

PESTICIDE MULTIRESIDUE METHOD

SCOPE OF ACTIVE SUBSTANCES IN HONEY, SYRUPS (AGAVE, COCONUT, MAPLE) AND SUGAR

Substance name	Limit of quantification (LOQ) [mg/kg]				
		Carbetamide (sum of isomers) ¹	0.01	Dichlorvos ²	0.01
		Carbofuran ¹	0.01	Dicloran ²	0.01
		Carbofuran (incl. Metabolites calc. as Carbofuran)	0.01	Dicofol, p,p- ²	0.01
2				Dieldrin ²	0.01
2,4-D ¹	0.01	Carbofuran, 3-hydroxy ¹	0.01	Diethofencarb ¹	0.01
		Carbophenothion (-ethyl) ²	0.01	Difenoconazole ¹	0.01
4		Carbophenothion-methyl ²	0.01	Diflubenzuron ¹	0.01
4,4-Dibromobenzophenone ²	0.01	Carbosulfan ¹	0.01	Diflufenican ²	0.01
4,4-Dichlorobenzophenone ²	0.01	Chlordane, cis- (alpha-) ²	0.01	Dimethachlor ¹	0.01
A		Chlordane, Oxy- ²	0.01	Dimethoate ¹	0.01
Acephate ^{1,2}	0.01	Chlordane, trans- (gamma-) ²	0.01	Dimethomorph ¹	0.01
Acequinocyl ¹	0.01	Chlorfenapyr ²	0.01	Dimoxystrobin ¹	0.01
Acetamiprid ¹	0.01	Chlorfenson ²	0.01	Diniconazol ¹	0.01
Acibenzolar-acid ¹	0.01	Chlorfenvinphos ²	0.01	Dinotefuran ¹	0.01
Acibenzolar-S-methyl ¹	0.01	Chlormephos ²	0.01	Diphenylamin ²	0.01
Aclonifen ²	0.01	Chlorobenzilate ²	0.01	Disulfoton ¹	0.01
Acrinathrin ²	0.01	Chloroneb ²	0.01	Disulfoton-sulfone ¹	0.01
Alachlor ²	0.01	Chloropropylate ²	0.01	Disulfoton-sulfoxide ¹	0.01
Aldicarb ¹	0.01	Chlorothalonil ²	0.01	Ditalimfos ²	0.01
Aldicarb-sulfone (Aldoxycarb) ¹	0.01	Chloroxuron ¹	0.01	Dithianon ¹	0.01
Aldicarb-sulfoxide ¹	0.01	Chlorpropham ²	0.01	Diuron ¹	0.01
Aldrin ²	0.01	Chlorpyrifos (-ethyl) ²	0.01	DMST (Tolylfluaniid metabolite) ²	0.01
Allethrin ²	0.01	Chlorpyrifos-methyl ²	0.01	Dodine ¹	0.01
Amitraz (incl. rel. metabolites) ¹	0.01	Chlorthal-dimethyl ²	0.01		
Amitraz (metabolite DMA) ¹	0.01	Chlorthion ²	0.01		
Amitraz (metabolite DMF) ^{1,2}	0.01	Chlorthiophos (sum of isomers) ²	0.01	E	
Amitraz (metabolite DMPF) ¹	0.01	Chlozolinate ²	0.01	Endosulfan, -alpha ²	0.01
Avermectin B1a ¹	0.01	Clofentezine ¹	0.01	Endosulfan, -beta ²	0.01
Avermectin B1b ¹	0.01	Clomazone ¹	0.01	Endosulfan-sulfate ²	0.01
Azinphos-ethyl ¹	0.01	Clopyralid ¹	0.01	Endosulfan (sum of isomers expressed as Endosulfan)	
Azinphos-methyl ¹	0.01	Clothianidin ¹	0.01	Endrin ²	0.01
Azoxystrobin ¹	0.01	Coumaphos ^{1,2}	0.01	EPN ²	0.01
		Cyanofenphos ²	0.01	Epoxiconazole ¹	0.01
B		Cyanophos ²	0.01	Ethiofencarb ¹	0.01
Benalaxyl ¹	0.01	Cyantraniliprole ¹	0.01	Ethiofencarb-sulfone ¹	0.01
Benalaxyl-M ¹	0.01	Cyfluthrin (sum of isomers) ²	0.01	Ethiofencarb-sulfoxide ¹	0.01
Benalaxyl (sum of isomers) ¹		Cyhalothrin, -lambda ²	0.01	Ethion ²	0.01
Benfluralin ²	0.01	Cymiazole ²	0.01	Ethoprophos ²	0.01
Benfuracarb ¹	0.01	Cymoxanil ¹	0.01	Ethoxyquin ¹	0.01
Benomyl ¹	0.01	Cypermethrin (sum of isomers) ²	0.01	Etofenprox ²	0.01
Bifenazate ^{1,2}	0.01	Cyproconazole ¹	0.01	Etridiazole ²	0.01
Bifenazate-diazene ¹	0.01	Cyprodinil ¹	0.01	Etrimfos ²	0.01
Bifenazate (incl. Bifenazate-diazene) ^{1,2}		Cyromazine ¹	0.01		
Bifenthrin (sum of isomers) ²	0.01	D		F	
Binapacryl ²	0.01	Daminozide ¹	0.01	Famoxadone ¹	0.01
Biphenyl ²	0.01	DDD, o,p'- ²	0.01	Famphur ²	0.01
Bitertanol (sum of isomers) ¹	0.01	DDD, p,p'- ²	0.01	Fenamiphos ¹	0.01
Boscalid ¹	0.01	DDE, o,p'- ²	0.01	Fenamiphos-sulfone ¹	0.01
Bromacil ¹	0.01	DDE, p,p'- ²	0.01	Fenamiphos-sulfoxide ¹	0.01
Bromophos (-methyl) ²	0.01	DDT, o,p'- ²	0.01	Fenarimol ¹	0.01
Bromophos-ethyl ²	0.01	DDT, p,p'- ²	0.01	Fenazaquin ¹	0.01
Bromopropylate ²	0.01	DEET (Diethyltoluamid) ¹	0.01	Fenbuconazole ¹	0.01
Bromuconazole (sum of diastereoisomers) ¹	0.01	Deltamethrin ²	0.01	Fenchlorphos ²	0.01
Bupirimate ¹	0.01	Demeton-S-methyl ¹	0.01	Fenchlorphos-oxon ²	0.01
Buprofezin ¹	0.01	Demeton-S-methyl-sulfone ¹	0.01	Fenchlorphos (sum of Fenchlorphos and Fenchlorphos-oxon calc. as Fenchlorphos) ²	
		Demeton-S-methyl-sulfoxide (Oxydemeton-S-methyl) ¹	0.01	Fenhexamid ²	0.01
C		Diafenthiuron ¹	0.01	Fenitrothion ²	0.01
Cadusafos ²	0.01	Diazinon ²	0.01	Fenoxycarb ¹	0.01
Captan ²	0.01	Dichlobenil (2,6-Dichlorobenzonitrile, DCBN) ²	0.01	Fenpropathrin ²	0.01
Carbaryl ¹	0.01	Dichlofenthion ²	0.01	Fenpropimorph ¹	0.01
Carbendazim ¹	0.01	Dichlofluanid ²	0.01	Fenpyroximate ¹	0.01
				Fenson ²	0.01

Fensulfthion ²	0.01	Isofenphos-methyl ¹	0.01	Phosmet-oxon ²	0.01
Fensulfthion-oxon ¹	0.01	Isoproturon ¹	0.01	Phosmet (phosmet and phosmet oxon expressed as phosmet) ²	
Fensulfthion-oxon-sulfone ¹	0.01	Isoxathion ²	0.01	Phosphamidon ²	0.01
Fensulfthion-sulfone ¹	0.01			Piperonyl butoxide ²	0.01
Fensulfthion (sum of isomers calculated as Fensulfthion) ^{1,2}		K		Pirimicarb ¹	0.01
Fenthion ¹	0.01	Kresoxim-methyl ¹	0.01	Pirimicarb, Desmethyl- ¹	0.01
Fenthion-oxon ¹	0.01			Pirimicarb, Desmethylformamido- ¹	0.01
Fenthion-oxon-sulfone ¹	0.01	L		Pirimiphos-ethyl ²	0.01
Fenthion-oxon-sulfoxide ¹	0.01	Leptophos ²	0.01	Pirimiphos-methyl ²	0.01
Fenthion-sulfone ¹	0.01	Lindane (gamma-HCH, gamma-BCH) ²	0.01	Prochloraz ¹	0.01
Fenthion-sulfoxide ¹	0.01	Linuron ¹	0.01	Prochloraz BTS44595 ¹	0.01
Fenthion (fenthion and its oxygen analogue, sulfoxides and sulfone expr. as parent)		Lufenuron ¹	0.01	Prochloraz BTS44596 ¹	0.01
Fenvalerate/Esfenvalerate (sum of isomers) ²	0.01			Prochloraz (sum of prochloraz, BTS 44595 and BTS 44596, expressed as prochloraz)	
Fipronil ²	0.002	M		Procymidone ²	0.01
Fipronil-sulfone ²	0.002	Malaoxon ¹	0.01	Profenofos ²	0.01
Fipronil (sum of Fipronil + sulfone metabolite expr. as Fipronil) ²		Malathion ¹	0.01	Profluralin ²	0.01
Fluazifop-P ¹	0.01	Matrine ¹	0.01	Propamocarb ¹	0.01
Fluazifop-P-butyl ¹	0.01	Mecarbam ²	0.01	Propargite ¹	0.01
Fluazinam ¹	0.01	Mefentrifluconazol ¹	0.01	Propetamphos ²	0.01
Fluchloralin ²	0.01	Mepanipyrim ¹	0.01	Propiconazole ¹	0.01
Flucythrinate (sum of isomers) ²	0.01	Mepronil ¹	0.01	Propoxur ¹	0.005
Fludioxonil ¹	0.01	Mesotrione ¹	0.01	Propyzamide ¹	0.01
Flufenoxuron ¹	0.01	Metalaxyl ¹	0.01	Prothioconazole ¹	0.01
Fluopyram ¹	0.01	Metalaxyl-M ¹	0.01	Prothioconazole-Desthio ^{1,2}	0.01
Flupyradifurone ¹	0.01	Metalaxyl (sum of isomers) ¹		Prothioconazole: Prothioconazole-desthio(sum of isomers) ^{1,2}	
Fluquinconazole ¹	0.01	Metamitron ¹	0.01	Prothiofos ²	0.01
Flusilazole ¹	0.01	Metazachlor ¹	0.01	Pymetrozine ¹	0.01
Flutriafol ¹	0.01	Methacrifos ²	0.01	Pyraclostrobin ¹	0.01
Fluvalinate, Tau- ²	0.01	Methamidophos ^{1,2}	0.01	Pyrazophos ²	0.01
Fluxapyroxad ¹	0.01	Methidathion ²	0.01	Pyridaben ¹	0.01
Folpet ²	0.01	Methiocarb ¹	0.01	Pyridaphenthion ¹	0.01
Fonofos ¹	0.01	Methiocarb-sulfone ¹	0.01	Pyrifenox ¹	0.01
Formothion ²	0.01	Methiocarb-sulfoxide ¹	0.01	Pyrimethanil ¹	0.01
Furathiocarb ²	0.01	Methomyl ¹	0.01	Pyriproxyfen ¹	0.01
		Methoxychlor ²	0.01		
		Methoxyfenozide ¹	0.01	Q	
		Metobromuron ¹	0.01	Quinalphos ²	0.01
		Metolcarb ¹	0.01	Quinclorac ¹	0.01
		Metoxuron ¹	0.01	Quinoxyfen ¹	0.01
		Metribuzin ¹	0.01	Quintozene ²	0.01
		Mevinphos (sum of E- and Z-isomers) ²	0.01		
H		Mirex ²	0.01	R	
Halfenprox ²	0.01	Monocrotophos ²	0.01	Rotenone ¹	0.01
Haloxyfop ¹	0.01	Monolinuron ¹	0.01		
HCH, alpha- (Hexachlorocyclohexane, alpha-BCH) ²	0.01	Myclobutanil ¹	0.01	S	
HCH, beta- (Hexachlorocyclohexane, beta-BCH) ²	0.01			S 421 (Octachlorodipropyl ether) ²	0.01
HCH, delta- (Hexachlorocyclohexane, delta-BCH) ²	0.01	N		Spinosad (sum of isomers, Spinosyn A and Spinosyn D) ¹	0.01
HCH, epsilon- (Hexachlorocyclohexane, epsilon-BCH) ²	0.01	Nitenpyram ¹	0.01	Spirodiclofen ¹	0.01
Heptachlor ²	0.01	Nitrapyrin ²	0.01	Spiromesifen ¹	0.01
Heptachlor epoxide, cis- ²	0.01	Nitrofen ²	0.01	Spirotetramat ¹	0.01
Heptachlor epoxide, trans- ²	0.01	Nuarimol ¹	0.01	Spirotetramat-enol ¹	0.01
Heptachlor (sum of heptachlor and heptachlor epoxide expressed as heptachlor) ²				Spirotetramat-enol-glucoside ¹	0.01
Heptenophos ²	0.01	O		Spirotetramat-ketohydroxy ¹	0.01
Hexachlorobenzene (HCB) ²	0.01	Omethoate ¹	0.01	Spirotetramat-monoxyhydroxy ¹	0.01
Hexaconazole ¹	0.01	Oxadixyl ¹	0.01	Spirotetramat (sum of isomers calculated as Spirotetramat)	
Hexaflumuron ¹	0.01	Oxamyl ¹	0.01	Spiroxamine (sum of isomers) ¹	0.01
Hexythiazox ¹	0.01	Oxymatrine ¹	0.01	Sulfotep ²	0.01
				Sulfoxaflo ¹	0.01
I		P		Sulprofos ²	0.01
Icaridin (Picaridin) ¹	0.01	Paraoxon (-ethyl) ²	0.01		
Imazalil ¹	0.01	Paraoxon-methyl ²	0.01	T	
Imidacloprid ¹	0.01	Parathion (-ethyl) ²	0.01	Tebuconazole ¹	0.01
Indoxacarb (sum of isomers) ¹	0.01	Parathion-methyl ²	0.01	Tebufenozide ¹	0.01
Iodofenphos ²	0.01	Penconazole ¹	0.01	Tebuufenpyrad ¹	0.01
Iprobenfos ²	0.01	Pencycuron ¹	0.01	Tecnazene ²	0.01
Iprodione ²	0.01	Pendimethalin ²	0.01	Teflubenzuron ¹	0.01
Iprovalicarb ¹	0.01	Pentachloroaniline ²	0.01	Tefluthrin ²	0.01
Isazofos ²	0.01	Pentachloroanisole ²	0.01	Terbufos ²	0.01
Isocarbofos ²	0.01	Permethrin (sum of isomers) ²	0.01	Terbutylazine ¹	0.01
Isodrin ²	0.01	Phenthoate ²	0.01	Tetrachlorvinphos ²	0.01
Isofenphos ²	0.01	Phenylphenol, 2- (o-Phenylphenol) ²	0.01	Tetraconazole ¹	0.01
		Phorate ²	0.01		
		Phorate-sulfone ²	0.01		
		Phorate-sulfoxide ²	0.01		
		Phosalone ²	0.01		
		Phosmet ²	0.01		

Tetradifon ²	0.01
Tetrahydrophthalimid (THPI) ²	0.01
Tetramethrin ²	0.01
Tetrasul ²	0.01
Thiabendazole ¹	0.01
Thiacloprid ¹	0.01
Thiamethoxam ¹	0.01
Thiodicarb ¹	0.01
Thionazin ²	0.01
Thiophanat-methyl ¹	0.01
Tolclofos-methyl ²	0.01
Tolyfluanid ²	0.01
Transfluthrin ²	0.01
Triadimefon ¹	0.01
Triadimenol ¹	0.01
Triallate ²	0.01
Triazophos ²	0.01
Trichlorfon ¹	0.01
Trichloronat ²	0.01
Trifloxystrobin ¹	0.01
Triflumizole ¹	0.01
Trifluralin ²	0.01
Triforine ¹	0.01

V	
Vinclozolin ²	0.01

Technical equipment

¹: LC-MS/MS

²: GC-MS/MS

Method

ASU § 64 LFGB L 00.00-115 (DIN EN 15662),
QuEChERS

Additional residue analyses (included in pesticide multiresidue method)

Bee treatment agents by GC-MS/MS
Neonicotinoide by LC-MS/MS

Additional residue analyses (not included in pesticide multiresidue method)

Chlorate, Perchlorate by LC-MS/MS
Chlormequat, Mepiquat by LC-MS/MS
Diquat, Paraquat by LC-MS
Dithiocarbamates by GC-MS/MS
Ethephon by LC-MS/MS
Fentin by LC-MS/MS
Flumethrin by LC-MS/MS
Fosetyl-Al, Phosphonic acid by LC-MS/MS
Glyphosate (incl. AMPA), Glufosinate by LC-MS/MS
Maleic hydrazide by LC-MS/MS
Nicotine by LC-MS/MS
Organotin-Pesticides by LC-MS/MS
Phenoxyalkanoic acids by LC-MS/MS
Phosphane by GC-MS/MS
Quaternary ammonium compounds (QAVs) by LC-MS/MS
Beerepellents, wax moth control agents by GC-MS/MS
Total Inorganic Bromide, Bromate by LC-MS/MS