milled until the active ingredient reached d(0.5) mean particle size between 2.5 – 4.5 µm. If the formulation contains Stabilizer Surfactant D, the air-milled mixture was blended with a 70% Stabilizer Surfactant D aqueous solution until homogeneous. Then additional water was added to make the mixture bind together to go through the extruder to form granules. The granules were dried in fluidized air bed dryer until the moisture was approximately 1%. The average size of the granules d90 was 1 to 5 mm.

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The samples were evaluated for sedimentation after standing static for 5 hours. The method was carried out in a 250 mL graduated cylinder. In a 250 mL beaker, 3.13 grams of the WG formulation plus the back added surfactant was added to 150 mL of 342 ppm standard water and allowed to mix for 2 minutes. After the 2 minutes had expired, the sample was transferred to a 250 mL graduated cylinder and the beaker was rinsed out with 342 ppm standard water until the graduated cylinder was brought up to volume. The graduated cylinder was then inverted through 15 cycles and left to sit undisturbed for the prescribed test time. At the end of the test time, the sediment was measured in millimeters.

Back Added Surfactant	% of Surfactant	Sediment (mm)
None	0%	2.0
Stabilizer Surfactant A	12%	1.0
Stabilizer Surfactant A	16%	1.0
Stabilizer Surfactant B	6%	1.0
Stabilizer Surfactant B	9%	0.5
Stabilizer Surfactant B	12%	0.5
Stabilizer Surfactant C	4.4%	2.5
Stabilizer Surfactant D	7.5%	Only traces
Stabilizer Surfactant D	10%	Only traces

The results clearly showed that Stabilizer Surfactant D was the only stabilizer surfactant that was able to significantly decrease the sediment after standing static for 5 hours after dilution.

Example 2: Effect of Stabilizer Surfactant with Various Active Ingredients

Formulations with the following recipe were prepared to demonstrate the effect of Stabilizer Surfactant D on the suspensibility and sedimentation of granules made with various active ingredients:

WG formulation	Concentration (w/w)	Function
Active Ingredient	40.00%	active ingredient
Dispersing agent A	4.00%	dispersing agent
Disintegrant A	3.00%	disintegrant
Antifoam A	1.00%	antifoam
Water	1.00%	residual

Stabilizer Surfactant D	See Below	wetting agent
Ammonium Sulfate	Add to 100%	filler

The formulations were prepared by mixing the dry ingredients together and hammermilling it to deagglomerate the powders and homogenize the mixture. Next the hammer-milled mixture was air-milled until the active ingredient reached $d(0.5)$ mean particle size between 2.5 – 4.5 μm .

- 5 Then if the formulation contains Stabilizer Surfactant D, the air-milled mixture was blended with a 70% Stabilizer Surfactant D solution until homogenous. Lastly, additional water was added to make the mixture bind together to go through the extruder to form granules. If the formulation did not contain Stabilizer Surfactant D, then only water was added to make the mixture bind together to go through the extruder to form granules. Finally, the granules were dried in fluid-
 10 ized air bed dryer until the moisture was approximately 1%. The average size of the granules d_{90} was 1 to 5 mm.

- The samples were evaluated for sediment and gravimetric suspensibility properties after 5 hours. The method was carried out in a 250 mL graduated cylinder. In a 250 mL beaker, 3.13
 15 grams of the WG formulation was added to 150 mL of 342 ppm standard water and allowed to mix for 2 minutes. After the 2 minutes had expired, the sample was transferred to a 250 mL graduated cylinder and the beaker was rinsed out with 342 ppm standard water until the graduated cylinder was up to volume. The graduated cylinder was then inverted for 15 cycles and left to sit undisturbed for 5 hours. At the end of the test time, the sediment was measured and the
 20 top 90% of the solution was suctioned off using a peristaltic pump. The bottom 10% was transferred to a pre-weighed evaporating dish and allowed to dry in oven overnight. The remaining residue was determined and the % suspensibility was calculated.

Active Ingredient	% Stabilizer Surfactant D	% Suspensibility	Sediment (mm)
Fenmezoditiaz	0%	64.76%	3
	7.5%	85.91%	Trace-
α -Cypermethrin	0%	61.57%	6
	7.5%	66.95%	3
Broflanilide	0%	61.06%	5
	7.5%	76.92%	1

- 25 The results showed that the addition of Stabilizer Surfactant D together increases the suspensibility and decreases the sediment.

Example 3: Effect of Stabilizer Surfactant D concentration on Fenmezoditiaz WG

- 5 Formulations with the following recipe were prepared to demonstrate the optimal concentration of Stabilizer Surfactant D for gravimetrical suspensibility of the Fenmezoditiaz granules:

WG formulation	Concentration (%wt/wt)	Function
Fenmezoditiaz	40.00%	active ingredient
Dispersing agent A	4.00%	dispersing agent
Wetting agent A	2.00%	wetting agent
Disintegrant A	3.00%	disintegrant
Antifoam A	0.40%	antifoam
Stabilizer Surfactant D	See Below	wetting agent
Ammonium Sulfate	Add to 100%	filler

- 10 The formulations were prepared by mixing the dry ingredients together and hammer-milling it to deagglomerate the powders and homogenize the mixture. Next the hammer-milled mixture was air-milled until the active ingredient reached d(0.5) mean particle size between 2.5 – 4.5 μm . Then the air-milled mixture was blended with a 70% Stabilizer Surfactant D aqueous solution until homogenous and just enough water to make the mixture
15 bind together to go through the extruder to form granules. Finally, the granules were dried in fluidized air bed dryer until the moisture was approximately 1%.

- The samples were evaluated for gravimetrical suspensibility and sedimentation after standing static for 5 hours. The method was carried out in a 250 mL graduated cylinder.
20 In a 250 mL beaker, 3.13 grams of the WG formulation plus Stabilizer Surfactant D was added to 150 mL of 342 ppm standard water and allowed to mix for 2 minutes. After the 2 minutes had expired, the sample was transferred to a 250 mL graduated cylinder and the beaker was rinsed out with 342 ppm standard water until the graduated cylinder was brought up to volume. The graduated cylinder was then inverted through 15 cycles and
25 left to sit undisturbed for the prescribed test time. At the end of the test time, the sediment was measured in millimeters.

% Stabilizer Surfactant D	% Suspensibility	Sediment (mm)
0.0%	73.96%	2.0
3.4%	79.97%	1.0
5.0%	82.09%	0.5
7.5%	83.51%	Only traces
10.0%	84.57%	Only traces

The results showed that the optimal concentration of Stabilizer Surfactant D is between 5%-10% to optimize the suspensibility properties.

5 Example 4: Effect of Stabilizer Surfactant D with Various Carriers

Formulations with the following recipe were prepared to demonstrate the suspensibility and sedimentation of Fenmezoditiaz granules with ASP-NC Kaolin Clay, a water insoluble carrier, and Ammonium Sulfate as the carrier:

WG formulation	Concentration (w/w)	Function
Fenmezoditiaz	40.00%	active ingredient
Dispersing agent A	4.00%	dispersing agent
Disintegrant A	3.00%	disintegrant
Antifoam A	1.00%	antifoam
Stabilizer Surfactant D	See Below	wetting agent
Carrier (See Below)	Add to 100%	filler

The formulations were prepared by mixing the dry ingredients together and hammermilling it to deagglomerate the powders and homogenize the mixture. Next the hammer-milled mixture was air-milled until the active ingredient reached d(0.5) mean particle size between 2.5 – 4.5 μm . Then the air-milled mixture was blended with a 70% solution of Stabilizer Surfactant D in the amount given below until homogenous. Lastly, additional water was added to make the mixture bind together to go through the extruder to form granules. If the formulation did not contain Stabilizer Surfactant D, then only water was added to make the mixture bind together to go through the extruder to form granules. Finally, the granules were dried in fluidized air bed dryer until the moisture was approximately 1%.

The samples were evaluated for gravimetric suspensibility properties at various test times. The method was carried out in a 250 mL graduated cylinder. In a 250 mL beaker,

3.13 grams of the WG formulation was added to 150 mL of 342 ppm standard water and allowed to mix for 2 minutes. After the 2 minutes had expired, the sample was transferred to a 250 mL graduated cylinder and the beaker was rinsed out with 342 ppm standard water until the graduated cylinder was up to volume. The graduated cylinder was then inverted for 15 cycles and left to sit undisturbed for the prescribed test time. At the end of the test time, the sediment was measured and the top 90% of the solution was suctioned off using a peristaltic pump. The bottom 10% was transferred to a pre-weighed evaporating dish and allowed to dry in oven overnight. The remaining residue was determined and the % suspensibility was calculated.

% Stabilizer Surfactant D	Filler	Test Time	% Suspensibility	Sediment (mm)
0%	ASP-NC Kaolin Clay	30 minutes	94.93%	< 1
7.5%	ASP-NC Kaolin Clay	30 minutes	99.00%	Only Traces
0%	ASP-NC Kaolin Clay	3 Hours	53.79%	9
7.5%	ASP-NC Kaolin Clay	3 Hours	88.46%	1
0%	ASP-NC Kaolin Clay	5 Hours	39.05%	10
7.5%	ASP-NC Kaolin Clay	5 Hours	79.52%	2.5
0%	Ammonium Sul- fate	30 minutes	84.84%	1.5
7.5%	Ammonium Sul- fate	30 minutes	98.49%	Only Traces
0%	Ammonium Sul- fate	3 Hours	71.35%	2.5
7.5%	Ammonium Sul- fate	3 Hours	88.46%	< 1
0%	Ammonium Sul- fate	5 Hours	64.76%	3
7.5%	Ammonium Sul- fate	5 Hours	85.91%	Only traces

The results clearly showed that a combination of Stabilizer Surfactant D together with water soluble salt carrier(s) provides best formulation suspensibility.

Example 5: Stable Fenmezoditiaz WG formulations based on current invention

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Formulations were prepared with Stabilizer Surfactant D and various water-soluble salts to demonstrate their suspensibility properties

WG formulation	Concentration (%wt/wt)	Function
Fenmezoditiaz	40.00%	active ingredient
Dispersing agent A	4.00%	dispersing agent
Disintegrant A	3.00%	disintegrant
Antifoam A	1.00%	antifoam
Stabilizer Surfactant D	7.50%	wetting agent
Water-Soluble Salt (See Below)	Add to 100%	filler

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The formulations were prepared by mixing the dry ingredients together and hammer-milling it to deagglomerate the powders and homogenize the mixture. Next the hammer-milled mixture was air-milled until the active ingredient reached d(0.5) mean particle size between 2.5 – 4.5 μm . Then the air-milled mixture was blended with a 70% Stabilizer Surfactant D solution until homogenous. Lastly, additional water was added to make the mixture bind together to go through the extruder to form granules. Finally, the granules were dried in fluidized air bed dryer until the moisture was approximately 1%.

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The samples were evaluated for sediment and gravimetric suspensibility properties after a test time of 5 hours utilizing the method described above for Example 4.

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Water-Soluble Salt Filler	% Suspensibility	Sediment (mm)
Ammonium Sulfate	87.05%	Only traces
Urea	97.53%	Only traces

The results showed that both water-soluble salts had good compatibility with Stabilizer Surfactant D and kept the 40% Fenmezoditiaz WG formulations well suspended for 5 hours. The WG formulation with Ammonium Sulfate was also tested in a drone applica-

tion simulation and easily passed without clogging filters and was easy to clean afterwards.

Claims

1. Solid composition comprising

- 5 A) at least one pesticide P in solid form, where pesticide P is water insoluble, and where
 pesticide P does not comprise any sulfonyl urea herbicides,
 B) at least one alkyl polyglycoside,
 C) a water soluble carrier.

2. Composition according to claim 1, wherein said composition is a solid granular composition.

3. Composition according to any of claims 1 to 2, wherein the alkyl polyglycoside is liquid at 20°C.

4. Composition according to any of claims 1 to 3, wherein said composition comprises granules having an average particle size d50 of 0.05 to 10 mm.

5. Composition according to any of claims 1 to 4, wherein said pesticide P is water insoluble.

6. Composition according to any of claims 1 to 5, wherein said pesticide P is present in particulate form, such particles having an average particle size d50 of 2 to 6 µm.

7. Composition according to any of claims 1 to 6, wherein said water soluble carrier comprises inorganic salts (e.g. ammonium sulfate, ammonium phosphate, ammonium nitrate, sodium chloride), ureas, sugars, e.g. mono- or di-saccharides, oligosaccharides.

8. Composition according to any of claims 1 to 7, wherein said composition comprises

- A) 1 to 70 wt%, preferably 5 to 60 wt% of at least one water insoluble pesticide P in solid form,
 B) 2 to 15 wt%, preferably 5 to 12 wt% of at least one alkyl polyglycoside,
30 C) 1 to 80 wt%, preferably 10 to 60 wt%, more preferably 15 to 50 of water soluble carrier,
 D) 0 to 10 wt% of water insoluble carrier,
 E) 0 to 20 wt %, preferably 0.1 to 10 of one or more surfactants different from alkyl polyglycosides and other formulation auxiliaries,
35 F) 0 to 10 wt% of further formulation auxiliaries,
 wherein percentages are in each case given relative to the composition.

9. Process for making the composition according to any of claims 1 to 8 comprising the following steps:

- i) Mixing and homogenizing all solid components of the composition
- ii) Milling the so obtained mixture so that the one or more pesticide P has an average particle size of 1 to 10 μm ,
- iii) Adding the alkyl polyglycosides and a solvent, preferably water, to obtain an extrud-
5 able paste,
- iv) Extruding to so obtained mixture to obtain granules,
- v) Drying the so obtained granules.

10. Spray liquid comprising

- A) at least one water insoluble pesticide P,
- B) at least one alkyl polyglycoside,
- C) a water soluble carrier,
- D) optionally a water insoluble carrier,
- E) an aqueous liquid phase,

15 with the proviso that said spray liquid comprises 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid particles suspended in the aqueous liquid phase.

11. Use of compositions according to claims 1 to 8 or of spray liquids according to claim 10 for
controlling pests.

20 12. A method of controlling phytopathogenic fungi and/or undesired plant growth and/or unde-
sired insect or mite attack and/or for regulating the growth of plants, wherein the composi-
tion according to any of claims 1 to 8 or the spray liquid according to claim 10 is allowed to
act on the respective pests, their environment or the crop plants to be protected from the re-
25 spective pest, on the soil and/or on undesired plants and/or on the crop plants and/or on
their environment.

13. A method according to claim 12, wherein the composition according to any of claims 1 to 8
or the spray liquid according to claim 10 is applied by a manned or unmanned aerial vehicle,
30 such as a plane or drone.

14. A method according to any of claims 12 to 13, comprising the following steps:

- a. Providing a solid composition according any of claims 1 to 8,
- b. contacting the solid composition obtained in step a. with water and optionally adding fur-
35 ther additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5
wt%, more preferably 0.2 to 2 wt% of solid components.

15. A method according to any of claims 12 to 14, comprising the following steps:

- a. Providing a solid composition according any of claims 1 to 8,
- b. contacting the solid composition obtained in step a. with water and optionally adding further additives to obtain a spray liquid comprising 0.01 to 10 wt%, preferably 0.1 to 5 wt%, more preferably 0.2 to 2 wt% of solid components,
- 5 c. Applying the spray liquid obtained in step b. by a manned or unmanned aerial vehicle, such as a plane or drone, preferably using an unmanned aerial vehicle.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2023/059605

A. CLASSIFICATION OF SUBJECT MATTER		
INV.	A01N25/04	A01N25/06
	A01P3/00	A01P7/04
		A01P13/00
ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) A01N		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data, CHEM ABS Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 482 772 B1 (BRATZ MATTHIAS [DE] ET AL) 19 November 2002 (2002-11-19)	1-15
Y	the claims; the examples; column 2, lines 12-34; column 8, right column, the last two paragraphs, and columns 9-14	1-15

X	JP 2011 144149 A (NISSAN CHEMICAL IND LTD) 28 July 2011 (2011-07-28)	1-15
Y	the whole document	1-15

Y	EP 2 606 724 A1 (LAMBERTI SPA [IT]) 26 June 2013 (2013-06-26)	1-15
	the claims; paragraphs 1-51, and the examples	

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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
3 July 2023		10/07/2023
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Lorenzo Varela, M

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2023/059605

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 99/48359 A1 (DOW AGROSCIENCES LLC [US]; FOWLES ANDREW MARK [GB] ET AL.) 30 September 1999 (1999-09-30) the claims and pages 1-4 -----	1-15
X	EP 0 498 145 A1 (MONSANTO EUROPE SA [BE]) 12 August 1992 (1992-08-12)	1-8, 10-15
Y	the claims; pages 1 and 2 and the examples -----	1-15
X	JP 2014 231484 A (NISSAN CHEMICAL IND LTD) 11 December 2014 (2014-12-11) the whole document -----	1-8, 10-15
X	US 6 177 396 B1 (CLAPPERTON RICHARD MALCOLM [GB] ET AL) 23 January 2001 (2001-01-23)	1-8, 10-15
Y	the claims; column 5, lines -30; column 7, second paragraph; column 8, lines 18-25; column 24, lines 49-67; column 25, lines 1-2; examples 14-17 -----	1-15
X,P	WO 2022/167577 A1 (BASF SE [DE]) 11 August 2022 (2022-08-11)	1-15
Y,P	page 2, lines 22-25 -----	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2023/059605

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6482772	B1	19-11-2002	AR 011601 A1 30-08-2000
		AT 221313 T 15-08-2002	
		AU 748718 B2 13-06-2002	
		BG 63859 B1 30-04-2003	
		BR 9806805 A 02-05-2000	
		CA 2278206 A1 06-08-1998	
		CN 1246035 A 01-03-2000	
		CO 5021231 A1 27-03-2001	
		CZ 296327 B6 15-02-2006	
		DK 0955810 T3 02-09-2002	
		EA 199900642 A1 24-04-2000	
		EE 9900331 A 15-02-2000	
		EP 0955810 A1 17-11-1999	
		ES 2181168 T3 16-02-2003	
		GE P20012568 B 26-11-2001	
		HU 0000924 A2 28-07-2000	
		ID 22449 A 14-10-1999	
		IL 130814 A 25-07-2004	
		JP 4399032 B2 13-01-2010	
		JP 2001509799 A 24-07-2001	
		KR 20000070590 A 25-11-2000	
		NO 322302 B1 11-09-2006	
		NZ 337263 A 29-09-2000	
		PL 335051 A1 27-03-2000	
		PT 955810 E 31-12-2002	
		SK 98799 A3 13-03-2000	
		TR 199901834 T2 21-10-1999	
		TW 529910 B 01-05-2003	
		UA 54490 C2 17-03-2003	
		US 6482772 B1 19-11-2002	
		US 2002098981 A1 25-07-2002	
		UY 24868 A1 29-12-2000	
		WO 9833383 A1 06-08-1998	
		ZA 98723 B 29-07-1999	

JP 2011144149	A	28-07-2011	NONE

EP 2606724	A1	26-06-2013	EP 2606724 A1 26-06-2013
			US 2013165322 A1 27-06-2013

WO 9948359	A1	30-09-1999	AR 018786 A1 12-12-2001
			AT 226012 T 15-11-2002
			AU 2946299 A 18-10-1999
			DE 69903524 T2 20-02-2003
			DK 1063883 T3 24-02-2003
			EP 1063883 A1 03-01-2001
			HK 1033244 A1 24-08-2001
			WO 9948359 A1 30-09-1999

EP 0498145	A1	12-08-1992	AT 130163 T 15-12-1995
			AU 644509 B2 09-12-1993
			CA 2060104 A1 09-08-1992
			DE 69114683 T2 15-05-1996
			DK 0498145 T3 02-01-1996
			EP 0498145 A1 12-08-1992
			ES 2079633 T3 16-01-1996
			GR 3018989 T3 31-05-1996

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2023/059605

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2014231484 A	11-12-2014	JP 6420027 B2 JP 2014231484 A	07-11-2018 11-12-2014
US 6177396 B1	23-01-2001	AT 203562 T AU 678572 B2 BG 62141 B1 BR 9401051 A CA 2123017 A1 CN 1098739 A DE 69427784 T2 DK 0623670 T3 EP 0623670 A2 ES 2161232 T3 FI 942106 A GB 2279080 A GR 3036972 T3 HK 1005746 A1 HU 219141 B IL 109586 A IN 192354 B JP H07126696 A KR 100390720 B1 NO 307893 B1 NZ 260488 A PE 53694 A1 PL 185499 B1 PT 623670 E SK 53294 A3 TW 258752 B UA 37191 C2 US 6177396 B1 UY 23773 A1	15-08-2001 05-06-1997 31-03-1999 06-12-1994 08-11-1994 15-02-1995 29-05-2002 24-09-2001 09-11-1994 01-12-2001 08-11-1994 21-12-1994 31-01-2002 22-01-1999 28-02-2001 05-04-1998 10-04-2004 16-05-1995 13-09-2003 13-06-2000 25-06-1996 05-01-1995 30-05-2003 30-11-2001 12-04-1995 01-10-1995 15-05-2001 23-01-2001 20-05-1994
WO 2022167577 A1	11-08-2022	AR 124823 A1 WO 2022167577 A1	10-05-2023 11-08-2022