

**4<sup>th</sup>** Analytical Standards and  
Mixture Standard Solutions for  
Pesticides / Veterinary Drugs



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# Pesticides and Veterinary Drugs

## Search System for Mixture Standard Solutions

- You can easily find the mixture standard solution you want!
- Our recommended columns are listed in the search results!

Please try it first!

[https://labchem-wako.fujifilm.com/  
us/product/search/pesticides.html](https://labchem-wako.fujifilm.com/us/product/search/pesticides.html)



### Easily search for mixture standard solutions!

I find it is difficult to prepare a mixture standard solution by myself because there are so many analytes...

I couldn't search for a product from the CAS RN®, the search system registered the product with the CAS RN® as a salt...



I want a mixture standard solution containing A, B, C, and D, but there are so many products.

I cannot search for products with multiple aliases.

### Search system solves the problems!

Search by Analyte    [Search from Analyte List](#)

Keywords        ECP

Benfuresate

Search by CAS RN®

e.g. 23184-68-9, 723-45-8

Register the name or CAS RN® of the analyte in the mixture standard solution you want to find.

### Search results



- You can find mixture standard solutions containing the registered analytes in order of the degree of agreement!
- Single analytical standards can also be searched!
- You can also search by analyte alias or salt CAS RN®!

## How to access

You can access the “Search System for Mixture Standard Solutions of Pesticides / Veterinary-drugs” from our website.

Fujifilm Wako analysis 



An arrow points to the 'Pesticides/Veterinary-drug Search' banner, which is highlighted with a red border. Below the banner, there are three categories: 'Products', 'Volumetric Analysis', 'Pesticide & Veterinary Drug', and 'Food Nutrition / Functional'.

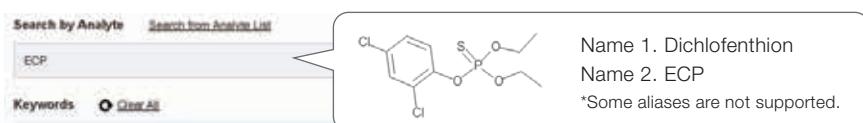
Click on the search system banner!

## How to search

In the “Search System for Mixture Standard Solutions of Pesticides / Veterinary-drugs,” you can register analytes by [1] name or CAS RN® and [2] from the analyte list. In addition, in [1], you can search for analytes by their aliases and salt CAS RN®.

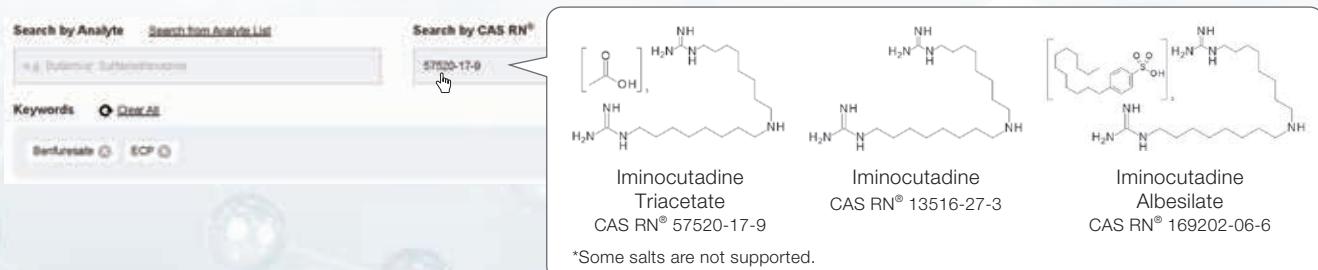
### [1] Register analytes by name or CAS RN®

Analytes with multiple aliases can be searched by any alias!



Name 1. Dichlofenthion  
Name 2. ECP  
\*Some aliases are not supported.

You can also search for analytes from the salt CAS RN®!



57520-17-9

Iminocutadine Triacetate  
CAS RN® 57520-17-9

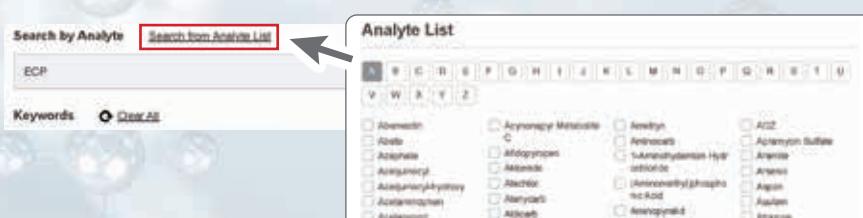
Iminocutadine  
CAS RN® 13516-27-3

Iminocutadine Albesilate  
CAS RN® 169202-06-6

\*Some salts are not supported.

### [2] Register analytes from component list

You can register the analytes from an analyte list arranged in alphabetical order!



## Search results

The search results are displayed in order from the mixture standard solution with the highest degree of match to the registered analytes. Since single analytical standards are also displayed in the search results, you can select products combining mixture standard solutions and single analytical standards from the search results. In addition, links to the product page of Fujifilm Wako's recommended columns for analyzing mixture standard solutions are also provided. This search system provides total support for your analysis of pesticides and veterinary drugs, from product selection to consideration of analysis conditions.

**Example** Register Benfuresate, ECP, and Cadusafos at keywords

Displayed in order  
of the highest  
degree of match to  
the registered  
analytes.



Mixture Standard Solution		> 48 Pesticides Mixture Standard Solution WQ-5 (each 20µg/mL Acetone Solution)		3/50 Analytes hit!	
Analyte	CAS RN*	Alias			
CSIP	1,1-Bis[4-(2-chlorophenoxy)phenyl]ethane				
Tifluzamide	DCPA	Aclor			
Amiben	imidacloprid				
Ufotazone F	flubensimide				
Flubensimide	flubensimide				
Dymronate					
Cabaucon	ACN	Cabaucon	TCTP	Cabaucon(100%)	Cabaucon ECP
Cabaucon-100					
Difenoconazole (Mixture of Isomers)					
Cyproconazole	cyproconazole				
Propiconazole	propiconazole				
(E)-Dimethylallylaphosphoryl-D-glucoside					
(Z)-Dimethylallylaphosphoryl-D-glucoside					
Chlorotol	chlorotol				
Thiamethoxam					
CIMP	Teleshizine				
Terbufos	terbufos				
Tetrasulfuron	tetrasulfuron				
Packebus	packebus				
Pyrazofurin	pyrazofurin				
(E)-Pyrazofurin-omega-ethyl					
(Z)-Pyrazofurin-omega-ethyl					
Penicillamine	penicillamine				
Fenpropidin	fenpropidin				
BPPS	BPPS				
PnC	pentachloro-p-nitrophenol				
Penbutolol	penbutolol				
Penbutolol sulfate	penbutolol sulfate				
Penbutolol mesilate	penbutolol mesilate				
Penbutolol succinate	penbutolol succinate				



Analyte	CAS/RIF <sup>®</sup>	Alias
EDDP-Crotonyl Catecholates	Cyanazine CYAN	EDCP, Diethyl-methyl Cyanato-bis(2,4-dienyl), Diphenoxydiphenyl, Tetrahydroxytriazole, Trifluoromethyl Tetrahydroxytriazole
Napropamide	Nitroimidazole	Pactosulfan, Pyrazophos, Ferousulf, Phenacetin (mixture of isomers), Butamife, Prospacine
Polyhydroquinazoline mixture of isomers	Bromoxynil, Immobicide Hexaconazole, Benomyl, Benthiazole, Metalaxyl-M	<b>Fampridimethyli</b>
Quinalphos	ACN, Pipernaph	XMC, (2,4-Pyridinediyl) Pyridine

Single analytical  
standard products  
can also be purchased

Click on the component name, to go to the product page of the single analytical standard!

Please refer to our website for details.

## How to Use

[https://labchem-wako.fujifilm.com/us/user\\_guide/pesticides\\_search/index.html](https://labchem-wako.fujifilm.com/us/user_guide/pesticides_search/index.html)





# Fujifilm Wako will expand its lineup of CRMs for pesticide residue analysis!

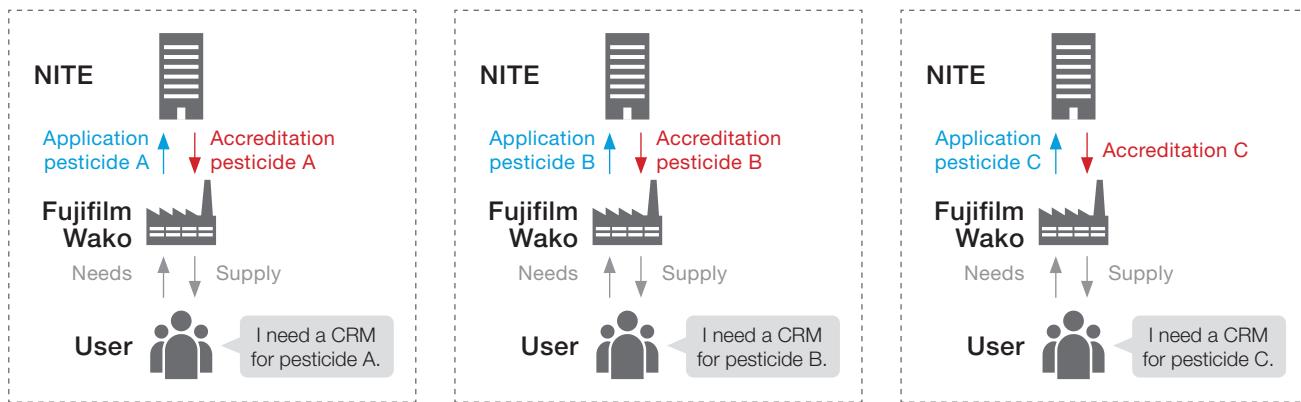
In 2023, Fujifilm Wako became the first company in the world to obtain comprehensive accreditation (flexible scope of accreditation) as a producer of reference materials (RMs), which will enable Fujifilm Wako to quickly and stably produce certified reference materials (CRMs) for pesticide residue analysis. By utilizing the flexible scope this accreditation affords, Fujifilm Wako will sequentially expand the lineup of CRMs.

## What is flexible scope of accreditation?

“Flexible scope of accreditation as a producer of RMs” is a system that allows RMs that are certified using methods accredited by the National Institute of Technology and Evaluation (NITE), a Japanese accreditation organization, to obtain accreditation as CRMs. In the past, to produce CRMs in Japan, it was necessary to obtain accreditation as a producer for each RM, and this was a time-consuming process. To solve this problem, NITE started the flexible scope of accreditation system, and Fujifilm Wako is one of the first companies to obtain this accreditation.

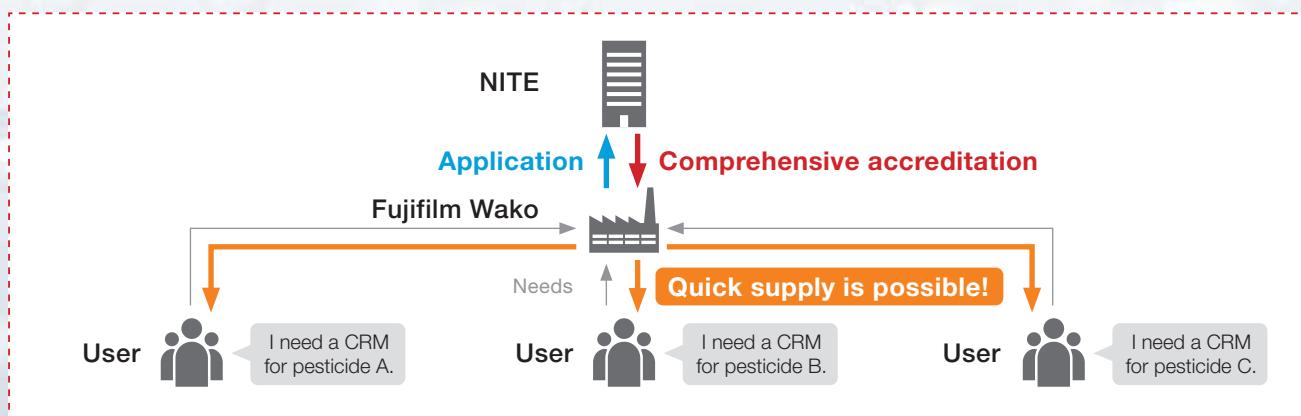
### Conventional system

- Need to get accreditation each time for each product.
- It takes time for CRM accreditation to be provided.



### Flexible scope of accreditation system

- No need to get accreditation each time for each product.
- CRMs can be supplied quickly.

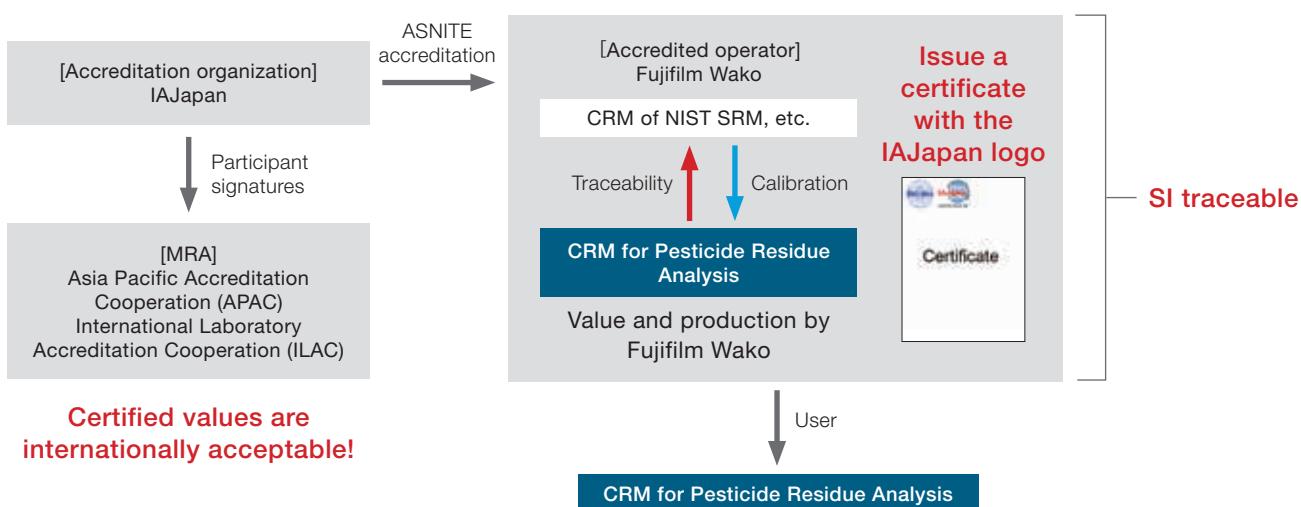


## ■ SI traceability mechanism CRM for pesticide residue analysis

This series "for pesticide residue analysis" are SI-traceable CRMs that use the National Institute of Standards and Technology (NIST SRM), the U. S. metrology standard, as the purity value source.

We use a method accredited by IAJapan, an accreditation body of NITE, for valuing our CRM.

This series is accompanied by a certificate bearing the IAJapan logo. It means that the purity (certified) value is SI traceable. In addition, IAJapan participates in the Mutual Recognition Accreditation Agreement (MRA) between accreditation bodies in different countries, so the certified values of this series are internationally accepted.



## ■ Comparison of grades for CRMs and analytical standards

Fujifilm Wako's Grades	for Pesticide Residue Analysis [CRM] <sup>*1</sup>	TraceSure®	Traceable Reference Material (TRM)	for Pesticide Residue Analysis [non-CRM] <sup>*1</sup>
Accreditation system	ASNITE <sup>*2</sup>		—	—
Metrological reference	NIST SRM, etc.	Calibration by NMIJ or CERI	—	—
MRA compatible	○	—	—	—
Certificate	IAJapan certificate	—	—	—
SI traceable	○	—	—	—

\*1 The "for Pesticide Residue Analysis" grade of CRM is indicated by the product name "XX Reference Material [CRM]"

Example) Imazosulfuron

[CRM]

Product Name: Imazosulfuron Reference Material [CRM]

Grade: for Pesticide Residue Analysis

[non-CRM]

Product Name: Imazosulfuron Standard

Grade: for Pesticide Residue Analysis

\*2 A program operated by IAJapan to complement areas that cannot be covered by other accreditation programs based on domestic law.

## ■ For the latest lineup of CRMs for Pesticide Residue Analysis, please visit our website.

TOP>Analytical Chemistry> Banner of the "Search System for Mixture Standard Solutions"

<https://labchem-wako.fujifilm.com/us/product/search/pesticides.html>





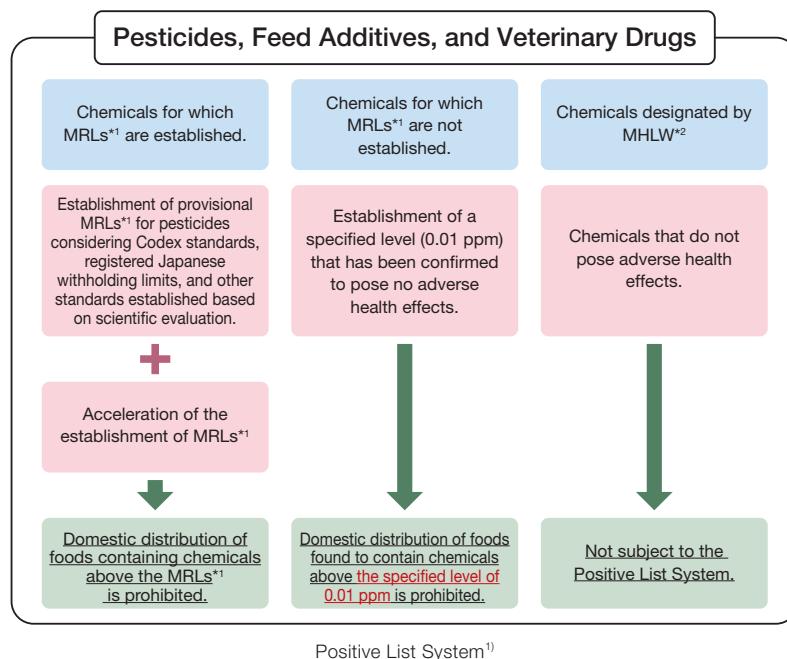
# Pesticides / Veterinary-drugs Mixture Standard Solutions for the Simultaneous Analysis Method Under the JP Food Sanitation Act “Positive List System,” PL Series

## What is the Positive List System?

The “Positive List System” is a system established in 2003 under the JP Food Sanitation Act that prohibits the sale, etc. of foods in which the levels of pesticides, feed additives, and veterinary drugs exceed a specified amount.<sup>1)</sup>

We have about 1,200 analytical standards that are compliant with positive list system (P. 74-82).

In addition, the “PL Series” of mixture standard solutions are available for simultaneous analysis (P. 6-30). By combining each of the mixture standard solutions as shown below, the simultaneous analysis method under the JP Food Sanitation Act, can be supported.



\*1 Maximum residue limits in or on the surface of foods and animal feeds established by the Codex Alimentarius Commission.

\*2 The Ministry of Health, Labour and Welfare of Japan.

## ■ Examples of combinations of the simultaneous analysis method under the JP Food Sanitation Act and our mixture standard solution.

Simultaneous analysis method under the JP Food Sanitation Act	Supported products (mark) <sup>*1,2</sup>
Multi-residue Method for Agricultural Chemicals by GC-MS (Agricultural Products)	PPL1 PPL2 PPL3 PPL4 PPL5 PPL6 PPL9 PPL10 PPL12 PPL13
Multi-residue Method for Agricultural Chemicals by GC-MS (Animal and Fishery Products: Muscle, Fat, Liver, Kidney, and Fish / Shellfish)	PPL1 PPL2 PPL3 PPL4 PPL5 PPL6 PPL9 PPL12 PPL13
Multi-residue Method for Agricultural Chemicals by GC-MS (Animal and Fishery Products: Milk, Egg, and Honey)	PPL1 PPL2 PPL3 PPL4 PPL5 PPL6 PPL9 PPL10 PPL12 PPL13
Multi-residue Method I for Agricultural Chemicals by LC-MS (Agricultural Products)	PPL7 PPL14 PPL15 PPL17
Multi-residue Method II for Agricultural Chemicals by LC-MS (Agricultural Products)	PPL8 PPL16
Multi-residue Method I for Agricultural Chemicals by LC-MS (Animal and Fishery Products: Muscle, Fat, Lever, Kidney, Fish / Shellfish)	PPL7 PPL15 PPL17
Multi-residue Method I for Agricultural Chemicals by LC-MS (Animal and Fishery Products: Milk, Egg and Honey)	PPL7 PPL15 PPL17
Multi-residue Method II for Agricultural Chemicals by LC-MS (Animal and Fishery Products)	PPL7 PPL14 PPL15 PPL17
Multi-residue Method III for Agricultural Chemicals by LC-MS (Animal and Fishery Products)	PPL7 PPL17
Multi-residue Method I for Veterinary Drugs by LC-MS (Animal and Fishery Products)	VPL1 VPL2
Multi-residue Method II for Veterinary Drugs by HPLC (Animal and Fishery Products)	VPL1 VPL2
Multi-residue Method III for Veterinary Drugs by HPLC (Animal and Fishery Products)	VPL2

\*1 Some of the components listed in the simultaneous analysis method are not included in the mixture standard solution.

\*2 Please refer to P. 7 for marks.

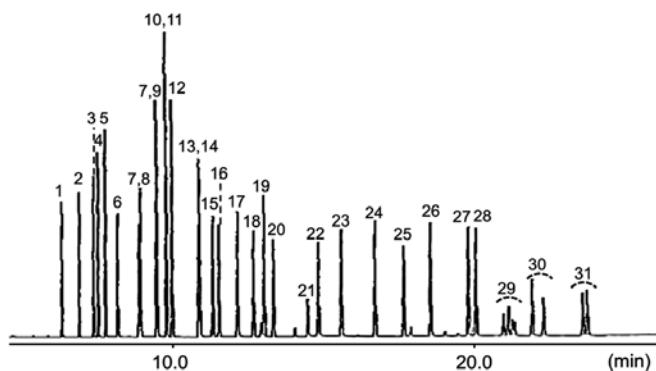
1) Ministry of Health, Labour and Welfare of Japan website

■ Product list of pesticides / veterinary-drugs mixture standard solutions for the simultaneous analysis method under the JP Food Sanitation Act “Positive List System,” PL series

Code No.	Product Name	Volume	Number of Components	Analysis Equipment	Mark	Product Page
165-26641	Pesticides Mixture Standard Solution PL-1-2 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	31	GC/MS	PPL1	P. 8
161-26643						
164-22973	Pesticides Mixture Standard Solution PL-2-1 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	31	GC/MS	PPL2	P. 9
168-22971						
166-26671	Pesticides Mixture Standard Solution PL-3-3 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	27	GC/MS	PPL3	P. 10
162-26673						
162-24593	Pesticides Mixture Standard Solution PL-4-2 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	36	GC/MS	PPL4	P. 12
166-24591						
165-23003	Pesticides Mixture Standard Solution PL-5-1 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	37	GC/MS	PPL5	P. 14
169-23001						
165-24603	Pesticides Mixture Standard Solution PL-6-3 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	35	GC/MS	PPL6	P. 15
169-24601						
169-23023	Pesticides Mixture Standard Solution PL-7-2 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	29	LC/MS	PPL7	P. 16
163-23021						
166-23033	Pesticides Mixture Standard Solution PL-8-1 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	21	LC/MS	PPL8	P. 18
160-23031						
168-25313	Pesticides Mixture Standard Solution PL-9-2 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	17	GC/MS	PPL9	P. 19
162-25311						
160-23053	Pesticides Mixture Standard Solution PL-10-1 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	9	GC/MS	PPL10	P. 20
164-23051						
167-23943	Pesticides Mixture Standard Solution PL-12-1 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	26	GC/MS	PPL12	P. 21
161-23941						
164-23953	Pesticides Mixture Standard Solution PL-13-1 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	15	GC/MS	PPL13	P. 22
168-23951						
161-23963	Pesticides Mixture Standard Solution PL-14-2 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	30	LC/MS	PPL14	P. 23
165-23961						
168-23973	Pesticides Mixture Standard Solution PL-15-1 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	28	LC/MS	PPL15	P. 24
162-23971						
165-23983	Pesticides Mixture Standard Solution PL-16-2 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	30	LC/MS	PPL16	P. 26
169-23981						
164-23693	Pesticides Mixture Standard Solution PL-17-2 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	29	LC/MS	PPL17	P. 28
168-23691						
226-01683	Veterinary Drugs Mixture Standard Solution PL-1-3 (each 20 µg/mL Methanol Solution)	1 mL 1 mL×5A	21	LC/MS	VPL1	P. 29
220-01681						
223-01693	Veterinary Drugs Mixture Standard Solution PL-2-1 (each 20 µg/mL Methanol Solution)	1 mL 1 mL×5A	24	LC/MS	VPL2	P. 30
227-01691						

Code No.	Product Name	Grade	Volume
165-26641	Pesticides Mixture Standard Solution PL-1-2		1 mL
161-26643	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ GC/MS chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: Rtx-5MS 0.25 µm, 0.32 mm×30 m  
Column temperature: 80°C (1 min.)→20°C/min.→180°C  
→5°C/min.→300°C (10 min.)

Injection temperature: 260°C  
Carrier gas: He 2.2 mL/min.  
Splitless: 1 min.

#### [MS]

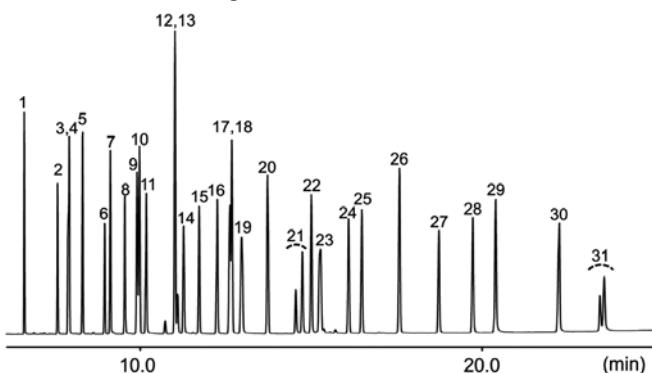
Ionization: EI  
Interface temperature: 280°C

### ■ List of 31 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume			
1	Omethoate	156	110	141	157-01881	Omethoate Standard	200 mg
2	Trifluralin	306	264		208-06783	Trifluralin Standard	100 mg
3	Dimethoate	87	125		041-15843	Dimethoate Standard	100 mg
4	Atrazine	200	215		016-15633	Atrazine Standard	100 mg
5	Terbufos	231	288	153	200-12691	Terbufos Standard	200 mg
6	Tefluthrin	177	197	383	204-13191	Tefluthrin Standard	200 mg
7	Spiroxamine	100	126		198-16401	Spiroxamine Standard (mixture of isomers)	100 mg
		100	101	126			
8	Chlorpyrifosmethyl	286	288		031-09673	Chlorpyrifosmethyl Standard	200 mg
9	Terbutryn	226	241		201-16641	Terbutryn Standard	200 mg
10	Thiobencarb (Benthiocarb)	100	257		029-06954	Benthiocarb Standard	100 mg
11	Malathion (Malathon)	173	158		136-05514	Malathon Standard	100 mg
12	Fenpropimorph	128	129	303	066-04981	Fenpropimorph Standard	200 mg
13	Pendimethalin	252	281		168-11903	Pendimethalin Standard	100 mg
14	Penconazole	159	248		168-24551	Penconazole Standard	100 mg
15	Procymidone	283	285		161-11214	Procymidone Standard	100 mg
16	Methidathion (DMTP)	145	85	302	043-17081	DMTP Standard	200 mg
17	Fenamiphos	303	217		066-03521	Fenamiphos Standard	100 mg
18	Oxadiazon	175	302	344	151-01203	Oxadiazon Standard	200 mg
19	Kresoxim-methyl	116	206		118-00533	Kresoxim-methyl Standard	100 mg
20	Chlorfenapyr	364	328		039-22531	Chlorfenapyr Reference Material CRM	100 mg
21	Pyrethrin I, II	123	133	162	161-29161	Pyrethrins Standard Solution (Pyrethrin I+II: 1 mg/mL Acetone Solution)	1 mL×5A
		107	133	160			
22	Norflurazon	145	303	173	144-08931	Norflurazon Standard	100 mg
23	Diflufenican	266	394		044-28121	Diflufenican Standard	200 mg
24	Bifenthrin	181	166		028-19871	Bifenthrin Reference Material CRM	100 mg
25	Azinphos-methyl	160	132		012-16051	Azinphos-methyl Standard	200 mg
26	Fenarimol	139	330	251	069-05191	Fenarimol Standard	100 mg
27	trans-Permethrin	183	163		168-21033	trans-Permethrin Standard	100 mg
28	cis-Permethrin	183	163		168-16523	cis-Permethrin Standard	100 mg
29	Cyfluthrin	163	226	206	033-14361	Cyfluthrin Standard (mixture of isomers)	200 mg
30	Flucythrinate	199	451		069-02911	Flucythrinate Standard	200 mg
31	Fluvalinate	250	252		061-02471	Fluvalinate Standard	200 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
164-22973	Pesticides Mixture Standard Solution PL-2-1		1 mL
168-22971	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

**GC/MS chromatogram\*****Analysis conditions****[Instrument]**

Shimadzu QP-2010 Ultra

**[GC]**

Column: Rtx-5MS 0.25 µm, 0.32 mm×30 m  
 Column temperature: 80°C (1 min.)→20°C/min.→180°C  
 →5°C/min.→300°C (10 min.)

Injection temperature: 260°C  
 Carrier gas: He 2.2 mL/min.  
 Splitless: 1 min.

**[MS]**

Ionization: EI  
 Interface temperature: 280°C

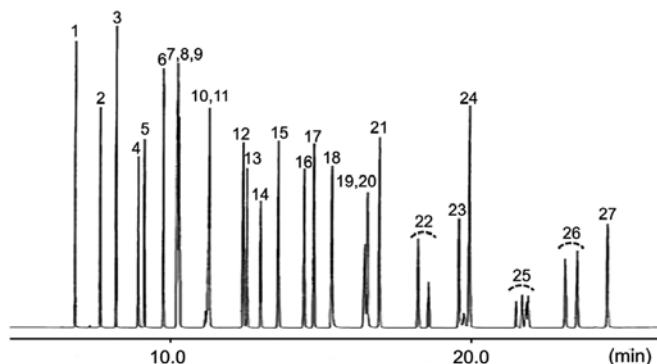
**List of 31 components (each 20 µg/mL acetone solution)**

Peak No.	Components	Monitoring Ions (m/z)		Related Products		
		Code No.	Product Name	Volume		
1	Propoxur (PHC)	110	152	168-09293	PHC Standard	100 mg
2	Carbofuran	164	149	039-16323	Carbofuran Standard	100 mg
3	Quintozone (PCNB)	237	295	167-09361	PCNB Standard	200 mg
4	Propyzamide	173	255	169-25061	Propyzamide Reference Material CRM	100 mg
5	Tri-allate	268	128	208-16531	Tri-allate Standard	200 mg
6	Vinclozolin	285	212	228-00744	Vinclozolin Standard	100 mg
7	Alachlor	160	188	012-16333	Alachlor Standard	100 mg
8	Fenitrothion (MEP)	277	260	130-05534	MEP Standard	100 mg
9	Metolachlor	162	238	131-17431	Metolachlor Standard	100 mg
10	Fenthion (MPP)	278	169	130-06634	MPP Standard	100 mg
11	Isofenphos Oxon	229	314	098-03981	Isofenphos Oxon Standard	200 mg
12	Chlorfenvinphos (α-CVP, β-CVP)	267	323	033-21691 033-22791	α-CVP Standard β-CVP Standard	50 mg 50 mg
13	Isofenphos	213	255	090-03463	Isofenphos Standard	100 mg
14	Triadimenol	112	168	208-08503	Triadimenol Standard (mixture of isomers)	200 mg
15	Tetrachlorvinphos (CVMP)	329	331	033-15081	CVMP Standard	200 mg
16	Isoprothiolane	118	290	098-06281	Isoprothiolane Reference Material CRM	100 mg
17	Myclobutanil	179	150	135-11133	Myclobutanil Standard	100 mg
18	Buprofezin	105	172	022-08264	Buprofezin Standard	100 mg
19	Cyproconazole	222	139	039-23251	Cyproconazole Standard (mixture of isomers)	100 mg
20	Ethion	231	384	051-03173	Ethion Standard	200 mg
21	Propiconazole	173	259	169-16771	Propiconazole Standard (mixture of isomers)	200 mg
22	Hexazinone	171	252	081-08311	Hexazinone Standard	200 mg
23	Propargite (BPPS)	173	150	024-06943	BPPS Standard	200 mg
24	Phosmet (PMP)	160	161	163-09221	PMP Standard	200 mg
25	Methoxychlor	227	274	139-12231	Methoxychlor Standard	200 mg
26	Pyriproxyfen	136	226	163-18751	Pyriproxyfen Standard	200 mg
27	Pyraclofos	360	194	160-17801	Pyraclofos Standard	200 mg
28	Fluquinconazole	340	108	-	-	-
29	Fenbuconazole	129	198	068-05041	Fenbuconazole Standard	100 mg
30	Fluridone	328	329	062-04601	Fluridone Standard	200 mg
31	Difenoconazole	323	265	042-25241	Difenoconazole Standard (mixture of isomers)	200 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
166-26671	Pesticides Mixture Standard Solution PL-3-3		1 mL
162-26673	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ GC/MS chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: Rtx-5MS 0.25 µm, 0.32 mm×30 m  
Column temperature: 80°C (1 min.)→20°C/min.→180°C  
→5°C/min.→300°C (10 min.)

Injection temperature: 260°C  
Carrier gas: He 2.2 mL/min.  
Splitless: 1 min.

#### [MS]

Ionization: EI  
Interface temperature: 280°C

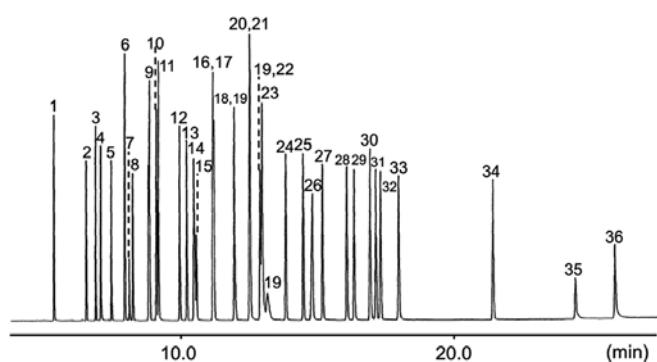
## ■ List of 27 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
					Code No.	Product Name	Volume
1	Ethoprophos	158	200	139	051-05611	Ethoprophos Standard	200 mg
2	Simazine (CAT)	201	173		030-22561	CAT Reference Material [CRM]	100 mg
3	Diazinon	137	152	304	040-31891	Diazinon Reference Material [CRM]	100 mg
4	Propanil (DCPA)	161	217		046-16471	DCPA Standard	200 mg
5	Parathion-methyl (Methylparathion)	125	233	263	131-06061	Methylparathion Standard	200 mg
6	Pirimiphos-methyl	290	276	305	161-13713	Pirimiphos-methyl Standard	100 mg
7	Chlorpyrifos	197	286	314	032-22881	Chlorpyrifos Reference Material	100 mg
8	Parathion	291	235		168-08573	Parathion Standard	200 mg
9	Triadimefon	208	181		203-08494	Triadimefon Standard	100 mg
10	Allethrin	123	136		018-17011	Allethrin Standard	200 mg
11	Fipronil	367	369	351	068-04103	Fipronil Standard	100 mg
12	Flutolanil	173	323		065-05811	Flutolanil Reference Material [CRM]	100 mg
13	Profenofos	139	337	374	169-17653	Profenofos Standard	100 mg
14	Oxyfluorfen	252	361	300	150-02591	Oxyfluorfen Standard	200 mg
15	Chlorobenzilate	139	251		033-08273	Chlorobenzilate Standard	200 mg
16	Triazophos	161	257		203-13161	Triazophos Standard	100 mg
17	Quinoxifen	237	272	307	175-00701	Quinoxifen Standard	100 mg
18	Tebuconazole	125	250		203-13801	Tebuconazole Standard	200 mg
19	Acetamiprid	166	221		010-16493	Acetamiprid Standard	100 mg
20	Bromopropylate (Phenisobromolate)	341	183		168-10923	Phenisobromolate Standard	200 mg
21	Fenpropathrin	181	265	349	068-03503	Fenpropathrin Standard	100 mg
22	Cyhalothrin	181	197	208	030-22941	Cyhalothrin Standard (mixture of isomers)	100 mg
23	Bitertanol	170	168	112	024-10233	Bitertanol Standard	200 mg
24	Pyridaben	147	309		162-16381	Pyridaben Standard	200 mg
25	Cypermethrin	163	181	165	039-15441	Cypermethrin Standard (mixture of isomers)	200 mg
26	Fenvalerate	125	419	225	060-03281	Fenvalerate Standard (mixture of isomers)	200 mg
27	Deltamethrin	181	253		043-23473	Deltamethrin Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
162-24593	Pesticides Mixture Standard Solution PL-4-2		1 mL
166-24591	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ GC/MS chromatogram\*1



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: Rtx-5MS 0.25 µm, 0.32 mm×30 m  
Column temperature: 80°C (1 min.)→20°C/min.→180°C  
→5°C/min.→300°C (10 min.)

Injection temperature: 260°C  
Carrier gas: He 2.2 mL/min.  
Splitless: 1 min.

#### [MS]

Ionization: EI  
Interface temperature: 280°C

## ■ List of 36 components (each 20 µg/mL acetone solution)

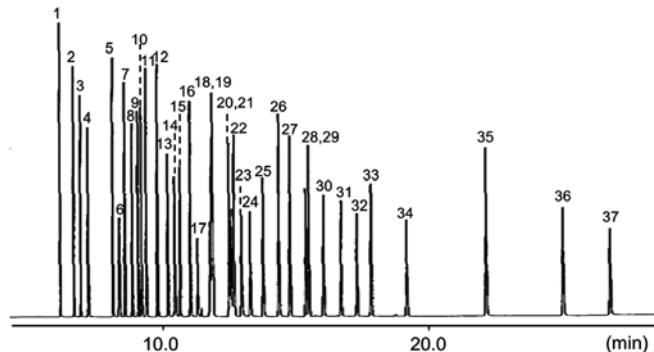
Peak No.	Components	Monitoring Ions (m/z)			Related Products		
					Code No.	Product Name	Volume
1	Mevinphos ((E)-Mevinphos, (Z)-Mevinphos)	127	109	192	132-15521	(E)-Mevinphos Standard	100 mg
	139-15531				(Z)-Mevinphos Standard	100 mg	
2	Tecnazene	203	215	261	209-16441	Tecnazene Standard	200 mg
3	Ethalfluralin	276	316		052-07461	Ethalfluralin Standard	200 mg
4	Monocrotophos	127	192		138-11101	Monocrotophos Standard	200 mg
5	Dicloran (CNA)	206	208	176	036-08621	CNA Standard	200 mg
6	Pyroquilon	173	130	172	164-18041	Pyroquilon Standard	200 mg
7	Phosphamidon	264	193		167-18031	Phosphamidon Standard (mixture of isomers)	100 mg
8	δ-BHC	181	183	219	028-05743	δ-BHC Standard	50 mg
9	Dimethenamid	154	230	203	043-26751	Dimethenamid Standard	200 mg
10	Tolclofos-methyl	265	267	125	207-11383	Tolclofos-methyl Standard	100 mg
11	Ametryn	227	212		015-13643	Ametryn Standard	100 mg
12	Diethofencarb	225	267		045-24131	Diethofencarb Standard	200 mg
13	Chlorthal-dimethyl (TCTP)	301	299	332	202-07901	TCTP Standard	200 mg
14	Fthalide	243	241	272	061-01594	Fthalide Standard	100 mg
15	Fosthiazate	139	166	283	062-05941	Fosthiazate Reference Material (mixture of isomers)	100 mg
16	Dimepiperate	119	145		043-25173	Dimepiperate Standard	100 mg
17	Phenthioate (PAP)	274	246		161-27081	PAP Standard	100 mg
18	Butachlor	176	237		021-12161	Butachlor Standard	200 mg
19	Imazamethabenz Methyl (Imazamethabenz-methyl)	144	245	256	096-05501	Imazamethabenz-methyl Standard (mixture of isomers)	200 mg
20	Uniconazole P	234	236		212-00981	Uniconazole P Standard	200 mg
21	Pretilachlor	162	238	262	168-16361	Pretilachlor Standard	200 mg
22	Azaconazole	217	173	219	013-21611	Azaconazole Standard	100 mg
23	Bupirimate	273	208	316	021-16821	Bupirimate Standard	100 mg
24	(Z)-Pyriminobac-methyl	302	256	303	163-19851	(Z)-Pyriminobac-methyl Standard	50 mg
25	Fluacrypyrim	145	320	189	066-04481	Fluacrypyrim Standard	200 mg
26	Lenacil	153	154	110	123-03801	Lenacil Standard	200 mg
27	(E)-Pyriminobac-methyl	302	256	303	166-19841	(E)-Pyriminobac-methyl Standard	200 mg
28	Mefenpyr-diethyl	253	255	299	137-16551	Mefenpyr-diethyl Standard	100 mg
29	Pyridaphenthion	340	199	188	169-10914	Pyridaphenthion Standard	100 mg
30	Etoxazole	141	359	300	050-06683	Etoxazole Standard	100 mg
31	Anilofos	125	334	184	012-20243	Anilofos Standard	100 mg
32	Tetradifon	159	229	356	208-16651	Tetradifon Standard	200 mg
33	Mefenacet	192	120		133-11673	Mefenacet Standard	100 mg
34	Halfenprox	263	265	183	088-07101	Halfenprox Standard	200 mg
35	Tralomethrin* <sup>2</sup>	181	253		209-12661	Tralomethrin Standard (mixture of isomers)	100 mg
36	Imibenconazole	253	375		095-04091	Imibenconazole Standard	200 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 Peak No. 35 is detected as deltamethrin.

Code No.	Product Name	Grade	Volume
165-23003	Pesticides Mixture Standard Solution PL-5-1		1 mL
169-23001	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ GC/MS chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: Rtx-5MS 0.25 µm, 0.32 mm×30 m  
Column temperature: 80°C (1 min.)→20°C/min.→180°C  
→5°C/min.→300°C (10 min.)

Injection temperature: 260°C  
Carrier gas: He 2.2 mL/min.  
Splitless: 1 min.

#### [MS]

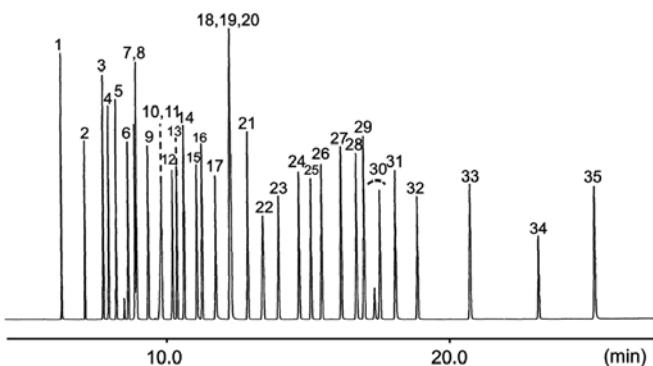
Ionization: EI  
Interface temperature: 280°C

### ■ List of 37 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume	Code No.	Product Name	Volume
1	Isopropcarb (MIPC)	121	136		130-06813	MIPC Standard	100 mg
2	Propachlor	120	176		164-22191	Propachlor Standard	200 mg
3	Chloropropham (Chloro IPC)	127	171	213	034-08323	Chloro IPC Standard	100 mg
4	Cadusafos	159	158	114	036-18871	Cadusafos Standard	100 mg
5	Pyrimethanil	198	199		160-29491	Pyrimethanil Reference Material CRM	100 mg
6	Terbacil	161	160	117	209-15341	Terbacil Standard	200 mg
7	Iprobenfos (IBP)	204	246		093-02233	IBP Standard	200 mg
8	Benfuresate	163	121	256	023-12883	Benfuresate Standard	100 mg
9	Acetochlor	146	162	223	013-20511	Acetochlor Standard	100 mg
10	Simetryne	213	155	170	191-08044	Simetryn Standard	100 mg
11	Prometryn	241	184	226	167-15373	Prometryn Standard	100 mg
12	Esprocarb	222	162		055-05893	Esprocarb Standard	100 mg
13	(Z)-Dimethylvinphos	295	297		045-25231	(Z)-Dimethylvinphos Standard	200 mg
14	Tetraconazole	336	338		205-19101	Tetraconazole Reference Material CRM	100 mg
15	Bromophos	331	329		028-12811	Bromophos Standard	200 mg
16	Dimethametryn	212	255	71	048-28261	Dimethametryn Standard	200 mg
17	Diclocymet	277	221		040-28101	Diclocymet Standard (mixture of isomers)	200 mg
18	(E)-Pyrifenoxy	262	294	264	167-16691	(E)-Pyrifenoxy Standard	200 mg
19	Fenothiocarb	72	160		066-05961	Fenothiocarb Standard	100 mg
20	Prothiofos	309	267		163-26201	Prothiofos Standard	100 mg
21	Tricyclazole	189	118		202-19111	Tricyclazole Reference Material CRM	100 mg
22	Tribufos	169	202		201-16521	Tribufos Standard	200 mg
23	Imibenconazole-debenzyl	235	270	128	098-04081	Imibenconazole-debenzyl Standard	200 mg
24	Isoxathion	177	313		098-02244	Isoxathion Standard	100 mg
25	Fensulfothion	293	308		064-02961	Fensulfothion Standard	200 mg
26	Mepronil	119	269	133	131-07904	Mepronil Standard	100 mg
27	Benalaxyloxy	148	206	228	028-12791	Benalaxyloxy Standard	200 mg
28	Pyraflufen-ethyl	412	414	349	169-19831	Pyraflufen-ethyl Standard	200 mg
29	Thenylchlor	127	288	141	203-13421	Thenylchlor Standard	200 mg
30	Zoxamide	187	189	258	-	-	-
		187	242		-	-	-
31	EPN	157	169	185	058-02843	EPN Standard	100 mg
32	Bifenox	341	343	310	027-08253	Bifenox Standard	100 mg
33	Phosalone	182	121	367	167-09383	Phosalone Standard	100 mg
34	Acrinathrin	181	289	208	014-16653	Acrinathrin Standard	100 mg
35	Etofenprox	163	135		051-05194	Etofenprox Standard	100 mg
36	Flumiclorac-pentyl	423	353	308	067-04771	Flumiclorac-pentyl Standard	100 mg
37	Fluthiacet-methyl	403	405		062-04461	Fluthiacet-methyl Standard	200 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
165-24603	Pesticides Mixture Standard Solution PL-6-3		1 mL
169-24601	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

**GC/MS chromatogram\*****Analysis conditions****[Instrument]**

Shimadzu QP-2010

**[GC]**

Column: Rtx-5MS 0.25 µm, 0.32 mm×30 m  
 Column temperature: 80°C (1 min.)→20°C/min.→180°C  
 →5°C/min.→300°C (10 min.)

Injection temperature: 260°C  
 Carrier gas: He 2.2 mL/min.  
 Splitless: 1 min.

**[MS]**

Ionization: EI  
 Interface temperature: 280°C

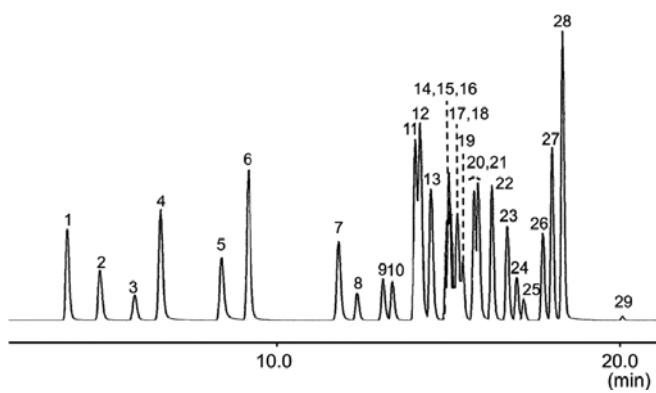
**List of 35 components (each 20 µg/mL acetone solution)**

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume	Code No.	Product Name	Volume
1	XMC	122	107		244-00503	XMC Standard	100 mg
2	Benfluralin (Bethrodine)	292	264	276	026-11533	Bethrodine Standard	100 mg
3	Propazine	214	229	172	167-18271	Propazine Standard	200 mg
4	Cyanophos (CYAP)	109	243	125	039-08493	CYAP Standard	200 mg
5	Prohydrojasmon	153	184		166-22891	Prohydrojasmon Standard (mixture of isomers)	200 mg
6	Benoxacor	120	259	176	028-16831	Benoxacor Standard	100 mg
7	Dichlofenthion (ECP)	279	223	162	056-03503	ECP Standard	200 mg
8	Bromobutide	119	232		026-17591	Bromobutide Standard	100 mg
9	Mefenoxam (Metalaxyl M)	206	249	234	134-15623	Metalaxyl M Standard	100 mg
10	Bromacil	205	190		020-17511	Bromacil Reference Material	100 mg
11	Quinoclamine (ACN)	172	209		013-15741	ACN Standard	200 mg
12	Cyanazine	225	240	198	037-22951	Cyanazine Standard	100 mg
13	Nitrothal-isopropyl	236	194	254	146-08491	Nitrothal-isopropyl Standard	100 mg
14	Diphenamid	167	239	165	041-17021	Diphenamid Standard	200 mg
15	(Z)-Pyrifenoxy	262	294	264	160-16701	(Z)-Pyrifenoxy Standard	200 mg
16	Quinalphos	146	157	298	175-00441	Quinalphos Standard	200 mg
17	Paclobutrazol	236	238	138	160-26211	Paclobutrazol Standard	100 mg
18	Napropamide	128	100		144-05893	Napropamide Standard	100 mg
19	Butamifos	286	200		026-10933	Butamifos Standard	100 mg
20	Hexaconazole	214	216	231	083-09731	Hexaconazole Reference Material	100 mg
21	Flamprop-methyl	105	276		063-04991	Flamprop-methyl Standard	100 mg
22	Fenoxanil	189	293	328	064-04301	Fenoxanil Standard	200 mg
23	Oxadixyl	163	132	233	157-01521	Oxadixyl Standard	100 mg
24	Edifenphos (EDDP)	173	201	310	053-03133	EDDP Standard	200 mg
25	Trifloxystrobin	116	131	222	207-15783	Trifloxystrobin Standard	100 mg
26	Diclofop-methyl	340	253	281	040-29681	Diclofop-methyl Standard	200 mg
27	Pyributicarb	165	108	181	163-16213	Pyributicarb Standard	100 mg
28	Piperophos	122	140		160-11223	Piperophos Standard	200 mg
29	Tebufenpyrad	318	276	333	206-13293	Tebufenpyrad Standard	100 mg
30	Phenoxythrin	123	183		163-22661	Phenoxythrin Standard (mixture of isomers)	200 mg
31	Cyhalofop-butyl	256	357	229	035-22511	Cyhalofop-butyl Standard	100 mg
32	Pyrazophos	221	232	373	168-25031	Pyrazophos Standard	100 mg
33	Cafenstrole	100	188		035-17001	Cafenstrole Standard	200 mg
34	Flumioxazin	354	287	355	060-04141	Flumioxazin Standard	200 mg
35	Tolfenpyrad	383	385		209-16843	Tolfenpyrad Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
169-23023	Pesticides Mixture Standard Solution PL-7-2	for Pesticide Residue Analysis	1 mL
163-23021	(each 20 µg/mL Acetonitrile Solution)		1 mL×5A

■ LC/MS/MS chromatogram\*1



Analysis conditions

[Instrument]  
Shimadzu LCMS-8040

[HPLC]

Column:	Product Name	Code No.	Volume*2
	Wakopak® Wakosil®-II	231-50241	1 EA (D)
	3C18HG 2.0×150 mm	237-50243	1 EA (W)

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:

Time (min.)	B conc. (%)
0-1	15-40
1-3.5	40
3.5-6	40-50
6-8	50-55
8-17.5	55-95
17.5-30	95
30-40	95-15

Flow rate: 0.2 mL/min.

[MS]

Ionization: ESI  
Mode: MRM

## ■ List of 29 components (each 20 µg/mL acetonitrile solution)

Peak No.	Components	Monitoring Ions (m/z)			Mode	Related Products		
		Precursor	Product			Code No.	Product Name	Volume
1	Thiamethoxam	292.2	210.9	+	201-19061	Thiamethoxam Reference Material CRM	100 mg	
2	Clothianidin	250.2	131.9	+	034-22581	Clothianidin Reference Material CRM	100 mg	
3	Chloridazon (PAC)	222.2	104.0	+	163-18991	PAC Standard	200 mg	
4	Thiacloprid	253.1	126.0	+	203-15763	Thiacloprid Standard	100 mg	
5	Thiabendazole	202.2	175.0	+	200-13213	Thiabendazole Standard	100 mg	
6	Azamethiphos	325.0	182.9	+	013-23311	Azamethiphos Standard	100 mg	
7	Dimethirimol	210.2	71.1	+	040-26901	Dimethirimol Standard	200 mg	
8	Isoxaflutole	360.1	250.9	+	090-07101	Isoxaflutole Standard	100 mg	
9	Azinphos-methyl	318.0	132.1	+	012-16051	Azinphos-methyl Standard	200 mg	
10	Pyriflatalid	319.1	139.0	+	167-23161	Pyriflatalid Standard	100 mg	
11	(E)-Ferimzone	255.2	91.1	+	063-04131	(E)-Ferimzone Standard	200 mg	
12	(Z)-Ferimzone	255.2	91.1	+	066-04121	(Z)-Ferimzone Standard	200 mg	
13	Methoxyfenozide	369.2	149.0	+	135-15491	Methoxyfenozide Standard	100 mg	
14	Iprovalicarb	321.2	119.1	+	095-06551	Iprovalicarb Standard	100 mg	
15	Chromafenozide	395.4	175.0	+	033-18141	Chromafenozide Standard	200 mg	
16	Butafenacil	492.1	330.9	+	028-19631	Butafenacil Standard	100 mg	
17	Simeconazole	294.2	70.0	+	196-12781	Simeconazole Standard	200 mg	
18	Oryzalin	347.1	304.9	+	158-02651	Oryzalin Standard	200 mg	
19	Cyazofamid	325.0	108.0	+	033-18881	Cyazofamid Standard	200 mg	
20	Naproanilide	292.2	171.0	+	148-08211	Naproanilide Standard	100 mg	
21	Fenoxy carb	302.3	116.0	+	068-02981	Fenoxy carb Standard	200 mg	
22	Anilofos	368.2	124.9	+	012-20243	Anilofos Standard	100 mg	
23	Cyflufenamid	413.1	295.0	+	036-19231	Cyflufenamid Standard	200 mg	
24	Pyrazolynate (Pyrazolate)	439.0	172.9	+	165-17091	Pyrazolate Standard	200 mg	
25	Indoxacarb (Indoxacarb-MP)	528.2	150.0	+	095-04993	Indoxacarb-MP Standard	100 mg	
26	Benzofenap	431.1	105.0	+	021-16223	Benzofenap Standard	100 mg	
27	Furathiocarb	383.2	195.0	+	062-03981	Furathiocarb Standard	200 mg	
28	Cloquintocet-mexyl	336.3	237.9	+	039-21671	Cloquintocet-mexyl Standard	100 mg	
29	Abamectin B1a (Abamectin)	890.6	305.2	+	016-20361	Abamectin Standard	200 mg	

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" below.

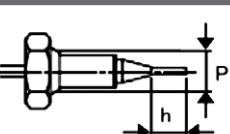
## ■ HPLC column connection types

There are two connection types for the Wakopak® series (Wako's HPLC columns): D (DuPont) type and W (Waters) type connectors.

In older HPLC equipment, because the specifications of the connection parts differ among HPLC systems, the piping and connection parts are fixed depending on the column that was used initially. So, when replacing a

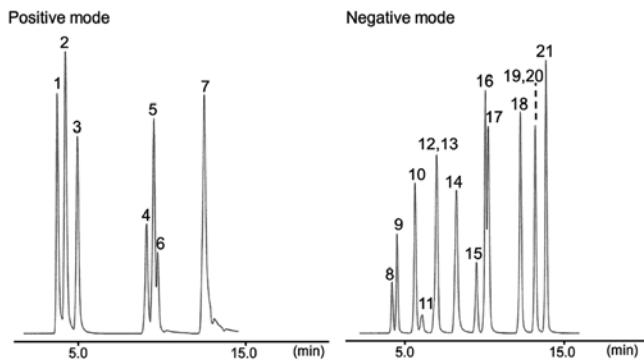
column, it was necessary to select a column with the same types of connection as the column previously used.

Nowadays, the connection types have been standardized, and HPLC equipment with plastic "Handy Connectors" can be used interchangeably without distinguishing between column types D and W. However, for HPLC equipment with stainless steel ferrules instead of plastic connectors, the length (h) of the piping that is inserted into the column at the connection point is fixed, and it is necessary to select a column with a connection type that matches the length of the piping.

Shape P, h (mm)	Grade	Connection Type	h (mm)
 P: 4.8 mm ferrule type	10-32 UNF	D	2.3-2.9
		W	3.5

Code No.	Product Name	Grade	Volume
166-23033	Pesticides Mixture Standard Solution PL-8-1		1 mL
160-23031	(each 20 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ LC/MS/MS chromatogram\*1



### Analysis conditions

[Instrument]  
Shimadzu LCMS-8040

#### [HPLC]

Column:	Product Name	Code No.	Volume*2
Wakopak® Wakosil®-II	231-50241	1 EA (D)	
3C18HG 2.0×150 mm	237-50243	1 EA (W)	

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

#### Gradient:

Time (min.)	B conc. (%)
0-1	15-40
1-3.5	40
3.5-6	40-50
6-8	50-55
8-17.5	55-95
17.5-30	95
30-40	95-15

Flow rate: 0.2 mL/min.

#### [MS]

Ionization: ESI  
Mode: MRM

### ■ List of 21 components (each 20 µg/mL acetonitrile solution)

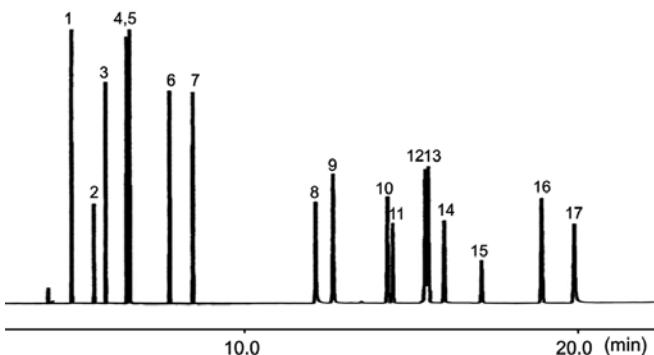
Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Flumetsulam	326.2	128.9	+	063-04751	Flumetsulam Standard	100 mg
2	Thifensulfuron-methyl	388.2	167.0	+	207-16741	Thifensulfuron-methyl Standard	200 mg
3	Florasulam	360.1	128.9	+	064-05021	Florasulam Standard	100 mg
4	Cloransulam-methyl (Cloransulam methyl)	430.2	397.9	+	-	-	-
5	Diclosulam	406.0	160.9	+	043-31401	Diclosulam Standard	100 mg
6	Thidiazuron	221.1	102.0	+	203-16221	Thidiazuron Standard	200 mg
7	Forchlorfenuron	248.1	128.9	+	066-04621	Forchlorfenuron Standard	200 mg
8	Gibberellin (Gibberellin A <sub>3</sub> )	345.1	143.2	-	078-05081	Gibberellin A <sub>3</sub> Standard	200 mg
9	Fluroxypyr	253.0	195.0	-	069-05071	Fluroxypyr Standard	100 mg
10	4-Chlorophenoxy acetic Acid (4-CPA)	185.2	127.1	-	030-19511	4-CPA Standard	200 mg
11	Bromoxynil	275.9	81.0	-	023-15541	Bromoxynil Standard	200 mg
12	1-Naphthalene acetic Acid	185.2	141.2	-	148-06511	1-Naphthylacetic Acid Standard	200 mg
13	Cloprop	199.2	127.1	-	033-19861	Cloprop Standard	200 mg
14	Ioxynil	369.8	127.0	-	098-05561	Ioxynil Standard	100 mg
15	Triclopyr	253.9	196.1	-	202-12911	Triclopyr Standard	200 mg
16	Mecoprop (MCPP)	213.1	141.1	-	132-10423	MCPP Standard	100 mg
17	Dichlorprop	233.0	161.1	-	049-29411	Dichlorprop Standard	200 mg
18	MCPB	227.1	141.1	-	133-12491	MCPB Standard	200 mg
19	Acifluorfen	360.2	316.2	-	010-20521	Acifluorfen Standard	200 mg
20	Fomesafen	436.9	195.2	-	060-04761	Fomesafen Standard	100 mg
21	Haloxyfop	356.0	288.2	-	089-09191	Halaxyfop Standard	100 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

Code No.	Product Name	Grade	Volume
168-25313	Pesticides Mixture Standard Solution PL-9-2		1 mL
162-25311	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ GC/MS chromatogram\*



### Analysis conditions

[Instrument]  
Shimadzu QP-2010

[GC]  
Column: Rtx-5MS 0.25 µm, 0.32 mm×30 m  
Column temperature: 80°C (1 min.)→20°C/min.→180°C  
→5°C/min.→300°C (10 min.)  
Injection temperature: 260°C  
Carrier gas: He 2.2 mL/min.  
Splitless: 1 min.

[MS]  
Ionization: EI  
Interface temperature: 280°C

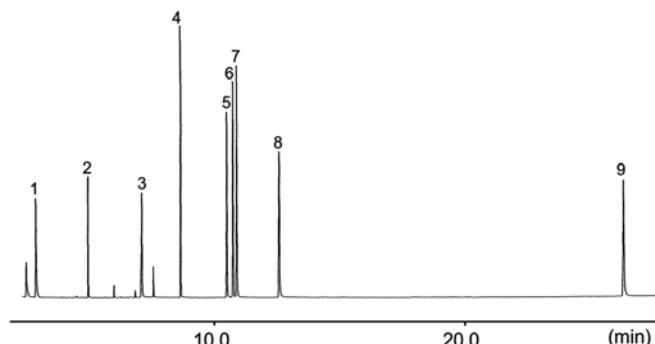
### ■ List of 17 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume	Code No.	Product Name	Volume
1	EPTC	128	132	189	058-06221	EPTC Standard	200 mg
2	Etridiazole(Echlomezol)	211	183	246	051-03494	Echlomezol Standard	100 mg
3	Chloroneb	191	193	206	036-14493	Chloroneb Standard	100 mg
4	Fenobucarb (BPMC)	121	150		021-06774	BPMC Standard	100 mg
5	Diphenylamine	169	168	167	041-25211	Diphenylamine Standard	200 mg
6	Propetamphos	138	236	194	164-23171	Propetamphos Standard	100 mg
7	Pirimicarb	166	238		164-14803	Pirimicarb Standard	200 mg
8	Imazalil	215	217	173	092-03504	Imazalil Standard	100 mg
9	Flusilazole	233	206	315	065-03591	Flusilazole Standard	100 mg
10	Famphur	218	217	125	069-06431	Famphur Standard	100 mg
11	Endosulfan Sulfate (Benzoepin Sulfate)	272	387	422	026-06763	Benzoepin Sulfate Standard	100 mg
12	Piperonyl Butoxide	176	177		168-17863	Piperonyl Butoxide Standard	100 mg
13	Bioresmethrin	123	171	143	-	-	-
14	Iprodione	314	316		092-02384	Iprodione Standard	100 mg
15	Iprodione Metabolite	329	331		099-02394	Iprodione Metabolite Standard	100 mg
16	Fenoxyprop-ethyl	288	361	261	062-03621	Fenoxyprop-ethyl Standard	200 mg
17	Prochloraz	180	308	266	162-17903	Prochloraz Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
160-23053	Pesticides Mixture Standard Solution PL-10-1 (each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL
164-23051			1 mL×5A

### ■ GC/MS chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: Rtx-5MS 0.25 µm, 0.32 mm×30 m  
Column temperature: 50°C (1 min.)→20°C/min.→180°C  
→5°C/min.→300°C (10 min.)

Injection temperature: 260°C

Carrier gas: He 2.3 mL/min.

Splitless: 1 min.

#### [MS]

Ionization: EI

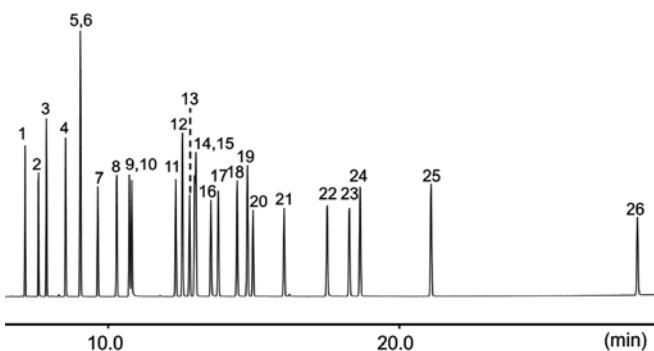
Interface temperature: 280°C

### ■ List of 9 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume	Code No.	Product Name	Volume
1	Aldicarb (deg.)	68	115	100	012-14111	Aldicarb Standard	200 mg
2	Aldoxycarb (Aldicarb sulfone) (deg.)	68	80		553-78011	Aldicarb sulfone	100 mg
3	Acephate	136	94		015-08954	Acephate Standard	100 mg
4	Bendiocarb	151	166	223	028-11691	Bendiocarb Standard	200 mg
5	Metribuzin	198	144		134-17421	Metribuzin Standard	100 mg
6	Carbaryl (NAC)	144	115	116	144-03833	NAC Standard	100 mg
7	Metalaxyl	206	249		130-11683	Metalaxyl Standard	100 mg
8	Thiabendazole	201	174		200-13213	Thiabendazole Standard	100 mg
9	Azoxystrobin	344	388		015-19003	Azoxystrobin Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
167-23943	Pesticides Mixture Standard Solution PL-12-1		1 mL
161-23941	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

**■ GC/MS chromatogram\*1****Analysis conditions**

**[Instrument]**  
Shimadzu QP-2010

**[GC]**  
Column: BPX5 0.25 µm, 0.32 mm×30 m  
Column temperature: 80°C (1 min.)→20°C/min.→180°C  
→5°C/min.→300°C (5 min.)  
Injection temperature: 260°C  
Carrier gas: He 2.2 mL/min.  
Splitless: 1 min.

**[MS]**  
Ionization: EI  
Interface temperature: 280°C

**■ List of 26 components (each 20 µg/mL acetone solution)**

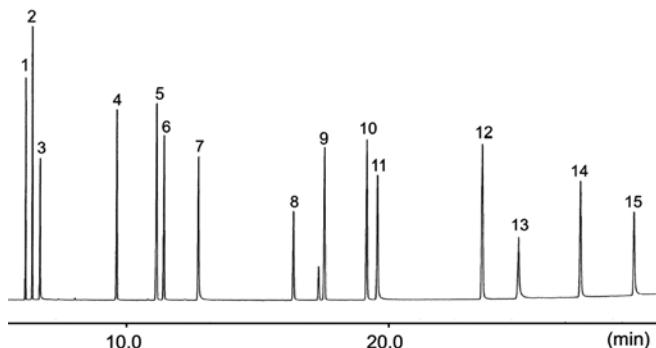
Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume	Code No.	Product Name	Volume
1	Chlorethoxyfos	153	263	-	-	-	-
2	Dicrotophos	127	193	237	-	-	-
3	Phorate	75	121	260	166-22911	Phorate Standard	100 mg
4	Clomazone	125	204	-	037-20371	Clomazone Standard	100 mg
5	Isazofos	161	257	172	095-05451	Isazofos Standard	200 mg
6	Disulfoton (Ethylthiomethon)	88	274	-	055-03154	Ethylthiomethon Standard	100 mg
7	Formothion*2	125	125	-	068-01303	Formothion Standard	200 mg
8	Fenchlorphos	285	287	-	068-03581	Fenchlorphos Standard	200 mg
9	Ethofumesate	207	161	286	055-07451	Ethofumesate Standard	200 mg
10	2-(1-Naphthyl) acetamide (1-Naphthylacetamide)	141	185	-	141-06501	1-Naphthylacetamide Standard	200 mg
11	Mecarbam	111	153	-	136-16881	Mecarbam Standard	100 mg
12	Methoprene	131	159	-	136-17621	Methoprene Standard (mixture of isomers)	100 mg
13	Bromophos-ethyl	359	303	-	025-12821	Bromophos-ethyl Standard	200 mg
14	Propaphos	220	304	-	168-10244	Propaphos Standard	100 mg
15	Chlorbenside	125	127	268	038-22121	Chlorbenside Standard	100 mg
16	Flutriafol	123	164	219	065-05671	Flutriafol Standard	100 mg
17	Chlorofenson (CPCBS)	111	175	302	030-16451	CPCBS Standard	200 mg
18	Carboxin	143	235	-	030-19773	Carboxin Standard	100 mg
19	1,1-Dichloro-2,2-bis(4-ethylphenyl)ethane	223	224	167	044-29601	1,1-Dichloro-2,2-bis(4-ethylphenyl)ethane Standard	200 mg
20	Flufenpyr-ethyl	408	335	-	068-04681	Flufenpyr-ethyl Standard	100 mg
21	Carfentrazone-ethyl	312	340	330	030-20361	Carfentrazone-ethyl Standard	100 mg
22	Epoxiconazole	192	138	165	054-07661	Epoxiconazole Standard	200 mg
23	Picolinafen	376	238	-	169-22901	Picolinafen Standard	200 mg
24	Fenamidone	238	268	-	-	-	-
25	Spirodiclofen	312	259	-	199-14231	Spirodiclofen Standard	200 mg
26	Cinidon-ethyl	330	358	-	034-24041	Cinidon-ethyl Standard	100 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 Organic phosphorus pesticides may be adsorbed or decomposed at the injection port or column. For example, analysis by splitless injection has shown that some formothiones may decompose into dimethoate.

Code No.	Product Name	Grade	Volume
164-23953	Pesticides Mixture Standard Solution PL-13-1 (each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL
168-23951			1 mL×5A

### ■ GC/MS chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: BPX5 0.25 µm, 0.32 mm×30 m  
Column temperature: 80°C (1 min.)→20°C/min.→180°C  
→5°C/min.→300°C (5 min.)

Injection temperature: 260°C  
Carrier gas: He 2.2 mL/min.  
Splitless: 1 min.

#### [MS]

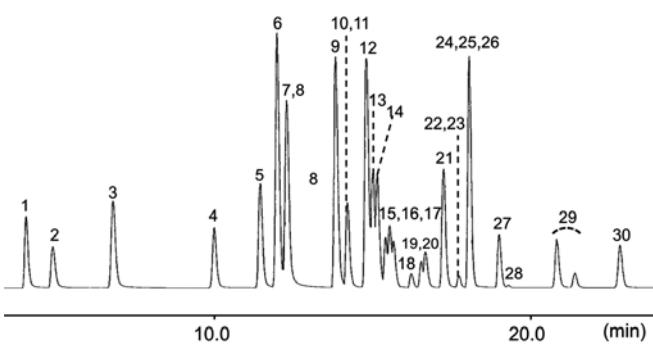
Ionization: EI  
Interface temperature: 280°C

### ■ List of 15 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume	Code No.	Product Name	Volume
1	Nitrapyrin	194	196		141-08201	Nitrapyrin Standard	200 mg
2	Methacrifos	208	180	240	131-18391	Methacrifos Standard	100 mg
3	Tebuthiuron	156	171		203-17941	Tebuthiuron Standard	100 mg
4	Oxabetrinil	73	77	103	155-03021	Oxabetrinil Standard	100 mg
5	S-Metolachlor	162	238		-	-	-
6	Flufenacet	151	211		063-06831	Flufenacet Standard	100 mg
7	Triflumizole	206	278		202-10191	Triflumizole Standard	200 mg
8	Azamethiphos	215	217	324	013-23311	Azamethiphos Standard	100 mg
9	Resmethrin	123	171		182-02071	Resmethrin Standard (mixture of isomers)	200 mg
10	Furathiocarb	163	194		062-03981	Furathiocarb Standard	200 mg
11	Triticonazole	235	237	299	204-18331	Triticonazole Standard	100 mg
12	Boscalid	140	342	344	027-15821	Boscalid Standard	100 mg
13	Thiacloprid	251	101		203-15763	Thiacloprid Standard	100 mg
14	Famoxadone	330	196	197	064-04203	Famoxadone Standard	100 mg
15	Propaquizafop	443	299		165-25041	Propaquizafop Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
161-23963	Pesticides Mixture Standard Solution PL-14-2	for Pesticide Residue Analysis	1 mL
165-23961	(each 20 µg/mL Acetonitrile Solution)		1 mL × 5A

**■ LC/MS/MS chromatogram\*1****Analysis conditions****[Instrument]**

Shimadzu LCMS-8040

**[HPLC]**

Column:

Product Name	Code No.	Volume*2
Wakopak® Wakosil®-II	231-50241	1 EA (D)
3C18HG 2.0×150 mm	237-50243	1 EA (W)

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:

Time (min.)	B conc. (%)
0-1	15-40
1-3.5	40
3.5-6	40-50
6-8	50-55
8-17.5	55-95
17.5-30	95
30-40	95-15

Flow rate: 0.2 mL/min.

**[MS]**

Ionization: ESI

Mode: MRM

**■ List of 30 components (each 20 µg/mL acetonitrile solution)**

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Methomyl	163.1	88.0	+	132-17461	Methomyl Reference Material CRM	100 mg
2	Imidacloprid	256.1	175.0	+	099-03771	Imidacloprid Standard	200 mg
3	Oxycarboxin	268.1	174.9	+	158-03011	Oxycarboxin Standard	100 mg
4	Bendiocarb	224.3	109.0	+	028-11691	Bendiocarb Standard	200 mg
5	Thiodicarb	355.1	87.9	+	207-11361	Thiodicarb Standard	200 mg
6	Pirimicarb	239.2	72.0	+	164-14803	Pirimicarb Standard	200 mg
7	Methabenzthiazuron	222.1	165.0	+	131-12311	Methabenzthiazuron Standard	200 mg
8	Furametpyr	334.1	156.9	+	062-03741	Furametpyr Standard	200 mg
9	Azoxystrobin	404.1	372.0	+	015-19003	Azoxystrobin Standard	100 mg
10	Methiocarb	226.1	169.0	+	-	-	-
11	Acibenzolar-S-methyl	211.0	135.9	+	014-18331	Acibenzolar-S-methyl Standard	200 mg
12	Dymron (Daimuron)	269.2	151.0	+	043-26251	Dymron Standard	200 mg
13	Cumyluron	303.2	185.0	+	034-17353	Cumyluron Standard	100 mg
14	Chloroxuron	291.1	72.1	+	030-19751	Chloroxuron Standard	200 mg
15	Mepanipyrim	224.3	106.0	+	137-12651	Mepanipyrim Standard	200 mg
16	Triticonazole	318.3	70.0	+	204-18331	Triticonazole Standard	100 mg
17	Indanofan	341.1	175.0	+	094-06521	Indanofan Reference Material CRM	100 mg
18	Tetrachlorvinphos(CVMP)	366.9	127.0	+	033-15081	CVMP Standard	200 mg
19	Carpropamid	336.1	138.9	+	034-22721	Carpropamid Standard	100 mg
20	Imazalil	297.1	158.9	+	092-03504	Imazalil Standard	100 mg
21	Pencycuron	329.2	125.0	+	167-26221	Pencycuron Standard	100 mg
22	Hexaflumuron	463.1	157.9	+	084-09141	Hexaflumuron Standard	100 mg
23	Cycloate	216.2	83.1	+	037-21351	Cycloate Standard	100 mg
24	Pentoxazone	354.1	286.1	+	169-19691	Pentoxazone Standard	200 mg
25	Oxaziclomefone	376.1	190.0	+	150-02851	Oxaziclomefone Standard	100 mg
26	Fenoxaprop-ethyl	362.1	287.9	+	062-03621	Fenoxaprop-ethyl Standard	200 mg
27	Flufenoxuron	489.0	158.0	+	063-03553	Flufenoxuron Standard	100 mg
28	Cycloprothrin	499.1	180.9	+	035-14701	Cycloprothrin Standard	100 mg
29	Spinosad*3	732.4	142.1	+	195-15051	Spinosad Standard	100 mg
	(Spinosyn D)	746.6	142.0	+			
30	Silafluofen	426.2	287.0	+	199-11193	Silafluofen Standard	100 mg

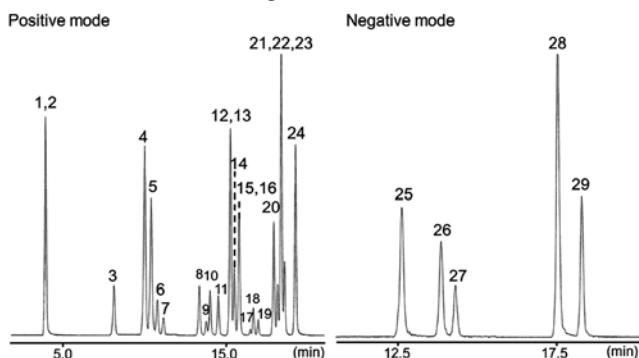
\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

\*3 Spinosad contains spinosyn A and spinosyn D, 20 µg/mL in total.

Code No.	Product Name	Grade	Volume
168-23973	Pesticides Mixture Standard Solution PL-15-1 (each 20 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL
162-23971			1 mL×5A

### ■ LC/MS/MS chromatogram\*1



### Analysis conditions

[Instrument]  
Shimadzu LCMS-8040

#### [HPLC]

Column:	Product Name	Code No.	Volume*2
	Wakopak® Wakosil®-II	231-50241	1 EA (D)
	3C18HG 2.0×150 mm	237-50243	1 EA (W)

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:

Time (min.)	B conc. (%)
0-1	15-40
1-3.5	40
3.5-6	40-50
6-8	50-55
8-17.5	55-95
17.5-30	95
30-30.01	95-15
30.01-40	15

Flow rate: 0.2 mL/min.

#### [MS]

Ionization: ESI  
Mode: MRM

## ■ List of 28 components (each 20 µg/mL acetonitrile solution)

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Aldoxycarb (Aldicarb sulfone)	240.0	86.1	+	-	-	-
2	Oxamyl	237.0	72.0	+	151-01781	Oxamyl Standard	200 mg
3	Aldicarb	208.0	116.1	+	012-14111	Aldicarb Standard	200 mg
4	Carbofuran	222.1	165.1	+	039-16323	Carbofuran Standard	100 mg
5	Tebuthiuron	229.1	172.3	+	203-17941	Tebuthiuron Standard	100 mg
6	Carbary (l NAC)	202.0	145.1	+	144-03833	NAC Standard	100 mg
7	Monolinuron	215.1	126.2	+	136-17001	Monolinuron Standard	100 mg
8	Fluridone	330.0	309.1	+	062-04601	Fluridone Standard	200 mg
9	(E)-Dimetomorph* <sup>3</sup>	389.0	302.1	+	049-28671	Dimethomorph Standard (mixture of isomers)	200 mg
10	(Z)-Dimetomorph* <sup>3</sup>	389.0	302.1	+			
11	Fenamidone	312.0	92.2	+	-	-	-
12	Flufenacet	364.0	152.1	+	063-06831	Flufenacet Standard	100 mg
13	Epoxiconazole	331.1	121.1	+	054-07661	Epoxiconazole Standard	200 mg
14	Diflubenzuron	328.0	158.2	+	043-31901	Diflubenzuron Reference Material CRM	100 mg
15	Tebufenozide	353.1	297.2	+	207-19041	Tebufenozide Reference Material	100 mg
16	Cyprodinil	226.1	93.1	+	037-17723	Cyprodinil Standard	100 mg
17	Triflumuron	359.1	156.2	+	203-17701	Triflumuron Standard	100 mg
18	Clofentezine	304.0	138.1	+	031-14541	Clofentezine Standard	200 mg
19	Quizalofop-ethyl	373.1	299.0	+	179-00721	Quizalofop-ethyl Standard	100 mg
20	Propaquizafop	445.1	100.1	+	165-25041	Propaquizafop Standard	100 mg
21	(Z)-Fenpyroximate	422.1	366.2	+	067-05011	(Z)-Fenpyroximate Standard	20 mg
22	Hexythiazox	354.1	229.1	+	087-05351	Hexythiazox Standard	200 mg
23	(E)-Fenpyroximate	422.1	366.2	+	063-03293	Fenpyroximate Standard	100 mg
24	Diuron (DCMU)	232.0	186.9	-	049-31861	DCMU Reference Material CRM	100 mg
25	Linuron	247.9	160.7	-	124-06131	Linuron Reference Material CRM	100 mg
26	Boscalid	342.9	113.9	-	027-15821	Boscalid Standard	100 mg
27	Novaluron	491.1	84.6	-	143-09361	Novaluron Standard	100 mg
28	Teflubenzuron	381.1	152.1	-	204-12373	Teflubenzuron Standard	100 mg
29	Lufenuron	508.9	339.1	-	122-06171	Lufenuron Reference Material	100 mg

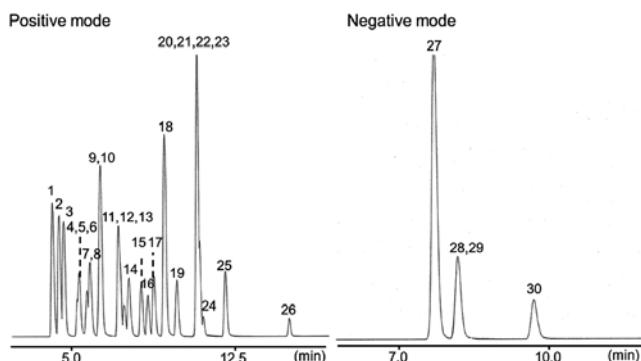
\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

\*3 Dimetomorph contains (E)-dimetomorph (Peak No. 9) and (Z)-dimetomorph (Peak No. 10), 20 µg/mL in total.

Code No.	Product Name	Grade	Volume
165-23983	Pesticides Mixture Standard Solution PL-16-2 (each 20 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL
169-23981			1 mL×5A

### ■ LC/MS/MS chromatogram\*1



### Analysis conditions

**[Instrument]**  
Shimadzu LCMS-8040

**[HPLC]**

Column:	Product Name	Code No.	Volume*2
	Wakopak® Wakosil®-II	231-50241	1 EA (D)
	3C18HG 2.0×150 mm	237-50243	1 EA (W)

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:

Time (min.)	B conc. (%)
0-1	25-40
1-3.5	40
3.5-6	40-50
6-8	50-55
8-17.5	55-95
17.5-30	95
30-40	95-25

Flow rate: 0.2 mL/min.

**[MS]**

Ionization: ESI  
Mode: MRM

## ■ List of 30 components (each 20 µg/mL acetonitrile solution)

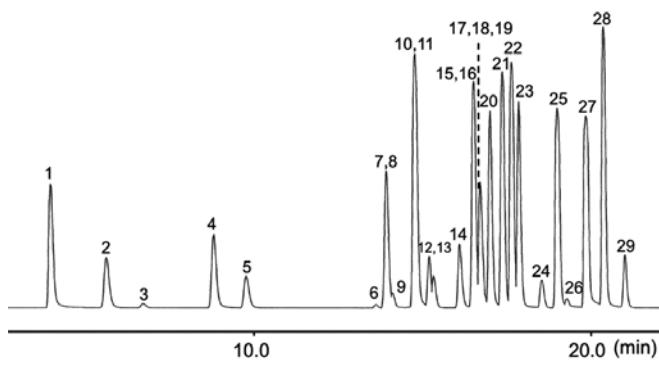
Peak No.	Components	Monitoring Ions (m/z)			Mode	Related Products		
		Precursor	Product			Code No.	Product Name	Volume
1	Metsulfuron-methyl	382.1	167.0	+		131-12671	Metsulfuron-methyl Standard	200 mg
2	Azimsulfuron	425.1	182.0	+		018-18253	Azimsulfuron Standard	100 mg
3	Cinosulfuron	414.1	183.0	+		033-16441	Cinosulfuron Standard	200 mg
4	Sulfosulfuron	471.1	211.0	+		195-17751	Sulfosulfuron Standard	100 mg
5	Flazasulfuron	408.1	182.0	+		060-03323	Flazasulfuron Standard	100 mg
6	Imazosulfuron	413.1	156.0	+		094-07481	Imazosulfuron Reference Material CRM	100 mg
7	Propoxycarbazone	399.1	199.0	+		-	-	-
8	Triasulfuron	402.1	167.0	+		206-17931	Triasulfuron Standard	100 mg
9	Mesosulfuron-methyl	504.1	182.0	+		-	-	-
10	Ethametsulfuron-methyl	411.1	196.0	+		059-07591	Ethametsulfuron-methyl Standard	200 mg
11	Pyrazosulfuron-ethyl	415.1	182.0	+		168-17841	Pyrazosulfuron-ethyl Standard	200 mg
12	Naptalam	292.1	144.0	+		140-08271	Naptalam Standard	200 mg
13	Trifloxsulfuron	438.1	182.0	+		201-17861	Trifloxsulfuron Standard	100 mg
14	Iodosulfuron-methyl	508.1	166.9	+		096-07061	Iodosulfuron-methyl Standard	100 mg
15	Metosulam	418.0	174.9	+		134-18881	Metosulam Standard	100 mg
16	Penoxsulam	484.1	195.0	+		169-26801	Penoxsulam Standard	100 mg
17	Chlorimuron-ethyl	415.1	186.0	+		036-16671	Chlorimuron-ethyl Standard	200 mg
18	Ethoxysulfuron	399.1	261.0	+		054-06821	Ethoxysulfuron Standard	50 mg
19	Prosulfuron	420.1	141.0	+		160-27291	Prosulfuron Standard	100 mg
20	Clodinafop Acid	312.0	266.0	+		032-22021	Clodinafop Standard	100 mg
21	Fluazifop	328.1	282.1	+		067-03453	Fluazifop Standard	100 mg
22	Triflusulfuron-methyl	493.1	264.1	+		204-16751	Triflusulfuron-methyl Standard	200 mg
23	Bensulfuron-methyl	411.1	149.1	+		029-12623	Bensulfuron-methyl Standard	100 mg
24	Primisulfuron-methyl	469.0	254.0	+		165-24561	Primisulfuron-methyl Standard	100 mg
25	Cyclosulfamuron	422.1	217.9	+		033-18901	Cyclosulfamuron Standard	200 mg
26	Fenhexamid	302.1	97.1	+		069-04111	Fenhexamid Standard	200 mg
27	Halosulfuron-methyl	433.1	252.0	-		089-07251	Halosulfuron-methyl Standard	200 mg
28	2,4-D (2,4-PA)	218.9	161.0	-		163-18153	2,4-PA Standard	100 mg
29	MCPA (MCP)	198.9	141.0	-		135-16971	MCP Reference Material CRM	100 mg
30	Sulfentrazone	384.9	307.0	-		193-14751	Sulfentrazone Standard	100 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

Code No.	Product Name	Grade	Volume
164-23693	Pesticides Mixture Standard Solution PL-17-2		1 mL
168-23691	(each 20 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL × 5A

### ■ LC/MS/MS chromatogram\*1



### Analysis conditions

#### [Instrument]

Shimadzu LCMS-8040

#### [HPLC]

Column:

Product Name	Code No.	Volume*2
Wakopak® Wakosil®-II	231-50241	1 EA (D)
3C18HG 2.0×150 mm	237-50243	1 EA (W)

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:

Time (min.)	B conc. (%)
0-1	15-40
1-3.5	40
3.5-6	40-50
6-8	50-55
8-17.5	55-95
17.5-30	95
30-40	95-15

Flow rate: 0.2 mL/min.

#### [MS]

Ionization: ESI

Mode: MRM

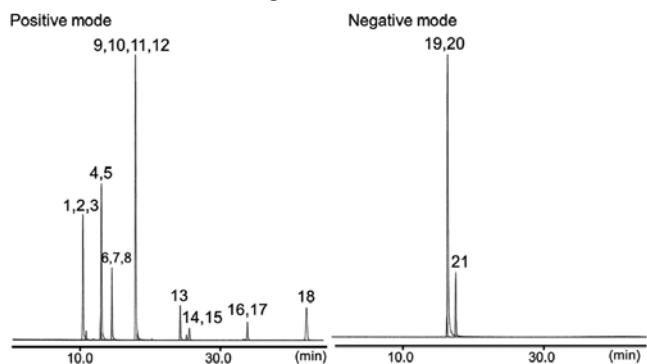
### ■ List of 29 components (each 20 µg/mL acetonitrile solution)

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Pymetrozine	218.1	105.1	+	163-19971	Pymetrozine Standard	200 mg
2	3-OH Carbofuran (3-Hydroxycarbofuran)	255.1	163.1	+	085-08571	3-Hydroxycarbofuran Standard	50 mg
3	Cymoxanil	199.2	128.1	+	032-16793	Cymoxanil Standard	100 mg
4	Carbetamide	237.2	188.1	+	039-22031	Carbetamide Standard	100 mg
5	Bromacil	261.0	205.0	+	020-17511	Bromacil Reference Material	100 mg
6	Oxabetrinil	233.1	87.1	+	155-03021	Oxabetrinil Standard	100 mg
7	Chlorbufam	224.1	172.0	+	031-22111	Chlorbufam Standard	100 mg
8	Ametryn	228.1	186.1	+	015-13643	Ametryn Standard	100 mg
9	Pyrimethanil	200.1	107.1	+	160-29491	Pyrimethanil Reference Material CRM	100 mg
10	Barban	275.2	177.9	+	026-17231	Barban Standard	100 mg
11	Flamprop-methyl	336.1	105.1	+	063-04991	Flamprop-methyl Standard	100 mg
12	TriflumizoleMetabolite	295.1	73.1	+	205-10181	Triflumizole Metabolite Standard	200 mg
13	Prometryn	242.4	200.1	+	167-15373	Prometryn Standard	100 mg
14	Clodinafop-propargyl	350.1	266.1	+	032-21661	Clodinafop-propargyl Standard	100 mg
15	Carfentrazone-ethyl	411.5	365.5	+	030-20361	Carfentrazone-ethyl Standard	100 mg
16	Benalaxyl	326.1	148.1	+	028-12791	Benalaxyl Standard	200 mg
17	Mefenpyr-diethyl	373.2	327.0	+	137-16551	Mefenpyr-diethyl Standard	100 mg
18	Pyraclostrobin	390.1	194.1	+	163-22921	Pyraclostrobin Standard	200 mg
19	Phoxim	299.1	129.1	+	163-16811	Phoxim Standard	200 mg
20	Pyrazophos	374.2	222.1	+	168-25031	Pyrazophos Standard	100 mg
21	Trifloxystrobin	409.1	186.1	+	207-15783	Trifloxystrobin Standard	100 mg
22	Triflumizole	346.1	73.1	+	202-10191	Triflumizole Standard	200 mg
23	Benfuracarb	411.3	195.1	+	023-09551	Benfuracarb Standard	200 mg
24	Fluazuron	506.1	158.0	+	063-04871	Fluazuron Standard	200 mg
25	Etoxazole	360.2	141.0	+	050-06683	Etoxazole Standard	100 mg
26	Chlorfluazuron	540.1	383.0	+	034-14391	Chlorfluazuron Standard	100 mg
27	Amitraz	294.2	163.1	+	015-09593	Amitraz Standard	200 mg
28	Carbosulfan	381.2	118.1	+	031-16361	Carbosulfan Standard	200 mg
29	Fenpropimorph	304.2	147.1	+	066-04981	Fenpropimorph Standard	200 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

Code No.	Product Name	Grade	Volume
226-01683	Veterinary Drugs Mixture Standard Solution PL-1-3		1 mL
220-01681	(each 20 µg/mL Methanol Solution)	for HPLC	1 mL×5A

**■ LC/MS/MS chromatogram\*1****Analysis conditions**

**[Instrument]**  
Shimadzu LCMS-8040

**[HPLC]**

Column:	Product Name	Code No.	Volume*2
Wakopak® Wakosil®-II	235-50261	1 EA (D)	
3C18HG 3.0×150 mm	231-50263	1 EA (W)	

Column temperature: 40°C  
Eluent: A) 0.1% HCOOH in H<sub>2</sub>O, B) 0.1% HCOOH in CH<sub>3</sub>CN

Gradient:	Time (min.)	B conc. (%)
	0-35	1-100
	35-40	100

Flow rate: 0.2 mL/min.

**[MS]**

Ionization: ESI  
Mode: MRM

**■ List of 21 components (each 20 µg/mL methanol solution)**

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Lincomycin*3	407.2	126.2	+	121-05781	Lincomycin Hydrochloride Monohydrate Standard	100 mg
2	Sulfacetamide	215.1	155.9	+	192-14581	Sulfacetamide Standard	200 mg
3	Danofloxacin*3	358.2	82.0	+	043-29551	Danofloxacin Mesylate Standard	200 mg
4	Clenbuterol*3	277.1	203.0	+	032-20441	Clenbuterol Hydrochloride Standard	100 mg
5	Xylazine*3	221.3	90.0	+	240-00821	Xylazine Hydrochloride Standard	200 mg
6	Pyrimethamine	249.1	176.9	+	163-18631	Pyrimethamine Standard	200 mg
7	Trichlorfon (DEP)	257.1	108.8	+	041-31681	DEP Reference Material CRM	100 mg
8	Tilmicosin	869.5	174.0	+	200-19151	Tilmicosin Standard (mixture of isomers)	100 mg
9	Tiamulin*3	494.3	192.1	+	201-16881	Tiamulin Fumarate Standard	200 mg
10	Prednisolone	361.2	147.0	+	162-21911	Prednisolone Standard	200 mg
11	Hydrocortisone	363.3	121.0	+	086-08241	Hydrocortisone Standard	200 mg
12	Dexamethasone	393.2	337.0	+	045-29491	Dexamethasone Standard	200 mg
13	Emamectin B1a	887.6	158.1	+	-	-	-
14	Famphur	326.1	92.8	+	069-06431	Famphur Standard	100 mg
15	Fenobucarb(BPMC)	208.2	95.0	+	021-06774	BPMC Standard	100 mg
16	Temephos (Abate)	467.0	124.9	+	-	-	-
17	Allenthin	303.2	135.1	+	018-17011	Allenthin Standard	200 mg
18	Monensin	688.4	125.1	+	-	-	-
19	Florfenicol	358.1	185.1	-	060-05001	Florfenicol Standard	200 mg
20	2-Acetylaminio-5-nitrothiazole	186.2	139.1	-	018-21421	2-Acetylaminio-5-nitrothiazole Standard	200 mg
21	Clorsulon	380.0	344.0	-	033-20471	Clorsulon Standard	100 mg

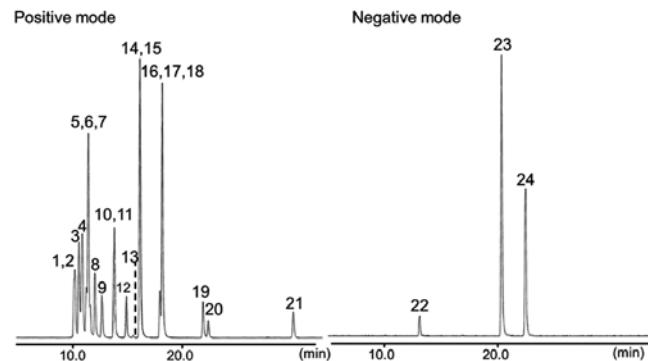
\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

\*3 The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.

Code No.	Product Name	Grade	Volume
223-01693	Veterinary Drugs Mixture Standard Solution PL-2-1	for HPLC	1 mL
227-01691	(each 20 µg/mL Methanol Solution)		1 mL × 5A

### ■ LC/MS/MS chromatogram\*1



### Analysis conditions

[Instrument]  
Shimadzu LCMS-8040

#### [HPLC]

Column:	Product Name	Code No.	Volume*2
Wakopak® Wakosil®-II	235-50261	1 EA (D)	
3C18HG 3.0×150 mm	231-50263	1 EA (W)	

Column temperature: 40°C

Eluent: A) 0.1% HCOOH in H<sub>2</sub>O, B) 0.1% HCOOH in CH<sub>3</sub>CN

Gradient:	Time (min.)	B conc. (%)
	0-35	1-100
	35-40	100

Flow rate: 0.2 mL/min.

#### [MS]

Ionization: ESI  
Mode: MRM

### ■ List of 24 components (each 20 µg/mL methanol solution)

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	5-Propylsulfonyl-1 <i>H</i> -benzimidazole-2-amine	240.1	133.1	+	161-25381	5-Propylsulfonyl-1 <i>H</i> -benzimidazole-2-amine Standard	100 mg
2	Levamisole*3	207.1	180.0	+	126-04991	Levamisole Hydrochloride Standard	200 mg
3	Thiabendazole	202.2	174.9	+	200-13213	Thiabendazole Standard	100 mg
4	Trimethoprim	291.2	230.0	+	206-13911	Trimethoprim Standard	200 mg
5	Sulfadiazine	251.1	155.9	+	198-11381	Sulfadiazine Standard	200 mg
6	Ormetoprim	275.2	123.1	+	152-02551	Ormetoprim Standard	50 mg
7	Sulfathiazole	256.1	155.9	+	197-14651	Sulfathiazole Standard	200 mg
8	Sulfapyridine	250.1	156.0	+	199-14471	Sulfapyridine Standard	200 mg
9	Sulfamerazine	265.1	92.1	+	192-11301	Sulfamerazine Standard	200 mg
10	Sulfadimidine	279.1	92.1	+	198-11141	Sulfadimidine Standard	200 mg
11	Sulfamethoxypyridazine	281.1	156.1	+	190-14641	Sulfamethoxypyridazine Standard	200 mg
12	Sulfamonometroxine	281.1	156.0	+	198-18961	Sulfamonometroxine Monohydrate Standard	100 mg
13	Sulfachlorpyridazine*3	286.2	156.9	+	194-14661	Sulfachlorpyridazine Sodium Salt Standard	200 mg
14	Sulfadoxine	311.1	155.9	+	192-14221	Sulfadoxine Standard	200 mg
15	Sulfamethoxazole	254.1	156.0	+	191-11131	Sulfamethoxazole Standard	200 mg
16	Ethopabate	238.3	136.0	+	055-06231	Ethopabate Standard	200 mg
17	Sulfadimethoxine	311.1	156.0	+	190-11101	Sulfadimethoxine Standard	200 mg
18	Sulfaquinoxaline*3	301.1	156.0	+	194-11481	Sulfaquinoxaline Sodium Salt Standard	200 mg
19	β-Trenbolone	271.2	199.0	+	205-16281	β-Trenbolone Standard	200 mg
20	α-Trenbolone	271.2	199.0	+	203-20991	α-Trenbolone Standard	20 mg
21	Melengestrol Acetate	397.3	279.0	+	132-15401	Melengestrol Acetate Standard	50 mg
22	Thiamphenicol	356.1	185.1	-	203-13921	Thiamphenicol Standard	200 mg
23	Zeranol	321.3	277.4	-	262-01461	Zeranol Standard	200 mg
24	Sulfanitran	334.0	136.1	-	195-17011	Sulfanitran Standard	100 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

\*3 The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.



# Veterinary Drugs Mixture Standard Solutions by Drug Classification

## What are veterinary drugs?

Pharmaceuticals used for animals are called “veterinary drugs.” Veterinary drugs are used in a wide variety of animals, not confined to just pets but also including livestock and fish. Veterinary drugs are used to prevent and treat diseases, but in livestock, the drugs may remain in foodstuffs (meat, eggs, milk, marine products, etc.) derived from the animals for which the drugs were used.<sup>1)</sup> If such foods are consumed by humans, adverse effects such as allergic reactions and the emergence of antimicrobial resistant bacteria may occur. In addition to the PL series (P. 6-30) introduced above, Fujifilm Wako also provides mixture standard solutions of veterinary drugs classified by type.

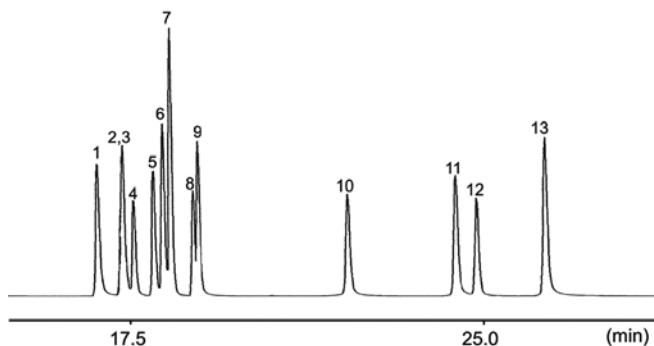
### Product list of veterinary drug mixture standard solutions by drug classification

Code No.	Product Name	Volume	Number of Components	Analysis Equipment	Mark	Product Page
227-02051	Veterinary Drugs Mixture Standard Solution	1 mL				
223-02053	(Quinolone) (each 20 µg/mL)	1 mL×5A	13	LC/MS	VDQ	P. 32
228-02081	Veterinary Drugs Mixture Standard Solution	1 mL				
224-02083	(Sulfonamide + Antifolate) (each 20 µg/mL)	1 mL×5A	27	LC/MS	VDS	P. 33
225-02091	Veterinary Drugs Mixture Standard Solution	1 mL				
221-02093	(Macrolide) (each 20 µg/mL Acetonitrile Solution)	1 mL×5A	7	LC/MS	VDM	P. 34
220-02203	Veterinary Drugs Mixture Standard Solution	1 mL				
224-02201	(Hormone) (each 20 µg/mL Acetonitrile Solution)	1 mL×5A	6	LC/MS	VDH	P. 35

1) Ministry of Health, Labour and Welfare of Japan website

Code No.	Product Name	Grade	Volume
227-02051	Veterinary Drugs Mixture Standard Solution (Quinolone)	for HPLC	1 mL
223-02053	(each 20 µg/mL)		1 mL×5A

### ■ LC/MS chromatogram\*1



### Analysis conditions

[Instrument]  
Shimadzu LC/MS-2020

#### [HPLC]

Column:	Product Name	Code No.	Volume*2
Wakopak® Wakosil®-II	231-50241	1 EA (D)	
3C18HG 2.0×150 mm	237-50243	1 EA (W)	

Column temperature: 40°C

Eluent: A) 0.1% HCOOH in H<sub>2</sub>O, B) CH<sub>3</sub>CN

Gradient:	Time (min.)	B conc. (%)
	0-10	1-10
	10-35	10-100
	35-40	100

Flow rate: 0.2 mL/min.

#### [MS]

Ionization: ESI  
Mode: TIC

### ■ List of 13 components (each 20 µg/mL)

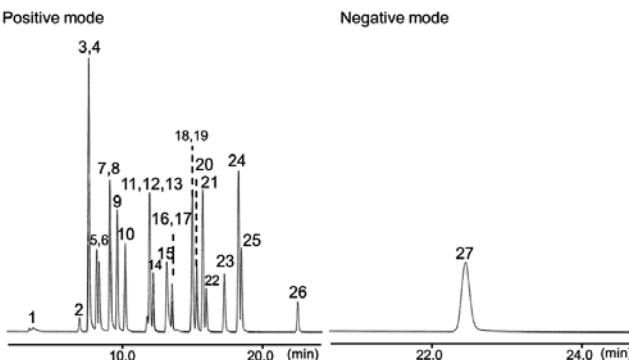
Peak No.	Components	Monitoring Ions (m/z)	Mode	Related Products		
				Code No.	Product Name	Volume
1	Marbofloxacin	363	+	133-15291	Marbofloxacin Standard	200 mg
2	Norfloxacin	320	+	149-08241	Norfloxacin Standard	200 mg
3	Ofloxacin	362	+	150-02611	Ofloxacin Standard	200 mg
4	Ciprofloxacin*3	332	+	033-19621	Ciprofloxacin Hydrochloride Monohydrate Standard	200 mg
5	Danofloxacin*3	358	+	043-29551	Danofloxacin Mesylate Standard	200 mg
6	Enrofloxacin	360	+	059-07471	Enrofloxacin Standard	200 mg
7	Orbifloxacin	396	+	154-03351	Orbifloxacin Standard	100 mg
8	Sarafloxacin*3	386	+	195-14211	Sarafloxacin Hydrochloride Standard	200 mg
9	Difloxacin	400	+	049-30021	Difloxacin Standard	200 mg
10	Oxolinic Acid	262	+	156-01851	Oxolinic Acid Standard	200 mg
11	Nalidixic Acid	233	+	144-06611	Nalidixic Acid Standard	200 mg
12	Flumequine	262	+	069-04971	Flumequine Standard	200 mg
13	Piromidic Acid	289	+	169-18091	Piromidic Acid Standard	200 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

\*3 The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.

Code No.	Product Name	Grade	Volume
228-02081	Veterinary Drugs Mixture Standard Solution	for HPLC	1 mL
224-02083	(Sulfonamide + Antifolate) (each 20 µg/mL)		1 mL×5A

**LC/MS/MS chromatogram<sup>1</sup>****Analysis conditions**

**[Instrument]**  
Shimadzu LCMS-8040

**[HPLC]**

Column:	Product Name	Code No.	Volume <sup>2</sup>
Wakopak® Wakosil®-II	231-50241	1 EA (D)	
3C18HG 2.0×150 mm	237-50243	1 EA (W)	

Column temperature: 40°C  
Eluent: A) 0.01% HCOOH in H<sub>2</sub>O, B) CH<sub>3</sub>CN

Gradient:	Time (min.)	B conc. (%)
	0-25	2-45
	25-35	45

Flow rate: 0.2 mL/min.

**[MS]**  
Ionization: ESI  
Mode: MRM

**List of 27 components (each 20 µg/mL)**

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Sulfanilamide	173	156	+	198-14061	Sulfanilamide Standard	200 mg
2	Sulfacetamide	215	156	+	192-14581	Sulfacetamide Standard	200 mg
3	Diaverdine	261	245	+	048-29621	Diaverdine Standard	200 mg
4	Sulfisomidine	279	124	+	190-11221	Sulfisomidine Standard	200 mg
5	Sulfadiazine	251	156	+	198-11381	Sulfadiazine Standard	200 mg
6	Trimethoprim	291	230	+	206-13911	Trimethoprim Standard	200 mg
7	Ormetoprim	275	259	+	152-02551	Ormetoprim Standard	50 mg
8	Sulfathiazole	256	156	+	197-14651	Sulfathiazole Standard	200 mg
9	Sulfapyridine	250	156	+	199-14471	Sulfapyridine Standard	200 mg
10	Sulfamerazine	265	92	+	192-11301	Sulfamerazine Standard	200 mg
11	Sulfisazole <sup>3</sup>	240	156	+	195-14071	Sulfisazole Sodium Standard	200 mg
12	Sulfametoxydiazine	281	92	+	198-17001	Sulfametoxydiazine Standard	100 mg
13	Sulfadimidine	279	92	+	198-11141	Sulfadimidine Standard	200 mg
14	Sulfamethoxypyridazine	281	156	+	190-14641	Sulfamethoxypyridazine Standard	200 mg
15	Pyrimethamine	249	233	+	163-18631	Pyrimethamine Standard	200 mg
16	Sulfamonometoxine	281	92	+	198-18961	Sulfamonometoxine Monohydrate Standard	100 mg
17	Sulfachlorpyridazine <sup>3</sup>	285	156	+	194-14661	Sulfachlorpyridazine Sodium Salt Standard	200 mg
18	Sulfamethoxazole	254	92	+	191-11131	Sulfamethoxazole Standard	200 mg
19	Sulfadoxine	311	156	+	192-14221	Sulfadoxine Standard	200 mg
20	Sulfatroxazole	268	92	+	196-16941	Sulfatroxazole Standard	100 mg
21	Sulfaethoxypyridazine	295	156	+	199-16931	Sulfaethoxypyridazine Standard	100 mg
22	Sulfisoxazole	268	92	+	191-16991	Sulfisoxazole Standard	100 mg
23	Sulfabenzamide	277	156	+	193-14871	Sulfabenzamide Standard	100 mg
24	Sulfadimethoxine	311	156	+	190-11101	Sulfadimethoxine Standard	200 mg
25	Sulfaquinoxaline <sup>3</sup>	301	156	+	194-11481	Sulfaquinoxaline Sodium Salt Standard	200 mg
26	Sulfabromomethazine	359	92	+	192-16921	Sulfabromomethazine Standard	100 mg
27	Sulfanitran	336	156	-	195-17011	Sulfanitran Standard	100 mg

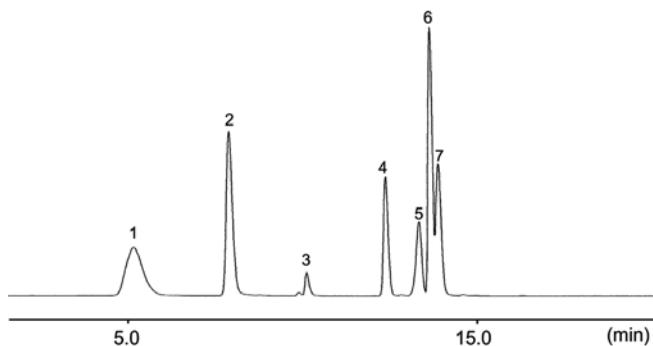
\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

\*3 The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.

Code No.	Product Name	Grade	Volume
225-02091	Veterinary Drugs Mixture Standard Solution (Macrolide)	for HPLC	1 mL
221-02093	(each 20 µg/mL Acetonitrile Solution)		1 mL×5A

### ■ LC/MS chromatogram\*1



### Analysis conditions

[Instrument]  
Shimadzu LC-20AD

#### [HPLC]

Column:	Product Name	Code No.	Volume
	Wakopak® Ultra C18-3 2.0×100 mm	232-63581	1 EA

Column temperature: 40°C

Eluent: A) 0.5% HCOOH in H<sub>2</sub>O, B) 0.5% HCOOH in CH<sub>3</sub>CN

Gradient:	Time (min.)	B conc. (%)
	0-15	15-50
	15-20	50

Flow rate: 0.2 mL/min.

#### [MS]

Ionization: ESI  
Mode: TIC

### ■ List of 7 components (each 20 µg/mL acetonitrile solution)

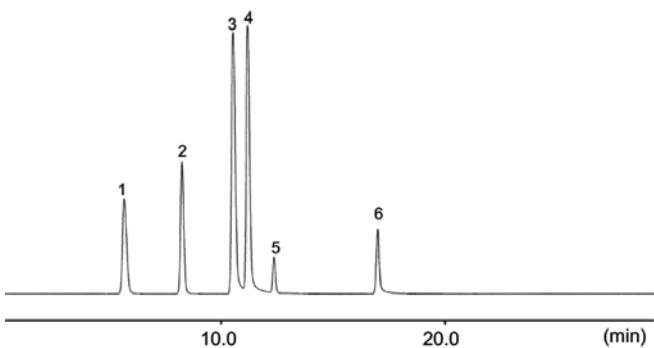
Peak No.	Components	Monitoring Ions (m/z)	Mode	Related Products		
				Code No.	Product Name	Volume
1	Neospiramycin I	350	+	147-07061	Neospiramycin I Standard	10 mg
2	Spiramycin I	422	+	197-11971	Spiramycin I Standard	10 mg
3	Tilmicosin (mixture of isomers)	870	+	200-19151	Tilmicosin Standard (mixture of isomers)	100 mg
4	Erythromycin A	734	+	056-07361	Erythromycin A Standard	100 mg
5	Tylosin	916	+	208-19331	Tylosin Standard	100 mg
6	Tiamulin*2	494	+	201-16881	Tiamulin Fumarate Standard	200 mg
7	Leucomycin A <sub>5</sub>	772	+	125-06301	Leucomycin A <sub>5</sub>	50 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.

Code No.	Product Name	Grade	Volume
220-02203	Veterinary Drugs Mixture Standard Solution (Hormone)	for HPLC	1 mL
224-02201	(each 20 µg/mL Acetonitrile Solution)		1 mL×5A

### ■ LC/MS chromatogram\*1



### Analysis conditions

[Instrument]  
Shimadzu LC/MS-2020

[HPLC]

Column:	Product Name	Code No.	Volume*2
	Wakopak® Wakosil®-II	231-50241	1 EA (D)
	3C18HG 2.0×150 mm	237-50243	1 EA (W)

Column temperature: 40°C  
Eluent: A) 0.1% HCOOH in H<sub>2</sub>O, B) CH<sub>3</sub>CN

Gradient:	Time (min.)	B conc. (%)
	0-20	30-70
	20-30	70

Flow rate: 0.2 mL/min.

[MS]  
Ionization: ESI  
Mode: TIC

### ■ List of 6 components (each 20 µg/mL acetonitrile solution)

Peak No.	Components	Monitoring Ions (m/z)	Mode	Related Products		
				Code No.	Product Name	Volume
1	Prednisolone	361	+	162-21911	Prednisolone Standard	200 mg
2	Methylprednisolone	375	+	137-15451	Methylprednisolone Standard	100 mg
3	β-Trenbolone	271	+	205-16281	β-Trenbolone Standard	200 mg
4	α-Trenbolone	271	+	203-20991	α-Trenbolone Standard	20 mg
5	Zeranol	323	+	262-01461	Zeranol Standard	200 mg
6	Clostebol	323	+	034-20141	Clostebol Standard	200 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.



# Organic Phosphorus Pesticides Mixture Standard Solutions, FA Series

## What are organophosphorus pesticides?

Organophosphorus pesticides are widely used as insecticides. They inhibit the action of cholinesterase, making it difficult to decompose acetylcholine, a neurotransmitter, thereby impairing neurotransmission. In Japan, there have been many cases in the past where they have been detected in processed foods, for example, food poisoning occurred when frozen dumplings from China (2008) were found to contain methamidophos, as well as cases of frozen foods (2013) contaminated with malathion. Consequently, their toxicity is now considered problematic.

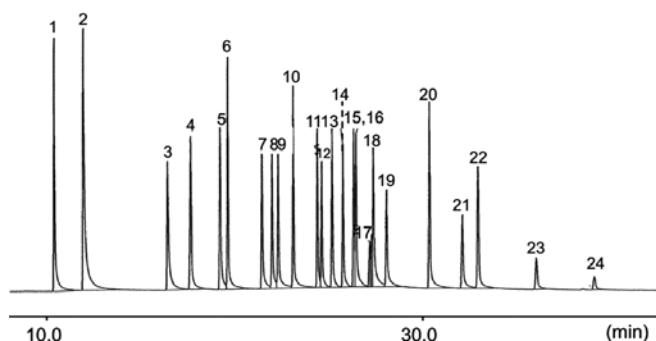
There is a simultaneous analysis method for organic phosphorus pesticides established by the Ministry of Health, Labor and Welfare of Japan.<sup>1)</sup> The use of our FA series enables simultaneous analysis studies of organic phosphorus pesticides.

## Product list of organic phosphorus pesticides mixture standard solutions, FA series

Code No.	Product Name	Volume	Number of Components	Analysis Equipment	Mark	Product Page
152-02931	Organophosphorus Pesticides Mixture Standard Solution FA-1 (each 20 µg/mL)	1 mL	24	GC	FA1	P. 37
159-02941	Organophosphorus Pesticides Mixture Standard Solution FA-2 (each 20 µg/mL)	1 mL	22	GC	FA2	P. 38
156-02951	Organophosphorus Pesticides Mixture Standard Solution FA-3 (each 20 µg/mL Acetone Solution)	1 mL	10	GC	FA3	P. 39
153-01481	Organophosphorus Pesticides Mixture Standard Solution (each 1 mg/mL Toluene Solution)	1 mL×5A	4	GC	OP	P. 39

1) Ministry of Health, Labour and Welfare of Japan website

Code No.	Product Name	Grade	Volume
152-02931	Organophosphorus Pesticides Mixture Standard Solution FA-1 (each 20 µg/mL)	for Pesticide Residue Analysis	1 mL

**GC chromatogram\*****Analysis conditions**

**[Instrument]**  
Shimadzu GC-2014

**[GC]**

Column: DB-1701 0.25 µm, 0.25 mm×30 m  
Column temperature: 60°C (2 min.)→25°C/min.→150°C  
→5°C/min.→270°C (20 min.)  
Injection temperature: 250°C  
Carrier gas: He 1.0 mL/min.  
Split ratio: 1/10  
Detector temperature: 270°C

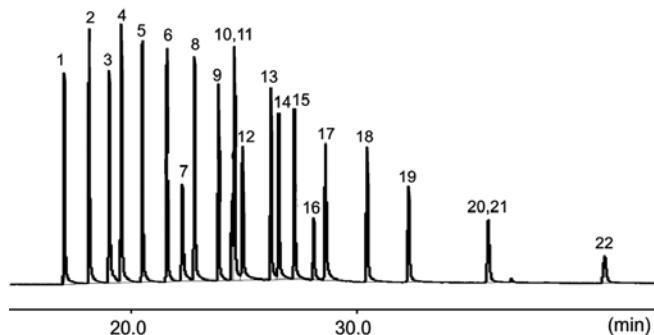
**List of 24 components (each 20 µg/mL)**

Peak No.	Components	Related Products		
		Code No.	Product Name	Volume
1	Dichlorvos (DDVP)	046-16633	DDVP Standard	200 mg
2	Methamidophos	139-11631	Methamidophos Standard	200 mg
3	Acephate	015-08954	Acephate Standard	100 mg
4	Cadusafos	036-18871	Cadusafos Standard	100 mg
5	Salithion	191-07341	Salithion Standard	200 mg
6	Diazinon	040-31891	Diazinon Reference Material CRM	100 mg
7	Iprobenfos (IBP)	093-02233	IBP Standard	200 mg
8	Cyanophos (CYAP)	039-08493	CYAP Standard	200 mg
9	Chlorpyrifosmethyl	031-09673	Chlorpyrifosmethyl Standard	200 mg
10	Pirimiphos-methyl	161-13713	Pirimiphos-methyl Standard	100 mg
11	(E)-Dimethylvinphos	044-26063	(E)-Dimethylvinphos Standard	50 mg
12	Malathion (Malathon)	136-05514	Malathon Standard	100 mg
13	(Z)-Dimethylvinphos	045-25231	(Z)-Dimethylvinphos Standard	200 mg
14	(E)-Chlorfenvinphos ( $\alpha$ -CVP)	033-21691	$\alpha$ -CVP Standard	50 mg
15	Quinalphos	175-00441	Quinalphos Standard	200 mg
16	(Z)-Chlorfenvinphos ( $\beta$ -CVP)	033-22791	$\beta$ -CVP Standard	50 mg
17	Fosthiazate	062-05941	Fosthiazate Reference Material(mixture of isomers)	100 mg
18	Propaphos	168-10244	Propaphos Standard	100 mg
19	Profenofos	169-17653	Profenofos Standard	100 mg
20	Ethion	051-03173	Ethion Standard	200 mg
21	Edifenphos (EDDP)	053-03133	EDDP Standard	200 mg
22	Cyanofenphos (CYP)	037-08411	CYP Standard	200 mg
23	Pyridaphenthion	169-10914	Pyridaphenthion Standard	100 mg
24	Phosalone	167-09383	Phosalone Standard	100 mg

\* The measurement conditions and charts are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
159-02941	Organophosphorus Pesticides Mixture Standard Solution FA-2 (each 20 µg/mL)	for Pesticide Residue Analysis	1 mL

### GC chromatogram\*1



### Analysis conditions

[Instrument]  
Shimadzu GC-2014

[GC]  
Column: DB-1701 0.25 µm, 0.25 mm×30 m  
Column temperature: 60°C (2 min.)→25°C/min.→150°C  
→5°C/min.→270°C (20 min.)  
Injection temperature: 250°C  
Carrier gas: He 1.0 mL/min.  
Split ratio: 1/10  
Detector temperature: 270°C

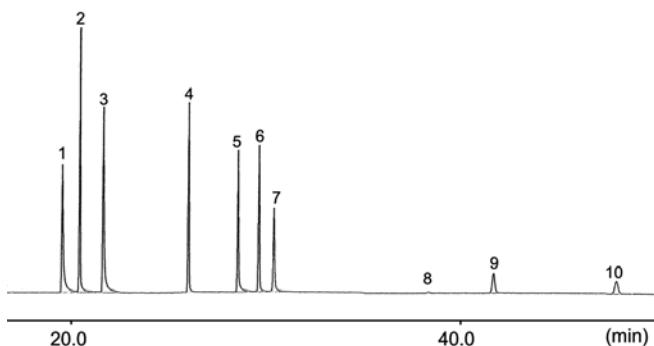
### List of 22 components (each 20 µg/mL)

Peak No.	Components	Related Products		
		Code No.	Product Name	Volume
1	Ethoprophos	051-05611	Ethoprophos Standard	200 mg
2	Phorate	166-22911	Phorate Standard	100 mg
3	Thiometon	207-13181	Thiometon Standard Solution (1 mg/mL Hexane Solution)	1 mL×5A
4	Terbufos	200-12691	Terbufos Standard	200 mg
5	Etrimfos	058-06081	Etrimfos Standard Solution (1 mg/mL Hexane Solution)	1 mL×5A
6	Dichlofenthion (ECP)	056-03503	ECP Standard	200 mg
7	Dimethoate*2	041-15843	Dimethoate Standard	100 mg
8	Tolclofos-methyl	207-11383	Tolclofos-methyl Standard	100 mg
9	Chlorpyrifos	032-22881	Chlorpyrifos Reference Material	100 mg
10	Formothion*2	068-01303	Formothion Standard	200 mg
11	Fenthion (MPP)	130-06634	MPP Standard	100 mg
12	Fenitrothion (MEP)	130-05534	MEP Standard	100 mg
13	Isofenphos	090-03463	Isofenphos Standard	100 mg
14	Phenthoate (PAP)	161-27081	PAP Standard	100 mg
15	Prothiofos	163-26201	Prothiofos Standard	100 mg
16	Methidathion (DMTP)	043-17081	DMTP Standard	200 mg
17	Butamifos	026-10933	Butamifos Standard	100 mg
18	Sulprofos	193-16951	Sulprofos Standard	100 mg
19	Fensulfothion	064-02961	Fensulfothion Standard	200 mg
20	EPN	058-02843	EPN Standard	100 mg
21	Phosmet (PMP)	163-09221	PMP Standard	200 mg
22	Pyraclofos	160-17801	Pyraclofos Standard	200 mg

\*1 The measurement conditions and charts are for reference only and do not constitute a guarantee for the product.

\*2 Organic phosphorus pesticides may be adsorbed or decomposed at the injection port or column. For example, analysis by splitless injection has shown that some formothiones may decompose into dimethoate.

Code No.	Product Name	Grade	Volume
156-02951	Organophosphorus Pesticides Mixture Standard Solution FA-3 (each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL

**GC chromatogram\*****Analysis conditions**

[Instrument]  
Shimadzu GC-2014

**[GC]**

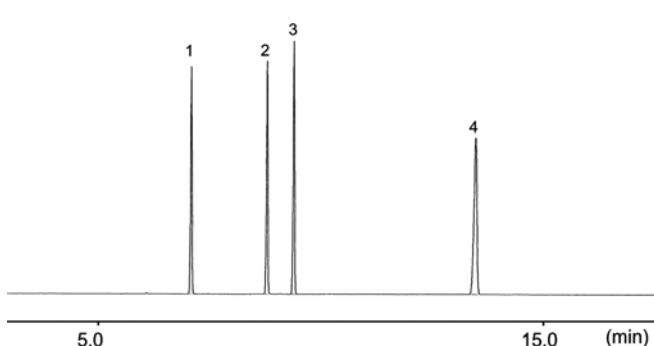
Column: DB-1701 0.25 µm, 0.25 mm×30 m  
Column temperature: 60°C (2 min.)→25°C/min.→150°C  
→5°C/min.→270°C (25 min.)  
Injection temperature: 250°C  
Carrier gas: He 1.0 mL/min.  
Split ratio: 1/10  
Detector temperature: 270°C

**List of 10 components (each 20 µg/mL acetone solution)**

Peak No.	Components	Related Products		
		Code No.	Product Name	Volume
1	Omethoate	157-01881	Omethoate Standard	200 mg
2	Disulfoton (Ethylthiomethon)	055-03154	Ethylthiomethon Standard	100 mg
3	Monocrotophos	138-11101	Monocrotophos Standard	200 mg
4	Bromophos-ethyl	025-12821	Bromophos-ethyl Standard	200 mg
5	Fenamiphos	066-03521	Fenamiphos Standard	100 mg
6	Isoxathion	098-02244	Isoxathion Standard	100 mg
7	Vamidothion	227-01711	Vamidothion Standard	100 mg
8	Azinphos-methyl	012-16051	Azinphos-methyl Standard	200 mg
9	Azinphos-ethyl	016-22061	Azinphos-ethyl Standard	100 mg
10	Coumaphos	033-16463	Coumaphos Standard	100 mg

\* The measurement conditions and charts are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
153-01481	Organophosphorus Pesticides Mixture Standard Solution (each 1 mg/mL Toluene Solution)	for Pesticide Residue Analysis	1 mL×5A

**GC chromatogram\*****Analysis conditions**

[Instrument]  
Shimadzu GC-2014

**[GC]**

Column: BP1 (SGE) 1.0 µm, 0.53 mm×25 m  
Column temperature: 100°C (1 min.)→20°C/min.→260°C (11 min.)  
Injection temperature: 150°C  
Carrier gas: He 6.0 mL/min.  
Split ratio: 1/5  
Detector temperature: 280°C

**List of 4 components (each 1 mg/mL toluene solution)**

Peak No.	Components	Related Products		
		Code No.	Product Name	Volume
1	Methyl Demeton	134-15601	Methyl Demeton Standard	100 mg
2	Methylparathion	131-06061	Methylparathion Standard	200 mg
3	Parathion	168-08573	Parathion Standard	200 mg
4	EPN	058-02843	EPN Standard	100 mg

\* The measurement conditions and charts are for reference only and do not constitute a guarantee for the product.

# Neonicotinoid Pesticides Mixture Standard Solution

## What are neonicotinoid pesticides?

Neonicotinoid pesticides are insecticides based on nicotine-like components. Because of their selective action against insects, they began to be used as an alternative to organophosphorus pesticides, which are highly toxic to humans. However, coinciding with the expansion of their use, increasing instances of colony collapse disorder (CCD) were reported from many parts of the world. This is a phenomenon in which bees fail to overwinter and disappear, or worker bees suddenly disappear leaving behind the queen and larvae, making it impossible to maintain the colony. This has led to negative effects on ecosystems being reported, and the EU has prohibited the use of some of neonicotinoid pesticides.<sup>1)</sup> Fujifilm Wako provides a mixture standard solution of neonicotinoid pesticides and their metabolites.

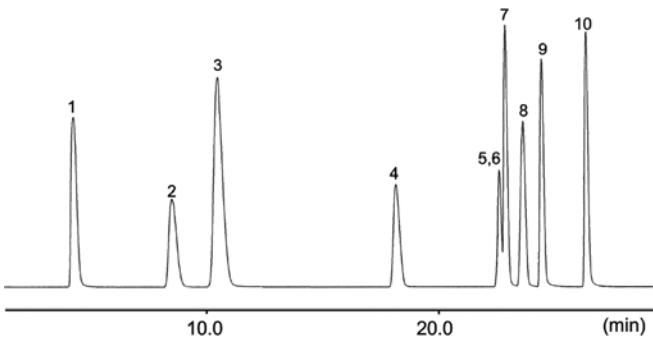
### ■ Product list of neonicotinoid pesticides mixture standard solution

Code No.	Product Name	Volume	Number of Components	Analysis Equipment	Mark	Product Page
149-09461	Neonicotinoid Pesticides Mixture Standard	1 mL	10	LC/MS	NP	P. 41
145-09463	Solution(each 20 µg/mL Acetonitrile Solution)	1 mL×5A				

1) Ministry of Agriculture, Forestry and Fisheries of Japan website

Code No.	Product Name	Grade	Volume
149-09461	Neonicotinoid Pesticides Mixture Standard Solution		1 mL
145-09463	(each 20 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ LC/MS chromatogram\*



### Analysis conditions

[Instrument]  
Shimadzu LC/MS-2020

[HPLC]

Column:	Product Name	Code No.	Volume
	Wakopak® Ultra C18-3 2.0×100 mm	232-63581	1 EA

Column temperature: 30°C  
Eluent: A) 0.1% HCOOH in 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub>  
B) CH<sub>3</sub>OH

Gradient:	Time (min.)	B conc. (%)
	0-10	10
	10-30	10-70

Flow rate: 0.2 mL/min.

[MS]  
Ionization: ESI  
Mode: TIC

### ■ List of 10 components (each 20 µg/mL acetonitrile solution)

Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
1	CPMF	212	036-26061	CPMF	200 mg
2	Dinotefuran	203	041-29731	Dinotefuran Standard	100 mg
3	Nitenpyram	271	142-06771	Nitenpyram Standard	200 mg
4	Thiamethoxam	292	201-19061	Thiamethoxam Reference Material [CRM]	100 mg
5	Clothianidin	250	034-22581	Clothianidin Reference Material [CRM]	100 mg
6	Imidacloprid	256	099-03771	Imidacloprid Standard	200 mg
7	Thiacloprid-amide	271	204-15771	Thiacloprid-amide Standard	50 mg
8	CPF	199	037-17201	CPF Standard	200 mg
9	Acetamiprid	223	010-16493	Acetamiprid Standard	100 mg
10	Thiacloprid	253	203-15763	Thiacloprid Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

# Pesticides Mixture Standard Solutions for the Simultaneous Analysis Method Specified in JP Water Quality Act, WQ Series

## Pesticides in drinking water

In Japan, drinking water must comply with the “drinking water quality standards (DWQSS)” of the Water Quality Act, and is subject to inspection by water utilities. In addition to DWQSSs, “Complementary Items” have been established as items to be considered in the Water Quality Act, and pesticides are included in this category. Pesticides in drinking water are listed as substances that can be detected and controlled using the total pesticide assessment method. The pesticides are classified as shown in the figure on the right according to their likelihood of being detected in drinking water.

In accordance with a notice issued on March 28, 2013, the classification of pesticides was reviewed under the Water Quality Act of Japan, and 120 pesticides were included in the target list. Fujifilm Wako offers a variety of pesticide mixture standard solutions that are compatible with the various simultaneous analysis methods described in the “Complementary Items.”

### ■ Product list of analytical standards

Target...Pesticides on the target list	Review...Pesticides on the requiring review list	Other...Pesticides on the others list
Exclusion...Pesticides on the exclusion list	Unlabeled... Pesticides metabolites, etc.	



Summary of pesticide classification<sup>1)</sup>

Classification	Code No.	Product Name <sup>*1</sup>	Grade	Volume	WQ Series									
					1	2	3	4	5	6	7	8	9	10
Target	015-08954	Acephate Standard	for Pesticide Residue Analysis	100 mg										<input type="radio"/>
Review	010-16493	Acetamiprid Standard	for Pesticide Residue Analysis	100 mg		<input type="radio"/>	<input type="radio"/>							
Other	014-18331	Acibenzolar-S-methyl Standard	for Pesticide Residue Analysis	200 mg		<input type="radio"/>								
Target	013-15741	ACN Standard (Quinoclamine)	for Pesticide Residue Analysis	200 mg			<input type="radio"/>							<input type="radio"/>
Target	012-16333	Alachlor Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Other	015-13643	Ametryn Standard	for Pesticide Residue Analysis	100 mg		<input type="radio"/>	<input type="radio"/>							
	016-24641	(Aminomethyl)phosphonic Acid Reference Material	Traceable Reference Material	100 mg								<input type="radio"/>		
Target	015-09593	Amitraz Standard	for Pesticide Residue Analysis	200 mg										<input type="radio"/>
	011-14941	Amitraz Metabolite Hydrochloride Standard	for Pesticide Residue Analysis	200 mg										<input type="radio"/>
Other	016-14011	Amitrole Standard	for Pesticide Residue Analysis	200 mg										
Target	012-20243	Anilofos Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Target	015-13523	Asulam Standard	for Pesticide Residue Analysis	100 mg				<input type="radio"/>						
Target	016-15633	Atrazine Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Other	018-18253	Azimsulfuron Standard	for Pesticide Residue Analysis	100 mg										
Exclusion	015-19003	Azoxystrobin Standard	for Pesticide Residue Analysis	100 mg		<input type="radio"/>								
Other	028-11691	Bendiocarb Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>							
Target	023-09551	Benfuracarb Standard	for Pesticide Residue Analysis	200 mg										
Target	023-12883	Benfuresate Standard	for Pesticide Residue Analysis	100 mg				<input type="radio"/>						<input type="radio"/>
Target	028-18411	Benomyl Standard	for Pesticide Residue Analysis	100 mg										
Exclusion	029-12623	Bensulfuron-methyl Standard	for Pesticide Residue Analysis	100 mg		<input type="radio"/>								
Exclusion	021-07673	Bensulide Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>							
Other	024-09363	Bensulfat Standard	for Pesticide Residue Analysis	200 mg										

1) Kobayashi, N., et al.; ANALYTICAL CIRCLE, 70, 2 (2013).

Classification	Code No.	Product Name <sup>*1</sup>	Grade	Volume	WQ Series									
					1	2	3	4	5	6	7	8	9	10
Target	027-07594	Bentazone Standard	for Pesticide Residue Analysis	100 mg	○									
Target	029-06954	Benthiocarb Standard (Thiobencarb)	for Pesticide Residue Analysis	100 mg	○									
Target	023-15781	Benzobicyclon Standard	for Pesticide Residue Analysis	100 mg	○									
	026-06763	Benzoepin Sulfate Standard	for Pesticide Residue Analysis	100 mg	○									
Target	021-16223	Benzofenap Standard	for Pesticide Residue Analysis	100 mg	○									
Target	026-11533	Bethrodine Standard (Benfluralin)	for Pesticide Residue Analysis	100 mg	○									
Exclusion	027-08253	Bifenox Standard	for Pesticide Residue Analysis	100 mg	○									
Other	024-14111	Bispyribac-sodium Standard	for Pesticide Residue Analysis	100 mg										
Other	027-15821	Boscalid Standard	for Pesticide Residue Analysis	100 mg	○	○								
Target	021-06774	BPMC Standard (Fenobucarb)	for Pesticide Residue Analysis	100 mg	○									
Other	024-06943	BPPS Standard (Propargite)	for Pesticide Residue Analysis	200 mg		○								
Review	020-17511	Bromacil Reference Material	Traceable Reference Material	100 mg	○	○								
Target	026-17591	Bromobutide Standard	for Pesticide Residue Analysis	100 mg	○									
	028-12671	Bromobutide-debromo Standard	for Pesticide Residue Analysis	200 mg										
Target	022-08264	Buprofezin Standard	for Pesticide Residue Analysis	100 mg	○									
Target	021-12161	Butachlor Standard	for Pesticide Residue Analysis	200 mg		○	○							
Target	026-10933	Butamifos Standard	for Pesticide Residue Analysis	100 mg	○									
	024-15571	Butamifos Oxon Standard	for Pesticide Residue Analysis	100 mg	○									
Target	036-18871	Cadusafos Standard	for Pesticide Residue Analysis	100 mg		○								
Target	035-17001	Cafenstrole Standard	for Pesticide Residue Analysis	200 mg	○									
Target	034-08301	Captan Standard	for Pesticide Residue Analysis	200 mg	○									
	032-23361	Carbendazim Standard	for Pesticide Residue Analysis	100 mg										
Target	039-16323	Carbofuran Standard	for Pesticide Residue Analysis	100 mg	○									
Exclusion	034-22721	Carpropamid Standard	for Pesticide Residue Analysis	100 mg	○									
Target	033-22431	Cartap Hydrochloride Standard	for Pesticide Residue Analysis	100 mg										
Target	030-22561	CAT Reference Material (Simazine)	TraceSure® CRM	100 mg	○									
Exclusion	036-14493	Chloroneb Standard	for Pesticide Residue Analysis	100 mg	○									
Review	032-13851	Chloropicrin Standard Solution (1 mg/mL Hexane Solution)	for Water Analysis	2 mL×10A										
Target	032-22881	Chlorpyrifos Reference Material	Traceable Reference Material	100 mg	○									
Other	031-09673	Chlorpyrifosmethyl Standard	for Pesticide Residue Analysis	200 mg		○	○							
	037-20131	Chlorpyrifos Oxon Standard	for Pesticide Residue Analysis	100 mg	○									
Other	033-18141	Chromafenozide Standard	for Pesticide Residue Analysis	200 mg	○									
Other	035-16521	Cinnmethylin Standard	for Pesticide Residue Analysis	200 mg		○	○							
Other	033-16441	Cinosulfuron Standard	for Pesticide Residue Analysis	200 mg	○									
Target	033-20731	Clomeprop Standard	for Pesticide Residue Analysis	100 mg	○									
	037-23051	Clomeprop Metabolite B Standard	for Pesticide Residue Analysis	100 mg										
Other	034-22581	Clothianidin Reference Material	TraceSure® CRM	100 mg	○									
Target	032-08983	CNP Standard (Chlornitrofen)	for Pesticide Residue Analysis	200 mg	○									
	036-22541	CNP-amino Reference Material (Chlornitrofen Amino Form)	TraceSure® CRM	100 mg										
	031-19281	CPT Standard (Fentrazamide Metabolite)	for Pesticide Residue Analysis	50 mg										
Target	034-17353	Cumyluron Standard	for Pesticide Residue Analysis	100 mg	○	○								
Other	033-15081	CVMP Standard (Tetrachlorvinphos)	for Pesticide Residue Analysis	200 mg	○	○								
Target	037-22951	Cyanazine Standard	for Pesticide Residue Analysis	100 mg	○	○								
Target	039-08493	CYAP Standard (Cyanophos)	for Pesticide Residue Analysis	200 mg		○								
Other	035-14701	Cycloprothrin Standard	for Pesticide Residue Analysis	100 mg										
Other	033-18901	Cyclosulfamuron Standard	for Pesticide Residue Analysis	200 mg										
Other	033-14361	Cyfluthrin Standard	for Pesticide Residue Analysis	200 mg										
Target	035-22511	Cyhalofop-butyl Standard	for Pesticide Residue Analysis	100 mg		○								
Other	039-15441	Cypermethrin Standard	for Pesticide Residue Analysis	200 mg			○							
Other	039-23251	Cyproconazole Standard	for Pesticide Residue Analysis	100 mg	○	○								
Other	037-17723	Cyprodinil Standard	for Pesticide Residue Analysis	100 mg	○	○								
Target	045-29631	Dazomet Standard	for Pesticide Residue Analysis	200 mg										
Other	048-29741	2,4-DB Standard ((2,4-Dichlorophenoxy)butyric Acid)	for Pesticide Residue Analysis	200 mg										
Other	-	DBEDC (Dodecylbenzenesulfonic Acid Bisethylenediamine Copper Complex Salt (II)) <sup>*2</sup>												
Target	048-25461	DBN Standard (Dichlobenil)	for Pesticide Residue Analysis	200 mg	○									
Target	049-31861	DCMU Reference Material (Diuron)	TraceSure® CRM	100 mg		○								
Other	046-16471	DCPA Standard (Propanil)	for Pesticide Residue Analysis	200 mg		○	○							
Target	046-16633	DDVP Standard (Dichlorvos)	for Pesticide Residue Analysis	200 mg	○									
Target	041-31681	DEP Reference Material (Trichlorfon)	TraceSure® CRM	100 mg	○									
Target	040-31891	Diazinon Reference Material	TraceSure® CRM	100 mg	○									
	042-24021	Diazinon Oxon Standard	for Pesticide Residue Analysis	200 mg	○									
Target	-	cis-1,3-Dichloropropene <sup>*2</sup>												

Classification	Code No.	Product Name* <sup>1</sup>	Grade	Volume	WQ Series									
					1	2	3	4	5	6	7	8	9	10
Other	049-29411	Dichlorprop Standard	for Pesticide Residue Analysis	200 mg	○									
Other	044-25201	Diclomezine Standard	for Pesticide Residue Analysis	200 mg	○									
Other	042-25241	Difenoconazole Standard	for Pesticide Residue Analysis	200 mg	○	○								
	045-33661	Difenoconazole Metabolite D Standard	for Pesticide Residue Analysis	100 mg										
Other	043-31901	Diflubenzuron Reference Material	TraceSure® CRM	100 mg	○									
Other	043-25173	Dimepiperate Standard	for Pesticide Residue Analysis	100 mg	○									
Target	048-28261	Dimethametryn Standard	for Pesticide Residue Analysis	200 mg	○									
Target	041-15843	Dimethoate Standard	for Pesticide Residue Analysis	100 mg	○									
Other	044-26063	(E)-Dimethylvinphos Standard	for Pesticide Residue Analysis	50 mg	○									
Other	045-25231	(Z)-Dimethylvinphos Standard	for Pesticide Residue Analysis	200 mg	○									
Other	041-29731	Dinotefuran Standard	for Pesticide Residue Analysis	100 mg	○									
Target	047-30441	Diquat Dibromide Monohydrate Standard	for Pesticide Residue Analysis	100 mg		○								
Other	044-18373	Dithianon Standard	for Pesticide Residue Analysis	200 mg										
Target	048-25123	Dithiopyr Standard	for Pesticide Residue Analysis	100 mg	○									
Target	043-17081	DMTP Standard (Methidathion)	for Pesticide Residue Analysis	200 mg	○									
	049-30381	DMTP Oxon Standard (Methidathion Oxon)	for Pesticide Residue Analysis	50 mg										○
Target	046-25141	DPA Sodium Standard (Dalapon)	for Pesticide Residue Analysis	200 mg										
Target	043-26251	Dymron Standard	for Pesticide Residue Analysis	200 mg	○									
Exclusion	051-03494	Echlomezol Standard (Etridiazole)	for Pesticide Residue Analysis	100 mg	○									
Other	056-03503	ECP Standard (Dichlofenthion)	for Pesticide Residue Analysis	200 mg	○									○
Exclusion	053-03133	EDDP Standard (Edifenphos)	for Pesticide Residue Analysis	200 mg	○									
Target	-	Endosulfan I ( $\alpha$ -Benzoepon)* <sup>2</sup>												
Target	-	Endosulfan II ( $\beta$ -Benzoepon)* <sup>2</sup>												
Other	053-06411	Endothal Monohydrate Standard	for Pesticide Residue Analysis	200 mg										
Target	058-02843	EPN Standard (O-Ethyl O-(4-Nitrophenyl) Phenylphosphonothioate)	for Pesticide Residue Analysis	100 mg	○									
	059-06011	EPN Oxon Standard (O-Ethyl O-(4-Nitrophenyl) Phenylphosphoate)	for Pesticide Residue Analysis	200 mg	○									
Target	055-05893	Esprocarb Standard	for Pesticide Residue Analysis	100 mg	○									
Review	055-07571	Ethiprole Standard	for Pesticide Residue Analysis	200 mg										○
Other	054-06821	Ethoxysulfuron Standard	for Pesticide Residue Analysis	50 mg		○								
Target	055-03154	Ethythiomethon Standard (Disulfoton)	for Pesticide Residue Analysis	100 mg	○									
Other	055-06351	Etobenzanid Standard	for Pesticide Residue Analysis	200 mg	○	○								
Target	051-05194	Etofenprox Standard	for Pesticide Residue Analysis	100 mg	○									
Other	064-04301	Fenoxyanil Standard	for Pesticide Residue Analysis	200 mg										○
Target	062-05201	Fentrazamide Standard	for Pesticide Residue Analysis	100 mg	○									
Other	060-03281	Fenvalerate Standard	for Pesticide Residue Analysis	200 mg										
Target	063-04131	(E)-Ferimzone Standard	for Pesticide Residue Analysis	200 mg										○
Target	066-04121	(Z)-Ferimzone Standard	for Pesticide Residue Analysis	200 mg										○
Target	068-04103	Fipronil Standard	for Pesticide Residue Analysis	100 mg	○									
Exclusion	060-03323	Flazasulfuron Standard	for Pesticide Residue Analysis	100 mg	○									
Other	067-03453	Fluazifop Standard	for Pesticide Residue Analysis	100 mg		○								
	064-03441	Fluazifop-butyl Standard	for Pesticide Residue Analysis	200 mg										
Target	068-02861	Fluazinam Standard	for Pesticide Residue Analysis	200 mg	○									
Review	068-03363	Flusulfamide Standard	for Pesticide Residue Analysis	100 mg	○									
Exclusion	065-05811	Flutolaniol Reference Material	TraceSure® CRM	100 mg	○									
	064-06481	Flutolaniol Metabolite M4 Standard	for Pesticide Residue Analysis	50 mg										
Exclusion	065-01813	Fosetyl Standard	for Pesticide Residue Analysis	200 mg										
Target	062-05941	Fosthiazate Reference Material	Traceable Reference Material	100 mg		○								
Target	061-01594	Fthalide Standard	for Pesticide Residue Analysis	100 mg	○									
Other	062-03741	Furametpyr Standard	for Pesticide Residue Analysis	200 mg	○	○								
	069-03871	Furametpyr-hydroxy Standard	for Pesticide Residue Analysis	20 mg										
Other	062-03981	Furathiocarb Standard	for Pesticide Residue Analysis	200 mg										
Target	079-05371	Glufosinate Ammonium Standard	for Pesticide Residue Analysis	100 mg										○
Target	071-05951	Glyphosate Reference Material	TraceSure® CRM	100 mg										○
Exclusion	089-07251	Halosulfuron-methyl Standard	for Pesticide Residue Analysis	200 mg	○									
Review	084-06863	Hydroxyisoxazole Standard (Hymexazol)	for Pesticide Residue Analysis	100 mg										
Target	093-02233	IBP Standard (Iprobenfos)	for Pesticide Residue Analysis	200 mg	○									
Other	094-07481	Imazosulfuron Reference Material	for Pesticide Residue Analysis CRM	100 mg										
Review	099-03771	Imidacloprid Standard	for Pesticide Residue Analysis	200 mg	○									
Target	092-03901	Iminoactadine Triacetate Standard	for Pesticide Residue Analysis	200 mg										○
Other	092-06821	Inabenfide Standard	for Pesticide Residue Analysis	100 mg										○
Target	094-06521	Indanofan Reference Material	TraceSure® CRM	100 mg	○	○								
Target	099-07051	Ipencarbazone Standard	for Pesticide Residue Analysis	100 mg										○
Review	092-02384	Iprodione Standard	for Pesticide Residue Analysis	100 mg	○	○								
	099-02394	Iprodione Metabolite Standard	for Pesticide Residue Analysis	100 mg										○

Classification	Code No.	Product Name*	Grade	Volume	WQ Series									
					1	2	3	4	5	6	7	8	9	10
Target	090-03463	Isofenphos Standard	for Pesticide Residue Analysis	100 mg	○									
	098-03981	Isofenphos Oxon Standard	for Pesticide Residue Analysis	200 mg	○									
Target	098-06281	Isoprothiolane Reference Material	TraceSure® CRM	100 mg	○									
Target	098-02244	Isoxathion Standard	for Pesticide Residue Analysis	100 mg	○									
	093-03931	Isoxathion Oxon Standard	for Pesticide Residue Analysis	200 mg	○									
Other	-	Kelthane (Dicofol)* <sup>2</sup>												
Other	124-06131	Linuron Reference Material	TraceSure® CRM	100 mg		○								
	137-15211	Malaoxon Standard	for Pesticide Residue Analysis	200 mg	○									
Target	136-05514	Malathion Standard	for Pesticide Residue Analysis	100 mg	○									
Target	-	Maneb* <sup>2</sup>												
Target	133-06803	Manzeb Standard	for Pesticide Residue Analysis	200 mg										
Target	132-10901	MBPMC Standard (Turbucarb)	for Pesticide Residue Analysis	200 mg	○									
Target	135-16971	MCP Reference Material (4-Chloro-o-tolyloxyacetic Acid)	TraceSure® CRM	100 mg		○								
Other	133-12491	MCPB Standard (4-(4-Chloro-2-methylphenoxy)butanoic Acid)	for Pesticide Residue Analysis	200 mg										
Other	138-17821	MCPB-ethyl Standard (4-(4-Chloro-2-methylphenoxy)ethyl Butyrate)	for Pesticide Residue Analysis	100 mg										
	-	MCPM (2-Chloropropionic Acid)* <sup>2</sup>												
Target	132-10423	MCPP Standard (Mecoprop)	for Pesticide Residue Analysis	100 mg	○									
	130-15441	MCPP-P Standard (Mecoprop-P)	for Pesticide Residue Analysis	200 mg										
Target	133-11673	Mefenacet Standard	for Pesticide Residue Analysis	100 mg	○									
Target	130-05534	MEP Standard (Fenitrothion)	for Pesticide Residue Analysis	100 mg	○									
	131-11691	MEP Oxon Standard (Fenitrothion Oxon)	for Pesticide Residue Analysis	200 mg	○									
Target	131-07904	Mepronil Standard	for Pesticide Residue Analysis	100 mg	○									
Target	130-11683	Metalaxyl Standard	for Pesticide Residue Analysis	100 mg	○									
Target	134-15623	Metalaxyl M Standard	for Pesticide Residue Analysis	100 mg										
Review	130-18741	Metaldehyde Standard	for Pesticide Residue Analysis	100 mg										
Target	130-18001	Metam-sodium Standard	for Pesticide Residue Analysis	100 mg										
Other	139-11631	Methamidophos Standard	for Pesticide Residue Analysis	200 mg		○								
Target	132-17461	Methomyl Reference Material	TraceSure® CRM	100 mg	○									
Exclusion	133-10791	Methyldymron Standard	for Pesticide Residue Analysis	200 mg	○									
Target	139-14791	Methyl Isothiocyanate Standard	for Pesticide Residue Analysis	200 mg										
Review	131-06061	Methylparathion Standard	for Pesticide Residue Analysis	200 mg										
Review	131-17431	Metolachlor Standard	for Pesticide Residue Analysis	100 mg		○								
Target	139-15891	(E)-Metominostrobin Standard	for Pesticide Residue Analysis	100 mg		○	○							
Target	134-17421	Metribuzin Standard	for Pesticide Residue Analysis	100 mg		○	○							
	137-11791	Metribuzin DA Standard	for Pesticide Residue Analysis	100 mg										
	130-11781	Metribuzin DADK Standard	for Pesticide Residue Analysis	100 mg										
	130-11801	Metribuzin DK Standard	for Pesticide Residue Analysis	100 mg										
Target	130-06813	MIPC Standard (Isoprocarb)	for Pesticide Residue Analysis	100 mg	○									
Target	130-12163	Molinate Standard	for Pesticide Residue Analysis	100 mg	○									
Other	138-11101	Monocrotophos Standard	for Pesticide Residue Analysis	200 mg		○								
Target	130-06634	MPP Standard (Fenthion)	for Pesticide Residue Analysis	100 mg	○	○								
	137-14971	MPP Oxon Standard (Fenthion Oxon)	for Pesticide Residue Analysis	200 mg	○	○								
	139-15151	MPP Oxon Sulfone Standard (Fenthion Oxon Sulfone)	for Pesticide Residue Analysis	100 mg	○	○								
	136-15161	MPP Oxon Sulfoxide Standard (Fenthion Oxon Sulfoxide)	for Pesticide Residue Analysis	100 mg	○	○								
	138-06691	MPP Sulfone Standard (Fenthion Sulfone)	for Pesticide Residue Analysis	200 mg	○	○								
	131-06701	MPP Sulfoxide Standard (Fenthion Sulfoxide)	for Pesticide Residue Analysis	200 mg	○	○								
Target	144-03833	NAC Standard (Carbaryl)	for Pesticide Residue Analysis	100 mg										
Other	148-08211	Naproanilide Standard	for Pesticide Residue Analysis	100 mg		○								
Target	144-05893	Napropamide Standard	for Pesticide Residue Analysis	100 mg	○									
	141-04161	Nereistoxin Oxalate Standard	for Pesticide Residue Analysis	200 mg										
Other	142-06771	Nitenpyram Standard	for Pesticide Residue Analysis	200 mg		○								
Target	152-02671	Orysastrobin Standard	for Pesticide Residue Analysis	50 mg		○								
	159-02681	(5Z)-Orysastrobin Standard	for Pesticide Residue Analysis	50 mg		○								
Other	155-02661	Oxadiargyl Standard	for Pesticide Residue Analysis	100 mg										
Other	151-01781	Oxamyl Standard	for Pesticide Residue Analysis	200 mg										
Target	150-02851	Oxaziclomefone Standard	for Pesticide Residue Analysis	100 mg										
Target	156-01214	Oxine-copper Standard	for Pesticide Residue Analysis	100 mg										
Other	156-01851	Oxolinic Acid Standard	for Pesticide Residue Analysis	200 mg										
Target	163-18153	2,4-PA Standard (2,4-Dichlorophenoxyacetic Acid)	for Pesticide Residue Analysis	100 mg		○								
Other	160-26211	Pacllobutrazol Standard	for Pesticide Residue Analysis	100 mg		○								
Target	161-27081	PAP Standard (Phenthroate)	for Pesticide Residue Analysis	100 mg	○									
Target	160-08871	Paraquat Dichloride Standard	for Pesticide Residue Analysis	100 mg										

Classification	Code No.	Product Name* <sup>1</sup>	Grade	Volume	WQ Series									
					1	2	3	4	5	6	7	8	9	10
Target	167-26221	Pencycuron Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Target	168-11903	Pendimethalin Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Review	169-19691	Pentoxazone Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>							
Other	168-16523	cis-Permethrin Standard	for Pesticide Residue Analysis	100 mg										<input type="radio"/>
Other	168-21033	trans-Permethrin Standard	for Pesticide Residue Analysis	100 mg										<input type="radio"/>
Other	168-09293	PHC Standard (Propoxur)	for Pesticide Residue Analysis	100 mg				<input type="radio"/>						<input type="radio"/>
Review	167-09383	Phosalone Standard	for Pesticide Residue Analysis	100 mg				<input type="radio"/>						<input type="radio"/>
Other	163-16811	Phoxim Standard	for Pesticide Residue Analysis	200 mg				<input type="radio"/>						
Target	160-11223	Piperophos Standard	for Pesticide Residue Analysis	200 mg	<input type="radio"/>									
Other	161-13713	Pirimiphos-methyl Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>	<input type="radio"/>						
Target	167-26581	Polycarbamate Standard	for Pesticide Residue Analysis	100 mg										
Target	168-16361	Pretilachlor Standard	for Pesticide Residue Analysis	200 mg	<input type="radio"/>									
Target	168-17483	Probenazole Standard	for Pesticide Residue Analysis	100 mg		<input type="radio"/>								
Target	161-11214	Procymidone Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Other	168-18061	Prohexadione Standard	for Pesticide Residue Analysis	200 mg										
Other	167-15373	Prometryn Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>	<input type="radio"/>						
Other	168-10244	Propaphos Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>							<input type="radio"/>
Target	169-16771	Propiconazole Standard	for Pesticide Residue Analysis	200 mg	<input type="radio"/>									
Target	160-26331	Propineb Standard	for Pesticide Residue Analysis	100 mg										
Target	169-25061	Propyzamide Reference Material	TraceSure® CRM	100 mg	<input type="radio"/>									
Target	163-26201	Prothiofos Standard	for Pesticide Residue Analysis	100 mg										
	165-11913	Prothiofos Oxon Standard	for Pesticide Residue Analysis	200 mg										
Other	163-19971	Pymetrozine Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>							
Review	160-17801	Pyraclofos Standard	for Pesticide Residue Analysis	200 mg				<input type="radio"/>						<input type="radio"/>
Target	163-23521	Pyraclonil Standard	for Pesticide Residue Analysis	100 mg					<input type="radio"/>					
Target	165-17091	Pyrazolate Standard	for Pesticide Residue Analysis	200 mg				<input type="radio"/>						
Other	168-17841	Pyrazosulfuron-ethyl Standard	for Pesticide Residue Analysis	200 mg				<input type="radio"/>						
Target	164-16743	Pyrazoxyfen Standard	for Pesticide Residue Analysis	100 mg				<input type="radio"/>						<input type="radio"/>
Other	161-29161	Pyrethrins Standard Solution (Pyrethrin I+II: 1 mg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A										
Target	163-16213	Pyributicarb Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Target	169-10914	Pyridaphenthion Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Other	166-19841	(E)-Pyriminobac-methyl Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>	<input type="radio"/>						
Other	163-19851	(Z)-Pyriminobac-methyl Standard	for Pesticide Residue Analysis	50 mg			<input type="radio"/>	<input type="radio"/>						
Exclusion	163-18751	Pyriproxyfen Standard	for Pesticide Residue Analysis	200 mg	<input type="radio"/>									
Target	164-18041	Pyroquilon Standard	for Pesticide Residue Analysis	200 mg	<input type="radio"/>									
Other	179-00721	Quizalofop-ethyl Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>							
Other	191-10651	Sethoxydim Standard	for Pesticide Residue Analysis	50 mg										
Exclusion	195-10073	Siduron Standard	for Pesticide Residue Analysis	100 mg		<input type="radio"/>								
Other	199-11193	Silafluofen Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>							
Other	196-12781	Simeconazole Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>	<input type="radio"/>						
Target	191-08044	Simetryn Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
Other	195-15051	Spinosad Standard	for Pesticide Residue Analysis	100 mg										
Other	202-07901	TCTP Standard (Chlorthal-dimethyl)	for Pesticide Residue Analysis	200 mg			<input type="radio"/>							
Review	203-13801	Tebuconazole Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>	<input type="radio"/>						
Other	207-19041	Tebufenozide Reference Material	Traceable Reference Material	100 mg				<input type="radio"/>						
Other	205-13481	Tecloftalam Standard	for Pesticide Residue Analysis	200 mg										
Target	207-19921	Tefuryltrione Standard	for Pesticide Residue Analysis	100 mg										<input type="radio"/>
Other	205-19101	Tetraconazole Reference Material	TraceSure® CRM	100 mg			<input type="radio"/>	<input type="radio"/>						
Exclusion	203-13421	Thenylchlor Standard	for Pesticide Residue Analysis	200 mg	<input type="radio"/>									
Other	203-15763	Thiacloprid Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>	<input type="radio"/>						
Other	205-19581	Thiadiazin Standard (Milneb)	for Pesticide Residue Analysis	100 mg										
Other	201-19061	Thiamethoxam Reference Material	TraceSure® CRM	100 mg			<input type="radio"/>	<input type="radio"/>						
Other	204-14774	Thifluzamide Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>	<input type="radio"/>						
Other	207-20891	Thiocyclam Hydrogen Oxalate Standard	for Pesticide Residue Analysis	100 mg										
Target	207-11361	Thiodicarb Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>							
Target	200-19411	Thiophanate-methyl Standard	for Pesticide Residue Analysis	100 mg										
Target	200-11373	Thiuram Standard	for Pesticide Residue Analysis	100 mg			<input type="radio"/>							
Target	205-18741	Tiadnil Reference Material	TraceSure® CRM	100 mg			<input type="radio"/>							
Exclusion	207-11383	Tolclofos-methyl Standard	for Pesticide Residue Analysis	100 mg	<input type="radio"/>									
	202-16551	Tolclofos-methyl Oxon Standard	for Pesticide Residue Analysis	100 mg		<input type="radio"/>								
Other	209-16843	Tolfenpyrad Standard	for Pesticide Residue Analysis	100 mg										<input type="radio"/>
Target	207-19301	TPN Reference Material (Chlorothalonil)	Traceable Reference Material	100 mg	<input type="radio"/>									
Target	202-12911	Triclopyr Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>							
Target	202-19111	Tricyclazole Reference Material	TraceSure® CRM	100 mg			<input type="radio"/>							
Other	202-10191	Triflumizole Standard	for Pesticide Residue Analysis	200 mg			<input type="radio"/>	<input type="radio"/>						

Classification	Code No.	Product Name*	Grade	Volume	WQ Series									
					1	2	3	4	5	6	7	8	9	10
	205-10181	Triflumizole Metabolite Standard		for Pesticide Residue Analysis	200 mg									
Target	208-06783	Trifluralin Standard		for Pesticide Residue Analysis	100 mg	○								
Other	207-15401	Trinexapac-ethyl Standard		for Pesticide Residue Analysis	200 mg		○							
Other	212-00981	Uconconazole P Standard		for Pesticide Residue Analysis	200 mg			○						
Other	221-02211	Validamycin A Standard		for Pesticide Residue Analysis	100 mg									
Target	266-00783	Zineb Standard		for Pesticide Residue Analysis	200 mg									
Target	264-01301	Ziram Standard		for Pesticide Residue Analysis	200 mg									

\*1 Listed in alphabetical order based on our product names. Aliases are listed in parentheses.

\*2 Product not for sale.

\*3 The above information is current as of December 2023. Please refer to the website of the Ministry of Health, Labour and Welfare of Japan for details.

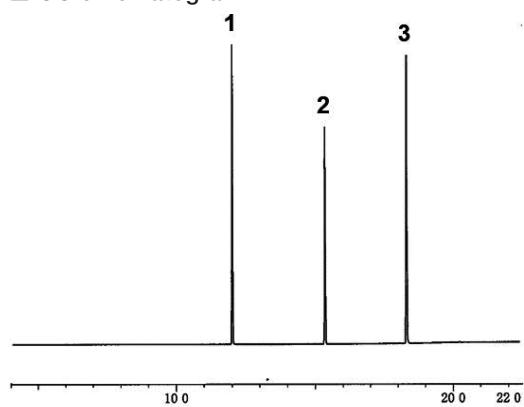
### ■ Product list of mixture standard solutions for the simultaneous analysis method of JP Water Quality Act, WQ series

Code No.	Product Name	Volume	Number of Components	Corresponding Analysis Method	Mark	Product Page
091-05791	3 Internal Standards Mixture Solution (each 100 µg/mL Dichloromethane Solution)	2 mL×5A	3	Attachment Method 5 Attachment Method 6	-	P. 48
168-26631	66 Pesticides Mixture Standard Solution WQ-1-2 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	66	Attachment Method 5 Attachment Method 20-2	(WQ1)	P. 48
164-26633	15 Pesticides Mixture Standard Solution WQ-2 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	15	Attachment Method 5 Attachment Method 20-2	(WQ2)	P. 50
166-23893	28 Pesticides Mixture Standard Solution WQ-3 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	28	Attachment Method 18 Attachment Method 20-2	(WQ3)	P. 51
160-23891	63 Pesticides Mixture Standard Solution WQ-4 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	63	Attachment Method 20-2	(WQ4)	P. 52
161-26001	48 Pesticides Mixture Standard Solution WQ-5 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	48	Attachment Method 5-2	(WQ5)	P. 54
167-26003	Pesticides Mixture Standard Solution WQ-6 (Fermzone, Pyraclonil, Nereistoxin each 20 µg/mL Methanol Solution)	1 mL 1 mL×5A	3	Attachment Method 20-2	(WQ6)	P. 56
168-27633	Pesticides Mixture Standard Solution WQ-7 (Iminoctadine, Diquat, Paraquat each 20 µg/mL Water Solution)	1 mL 1 mL×5A	3	Attachment Method 21	(WQ7)	P. 57
162-27631	Pesticides Mixture Standard Solution WQ-8 (Glyphosate, Glufosinate, AMPA each 20 µg/mL Water Solution)	1 mL 1 mL×5A	3	Attachment Method 22	(WQ8)	P. 58
160-28433	29 Pesticides Mixture Standard Solution WQ-9 (each 20 µg/mL Acetonitrile Solution)	1 mL 1 mL×5A	29	Attachment Method 20-2	(WQ9)	P. 60
164-28431	3 Pesticides Mixture Standard Solution WQ-10 (each 20 µg/mL Acetone Solution)	1 mL 1 mL×5A	3	Attachment Method 5-2 Attachment Method 20-2	(WQ10)	P. 62

## Internal Standard

Code No.	Product Name	Grade	Volume
091-05791	3 Internal Standards Mixture Solution (each 100 µg/mL Dichloromethane Solution)	for Water Analysis	2 mL×5A

### GC chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: DB-1 25 µm, 0.32 mm×30 m  
Column temperature: 50°C (1 min.)→20°C/min.→140°C→10°C/min.  
→280°C (3 min.)

Injection temperature: 280°C  
Carrier gas: He 2.0 mL/min.  
Split ratio: 1/10

### List of 3 components (each 100 µg/mL dichloromethane solution)

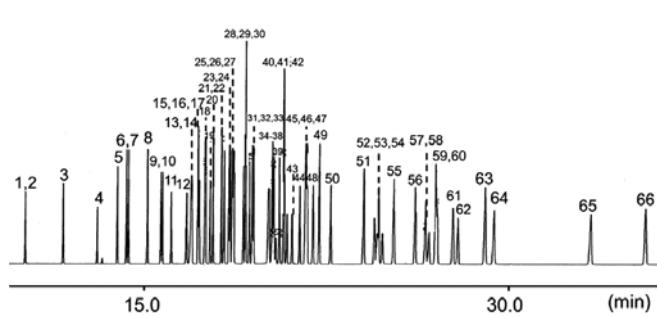
Peak No.	Components	Related Products		
		Code No.	Product Name	Volume
1	Anthracene-d <sub>10</sub>	018-28121	Anthracene-d <sub>10</sub>	1 g
2	9-Bromoanthracene	025-14141	9-Bromoanthracene Standard	200 mg
3	Chrysene-d <sub>12</sub>	037-16081	Chrysene-d <sub>12</sub>	100 mg

\* The measurement conditions and charts are for reference only and do not constitute a guarantee for the product.

## Mixture Standard Solutions

Code No.	Product Name	Grade	Volume
168-26631	66 Pesticides Mixture Standard Solution WQ-1-2		1 mL
164-26633	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

### GC/MS chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: BPX5 0.25 µm, 0.25 mm×30 m  
Column temperature: 50°C (2 min.)→10°C/min.→220°C  
→2.5°C/min.→270°C→10°C/min.  
→300°C (5 min.)

Injection temperature: 220°C  
Carrier gas: He 2.0 mL/min.  
Splitless: 2 min.

#### [MS]

Ionization: EI  
Interface temperature: 250°C

### List of 66 components (each 20 µg/mL acetone solution)

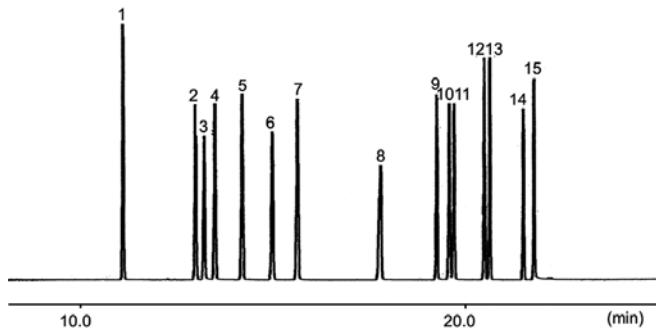
Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume			
1	Dichlorvos (DDVP)	79	109	185	046-16633	DDVP Standard	200 mg
2	Trichlorfon (DEP) (deg.)	109	79	185	041-31681	DEP Reference Material CRM	100 mg
3	Dichlobenil (DBN)	171	100	173	048-25461	DBN Standard	200 mg
4	Etridiazole (Echlomezol)	211	183	213	051-03494	Echlomezol Standard	100 mg
5	Chloroneb	191	193	206	036-14493	Chloroneb Standard	100 mg
6	Isoprocarb (MIPC)	121	136	122	130-06813	MIPC Standard	100 mg
7	Molinate	126	98	188	130-12163	Molinate Standard	100 mg

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
					Code No.	Product Name	Volume
8	Fenobucarb (BPMC)	121	208	150	021-06774	BPMC Standard	100 mg
9	Trifluralin	306	264	290	208-06783	Trifluralin Standard	100 mg
10	Benfluralin (Bethrodine)	292	264	276	026-11533	Bethrodine Standard	100 mg
11	Pencycuron	125	180	127	167-26221	Pencycuron Standard	100 mg
12	Dimethoate	87	125	93	041-15843	Dimethoate Standard	100 mg
13	Simazine (CAT)	201	186	173	030-22561	CAT Reference Material [CRM]	100 mg
14	Atrazine	200	215	173	016-15633	Atrazine Standard	100 mg
15	Diazinon	179	137	304	040-31891	Diazinon Reference Material [CRM]	100 mg
16	Propyzamide	173	145	175	169-25061	Propyzamide Reference Material [CRM]	100 mg
17	Pyroquilon	173	130	144	164-18041	Pyroquilon Standard	200 mg
18	Disulfoton (Ethylthiomethon)	89	97	186	055-03154	Ethylthiomethon Standard	100 mg
19	Chlorothalonil (TPN)	266	264	268	207-19301	TPN Reference Material	100 mg
20	Iprobenfos (IBP)	204	246		093-02233	IBP Standard	200 mg
21	Terbucarb (MBPMC)	205	220	206	132-10901	MBPMC Standard	200 mg
22	Bromobutide	119	232	120	026-17591	Bromobutide Standard	100 mg
23	Alachlor	188	160	146	012-16333	Alachlor Standard	100 mg
24	Tolclofos-methyl	265	125	250	207-11383	Tolclofos-methyl Standard	100 mg
25	Dithiopyr	354	306	286	048-25123	Dithiopyr Standard	100 mg
26	Metalaxyl	160	206	132	130-11683	Metalaxyl Standard	100 mg
27	Simetryn	213	170	155	191-08044	Simetryn Standard	100 mg
28	Fenitrothion (MEP)	277	260	125	130-05534	MEP Standard	100 mg
29	Malathion (Malathon)	127	173	93	136-05514	Malathon Standard	100 mg
30	Espocarb	91	222	162	055-05893	Espocarb Standard	100 mg
31	Chlorpyrifos	197	199	314	032-22881	Chlorpyrifos Reference Material	100 mg
32	Thiobencarb (Benthiocarb)	100	72	125	029-06954	Benthiocarb Standard	100 mg
33	Fenthion (MPP)	278	153	125	130-06634	MPP Standard	100 mg
34	Fthalide	243	241	215	061-01594	Fthalide Standard	100 mg
35	Pendimethalin	252	191	281	168-11903	Pendimethalin Standard	100 mg
36	Isofenphos	213	121	185	090-03463	Isofenphos Standard	100 mg
37	Dimethametryn	212	255	240	048-28261	Dimethametryn Standard	200 mg
38	Methyldymron	107	119	91	133-10791	Methyldymron Standard	200 mg
39	Phentoate (PAP)	274	125	93	161-27081	PAP Standard	100 mg
40	Procymidone	283	96	285	161-11214	Procymidone Standard	100 mg
41	Dimepiperate	119	145	91	043-25173	Dimepiperate Standard	100 mg
42	Captan	79	149	117	034-08301	Captan Standard	200 mg
43	Methidathion (DMTP)	145	85	302	043-17081	DMTP Standard	200 mg
44	Butamifos	286	258	200	026-10933	Butamifos Standard	100 mg
45	Flutolanil	173	145	281	065-05811	Flutolanil Reference Material [CRM]	100 mg
46	Napropamide	72	128	100	144-05893	Napropamide Standard	100 mg
47	Pretilachlor	176	238	262	168-16361	Pretilachlor Standard	200 mg
48	Isoprothiolane	118	189	290	098-06281	Isoprothiolane Reference Material [CRM]	100 mg
49	Buprofezin	105	175	106	022-08264	Buprofezin Standard	100 mg
50	Isoxathion	105	177	313	098-02244	Isoxathion Standard	100 mg
51	Mepronil	119	269	91	131-07904	Mepronil Standard	100 mg
52	Chlornitrofen (CNP)	317	319	289	032-08983	CNP Standard	200 mg
53	Propiconazole	259	173	261	169-16771	Propiconazole Standard (mixture of isomers)	200 mg
54	Edifenphos (EDDP)	109	173	310	053-03133	EDDP Standard	200 mg
55	Thenylchlor	127	288	141	203-13421	Thenylchlor Standard	200 mg
56	Pyributicarb	165	108	181	163-16213	Pyributicarb Standard	100 mg
57	Pyridaphenthion	340	199	125	169-10914	Pyridaphenthion Standard	100 mg
58	Iprodione	314	316	187	092-02384	Iprodione Standard	100 mg
59	Piperophos	122	140	320	160-11223	Piperophos Standard	200 mg
60	EPN	157	169	185	058-02843	EPN Standard	100 mg
61	Anilofos	226	125	228	012-20243	Anilofos Standard	100 mg
62	Bifenox	341	310	343	027-08253	Bifenox Standard	100 mg
63	Pyriproxyfen	136	226	137	163-18751	Pyriproxyfen Standard	200 mg
64	Mefenacet	192	120	136	133-11673	Mefenacet Standard	100 mg
65	Cafenstrole	100	188	167	035-17001	Cafenstrole Standard	200 mg
66	Etofenprox	163	135	183	051-05194	Etofenprox Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
169-23883	15 Pesticides Mixture Standard Solution WQ-2		1 mL
163-23881	(each 20 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ GC/MS chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: BPX5 0.25 µm, 0.25 mm×30 m

Column temperature: 80°C (1 min.)→15°C/min.→170°C

→3°C/min.→200°C→10°C/min.

→300°C (3 min.)

Injection temperature: 220°C

Carrier gas: He 1.8 mL/min.

Splitless: 1 min.

#### [MS]

Ionization: EI

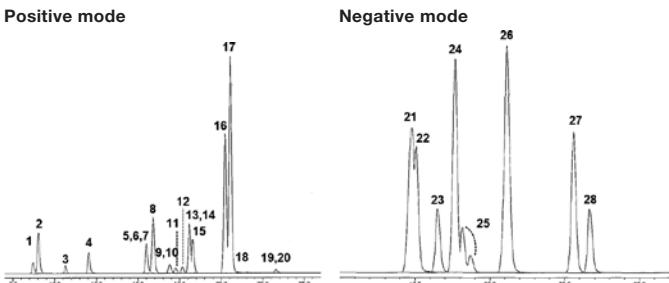
Interface temperature: 280°C

### ■ List of 15 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)			Related Products		
		Code No.	Product Name	Volume	Code No.	Product Name	Volume
1	Diazinon Oxon	137	273	288	042-24021	Diazinon Oxon Standard	200 mg
2	Tolclofos-methyl Oxon	249	109	251	202-16551	Tolclofos-methyl Oxon Standard	100 mg
3	MEP Oxon	244	109	261	131-11691	MEP Oxon Standard	200 mg
4	Malaoxon	127	195	99	137-15211	Malaoxon Standard	200 mg
5	MPP Oxon	262	109	247	137-14971	MPP Oxon Standard	200 mg
6	Chlorpyrifos Oxon	270	242	298	037-20131	Chlorpyrifos Oxon Standard	100 mg
7	Isofenphos Oxon	229	201	314	098-03981	Isofenphos Oxon Standard	200 mg
8	Butamifos Oxon	244	216	287	024-15571	Butamifos Oxon Standard	100 mg
9	Isoxathion Oxon	161	105	125	093-03931	Isoxathion Oxon Standard	200 mg
10	MPP Oxon Sulfoxide	262	278	247	136-15161	MPP Oxon Sulfoxide Standard	100 mg
11	MPP Oxon Sulfone	294	109	215	139-15151	MPP Oxon Sulfone Standard	100 mg
12	MPP Sulfoxide	278	125	294	131-06701	MPP Sulfoxide Standard	200 mg
13	MPP Sulfone	310	125	231	138-06691	MPP Sulfone Standard	200 mg
14	Benzoepin Sulfate	272	274	229	026-06763	Benzoepin Sulfate Standard	100 mg
15	EPN Oxon	141	169	306	059-06011	EPN Oxon Standard	200 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
166-23893	28 Pesticides Mixture Standard Solution WQ-3		1 mL
160-23891	(each 20 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL×5A

**■ LC/MS/MS chromatogram\*****Analysis conditions**

**[Instrument]**  
Shimadzu LCMS-8040

**[HPLC]**

Column:	Product Name	Code No.	Volume
Wakopak® Ultra C18-3 2.0×150 mm		239-63591	1 EA

Column temperature: 40°C  
Eluent: A) 0.1% HCOOH in H<sub>2</sub>O, B) CH<sub>3</sub>CN

Gradient:	Time (min.)	B conc. (%)
	0-30	0-100
	30-35	100
	35-35.01	100-0
	35.01-45	0

Flow rate: 0.2 mL/min.

**[MS]**  
Ionization: ESI  
Mode: MRM

**■ List of 28 components (each 20 µg/mL acetonitrile solution)**

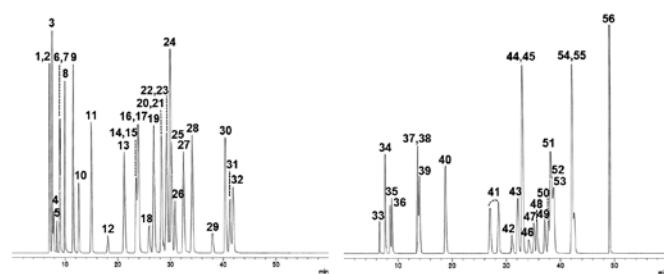
Peak No.	Components	Monitoring Ions (m/z)			Mode	Related Products		
		Precursor	Product			Code No.	Product Name	Volume
1	Asulam	231.1	156.0	+	015-13523	Asulam Standard	100 mg	
2	Methomyl	163.1	106.2	+	132-17461	Methomyl Reference Material CRM	100 mg	
3	MPP Oxon Sulfoxide	279.1	263.9	+	136-15161	MPP Oxon Sulfoxide Standard	100 mg	
4	Tricyclazole	190.1	136.0	+	202-19111	Tricyclazole Reference Material CRM	100 mg	
5	Thiodicarb	355.1	87.8	+	207-11361	Thiodicarb Standard	200 mg	
6	MPP Oxon Sulfone	295.2	216.9	+	139-15151	MPP Oxon Sulfone Standard	100 mg	
7	MPP Sulfoxide	295.2	109.0	+	131-06701	MPP Sulfoxide Standard	200 mg	
8	Carbofuran	222.3	165.0	+	039-16323	Carbofuran Standard	100 mg	
9	Thiram (Thiuram)	241.2	87.8	+	200-11373	Thiuram Standard	100 mg	
10	Probenazole	224.1	41.1	+	168-17483	Probenazole Standard	100 mg	
11	Diuron (DCMU)	233.2	71.9	+	049-31861	DCMU Reference Material CRM	100 mg	
12	MPP Oxon	263.1	230.9	+	137-14971	MPP Oxon Standard	200 mg	
13	Bensulfuron- methyl	411.1	149.0	+	029-12623	Bensulfuron-methyl Standard	100 mg	
14	MPP Sulfone	311.2	125.0	+	138-06691	MPP Sulfone Standard	200 mg	
15	Flazasulfuron	408.2	182.0	+	060-03323	Flazasulfuron Standard	100 mg	
16	Azoxystrobin	404.1	372.0	+	015-19003	Azoxystrobin Standard	100 mg	
17	Dymron	269.2	151.1	+	043-26251	Dymron Standard	200 mg	
18	Iprodione	330.2	244.9	+	092-02384	Iprodione Standard	100 mg	
19	Carpropamid	334.1	139.1	+	034-22721	Carpropamid Standard	100 mg	
20	Fenthion (MPP)	279.2	168.9	+	130-06634	MPP Standard	100 mg	
21	Bentazone	239.2	132.2	-	027-07594	Bentazone Standard	100 mg	
22	2,4-D (2,4-PA)	219.0	161.1	-	163-18153	2,4-PA Standard	100 mg	
23	Triclopyr	253.9	196.1	-	202-12911	Triclopyr Standard	200 mg	
24	Mecoprop(MCPP)	213.2	141.1	-	132-10423	MCPP Standard	100 mg	
25	Siduron	277.2	45.1	-	195-10073	Siduron Standard (mixture of isomers)	100 mg	
26	Halosulfuron- methyl	433.1	252.1	-	089-07251	Halosulfuron-methyl Standard	200 mg	
27	Fipronil	437.0	332.0	-	068-04103	Fipronil Standard	100 mg	
28	Bensulide	396.2	213.2	-	021-07673	Bensulide Standard	100 mg	

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
168-26011	63 Pesticides Mixture Standard Solution WQ-4		1 mL
164-26013	(each 20 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL × 5A

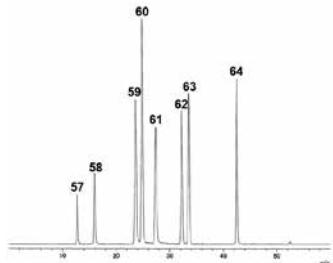
### ■ LC/MS/MS chromatogram\*1

Positive mode ①



Positive mode ②

Negative mode



### Analysis conditions

#### [Instrument]

Shimadzu LCMS-8040

#### [HPLC]

Column:	Product Name	Code No.	Volume
Wakopak® Ultra C18-3 2.0×75 mm		235-63571	1 EA

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:

Time (min.)	B conc. (%)
0-2	5
2-6	5-40
6-41	40-75
41-46	75-100
46-50	100
50-50.01	100-5
50.01-60	5

Flow rate: 0.15 mL/min.

#### [MS]

Ionization: ESI

Mode: MRM

### ■ List of 63 components (each 20 µg/mL acetonitrile solution)\*2

Peak No.	Components	Monitoring ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Oxamyl	237	72	+	151-01781	Oxamyl Standard	200 mg
2	Pymetrozine	218	105	+	163-19971	Pymetrozine Standard	200 mg
3	Thiamethoxam	292	211	+	201-19061	Thiamethoxam Reference Material CRM	100 mg
4	Trinexapac-ethyl	253	69	+	207-15401	Trinexapac-ethyl Standard	200 mg
5	Cinosulfuron	414	183	+	033-16441	Cinosulfuron Standard	200 mg
6	Acetamiprid	223	126	+	010-16493	Acetamiprid Standard	100 mg
7	Thiacloprid	253	126	+	203-15763	Thiacloprid Standard	100 mg
8	Pyrazosulfuron-ethyl	415	182	+	168-17841	Pyrazosulfuron-ethyl Standard	200 mg
9	Cyanazine	241	214	+	037-22951	Cyanazine Standard	100 mg
10	Bromacil	261	205	+	020-17511	Bromacil Reference Material	100 mg
11	Bendiocarb	224	167	+	028-11691	Bendiocarb Standard	200 mg
12	Ethoxysulfuron	399	261	+	054-06821	Ethoxysulfuron Standard	50 mg
13	Furametpyr	334	157	+	062-03741	Furametpyr Standard	200 mg
14	(E)-Metominostrobin	285	196	+	139-15891	(E)-Metominostrobin Standard	100 mg
15	(Z)-Pyriminobac-methyl*3	362	330	+	163-19851	(Z)-Pyriminobac-methyl Standard	50 mg
16	Ametryn	228	186	+	015-13643	Ametryn Standard	100 mg
17	(E)-Pyriminobac-methyl*3	362	330	+	166-19841	(E)-Pyriminobac-methyl Standard	200 mg
18	Cumyluron	303	185	+	034-17353	Cumyluron Standard	100 mg
19	Cyproconazole	292	70	+	039-23251	Cyproconazole Standard (mixture of isomers)	100 mg
20	Prometryn	242	158	+	167-15373	Prometryn Standard	100 mg
21	Chromafenozone	395	175	+	033-18141	Chromafenozone Standard	200 mg
22	Simeconazole	294	70	+	196-12781	Simeconazole Standard	200 mg
23	Naproanilide	292	171	+	148-08211	Naproanilide Standard	100 mg
24	Tebufenozide	351	133	+	207-19041	Tebufenozide Reference Material	100 mg
25	Difenoconazole	406	251	+	042-25241	Difenoconazole Standard (mixture of isomers)	200 mg
26	Triflumizole	346	278	+	202-10191	Triflumizole Standard	200 mg
27	Benzofenap	431	105	+	021-16223	Benzofenap Standard	100 mg
28	Quizalofop-ethyl	373	299	+	179-00721	Quizalofop-ethyl Standard	100 mg

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
29	Oxaziclomefone	376	190	+	150-02851	Oxaziclomefone Standard	100 mg
30	Dinotefuran	203	129	+	041-29731	Dinotefuran Standard	100 mg
31	Nitenpyram	271	56	+	142-06771	Nitenpyram Standard	200 mg
32	Monocrotophos	224	193	+	138-11101	Monocrotophos Standard	200 mg
33	Imidacloprid	256	209	+	099-03771	Imidacloprid Standard	200 mg
34	Clothianidin	250	132	+	034-22581	Clothianidin Reference Material [CRM]	100 mg
35	Metribuzin	215	49	+	134-17421	Metribuzin Standard	100 mg
36	Fluazifop	328	282	+	067-03453	Fluazifop Standard	100 mg
37	Linuron	249	182	+	124-06131	Linuron Reference Material [CRM]	100 mg
38	Acibenzolar-S-methyl	211	136	+	014-18331	Acibenzolar-S-methyl Standard	200 mg
39	Boscalid	343	307	+	027-15821	Boscalid Standard	100 mg
40	Benzobicyclon	447	257	+	023-15781	Benzobicyclon Standard	100 mg
41	Diclomezine	255	141	+	044-25201	Diclomezine Standard	200 mg
42	Tetraconazole	372	159	+	205-19101	Tetraconazole Reference Material [CRM]	100 mg
43	Indanofan	341	175	+	094-06521	Indanofan Reference Material [CRM]	100 mg
44	Diflubenzuron	311	158	+	043-31901	Diflubenzuron Reference Material [CRM]	100 mg
45	Tetrachlorvinphos (CVMP)	367	127	+	033-15081	CVMP Standard	200 mg
46	Tebuconazole	308	70	+	203-13801	Tebuconazole Standard	200 mg
47	Cyprodinil	226	108	+	037-17723	Cyprodinil Standard	100 mg
48	Fentrazamide	350	154	+	062-05201	Fentrazamide Standard	100 mg
49	Etobenzanid	340	179	+	055-06351	Etobenzanid Standard	200 mg
50	Oxadiargyl	358	341	+	155-02661	Oxadiargyl Standard	100 mg
51	Phoxim	299	77	+	163-16811	Phoxim Standard	200 mg
52	Pirimiphos-methyl	306	164	+	161-13713	Pirimiphos-methyl Standard	100 mg
53	Pyrazolate	439	91	+	165-17091	Pyrazolate Standard	200 mg
54	Clomeprop	324	120	+	033-20731	Clomeprop Standard	100 mg
55	Pentoxazone	371	286	+	169-19691	Pentoxazone Standard	200 mg
56	Silafluofen	426	287	+	199-11193	Silafluofen Standard	100 mg
57	MCPA (MCP)	199	141	-	135-16971	MCP Reference Material [CRM]	100 mg
58	Dichlorprop	233	161	-	049-29411	Dichlorprop Standard	200 mg
59	Propanil (DCPA)	216	160	-	046-16471	DCPA Standard	200 mg
60	Inabenfide	337	122	-	092-06821	Inabenfide Standard	100 mg
61	Tiadnil	266	71	-	205-18741	Tiadnil Reference Material [CRM]	100 mg
62	Thifluzamide	527	125	-	204-14774	Thifluzamide Standard	100 mg
63	Flusulfamide	413	171	-	068-03363	Flusulfamide Standard	100 mg
64	Fluazinam	463	416	-	068-02861	Fluazinam Standard	200 mg

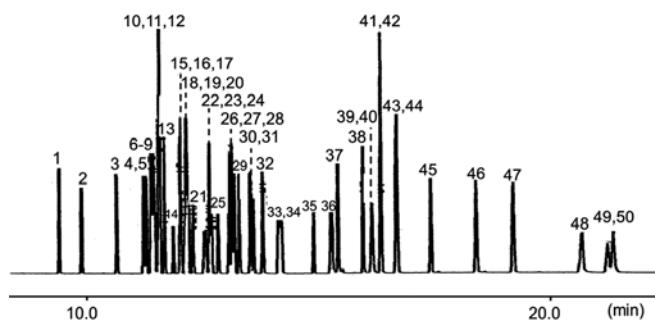
\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 This product contains 2% methanol.

\*3 Pyriminobac-methyl contains 10 µg/mL each of (E)-pyriminobac-methyl (Peak No. 17) and (Z)-pyriminobac-methyl (Peak No. 15), 20 µg/mL in total.

Code No.	Product Name	Grade	Volume
161-26001	48 Pesticides Mixture Standard Solution WQ-5		1 mL
167-26003	(each 20 g/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

■ GC/MS/MS chromatogram\*1



Analysis conditions

[Instrument]

Shimadzu QP-2010 Ultra

[GC]

Column: BPX5 0.25 µm, 0.25 mm×30 m

Column temperature: 50°C (1 min.)→20°C/min.→210°C  
→10°C/min.→290°C (5 min.)

Injection temperature: 250°C

Carrier gas: He 1.2 mL/min.

Splitless: 1 min.

[MS]

Ionization: EI

Interface temperature: 280°C

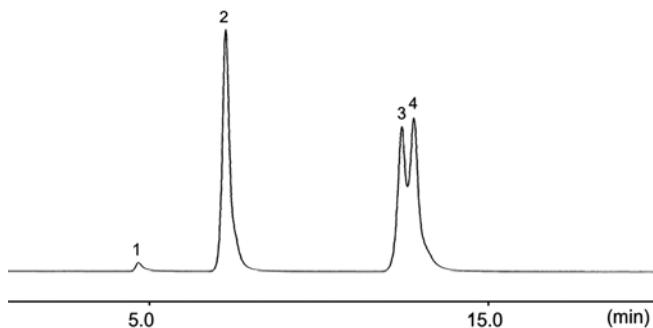
## ■ List of 48 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions ( <i>m/z</i> )		Related Products		
		Precursor	Product	Code No.	Product Name	Volume
1	Propoxur (PHC)	110	152	168-09293	PHC Standard	100 mg
2	Cadusafos	159	158	036-18871	Cadusafos Standard	100 mg
3	Cyanophos (CYAP)	243	109	039-08493	CYAP Standard	200 mg
4	Dichlofenthion (ECP)	279	223	056-03503	ECP Standard	200 mg
5	Benfuresate	163	256	023-12883	Benfuresate Standard	100 mg
6	Chlorpyrifos-methyl (Chlorpyrifosmethyl)	286	288	031-09673	Chlorpyrifosmethyl Standard	200 mg
7	Propanil (DCPA)	161	163	046-16471	DCPA Standard	200 mg
8	Simeconazole	121	73	196-12781	Simeconazole Standard	200 mg
9	Metribuzin	198	144	134-17421	Metribuzin Standard	100 mg
10	Cinmethylin	105	123	035-16521	Cinmethylin Standard	200 mg
11	Prometryn	241	184	167-15373	Prometryn Standard	100 mg
12	Ametryn	227	212	015-13643	Ametryn Standard	100 mg
13	Pirimiphos-methyl	290	276	161-13713	Pirimiphos-methyl Standard	100 mg
14	( <i>E</i> )-Dimethylvinphos* <sup>2</sup>	295	297	044-26063	( <i>E</i> )-Dimethylvinphos Standard	50 mg
15	Bromacil	205	207	020-17511	Bromacil Reference Material	100 mg
16	Metolachlor	162	238	131-17431	Metolachlor Standard	100 mg
17	( <i>Z</i> )-Dimethylvinphos* <sup>2</sup>	295	297	045-25231	( <i>Z</i> )-Dimethylvinphos Standard	200 mg
18	Chlorthal-dimethyl(TTCP)	301	299	202-07901	TTCP Standard	200 mg
19	Tetraconazole	336	338	205-19101	Tetraconazole Reference Material CRM	100 mg
20	Cyanazine	225	212	037-22951	Cyanazine Standard	100 mg
21	Quinoclamine (ACN)	207	172	013-15741	ACN Standard	200 mg
22	Fosthiazate	195	283	062-05941	Fosthiazate Reference Material (mixture of isomers)	100 mg
23	Cyprodinil	224	225	037-17723	Cyprodinil Standard	100 mg
24	Thiamethoxam	212	182	201-19061	Thiamethoxam Reference Material CRM	100 mg
25	Triflumizole	278	206	202-10191	Triflumizole Standard	200 mg
26	Propaphos	220	304	168-10244	Propaphos Standard	100 mg
27	Butachlor	176	160	021-12161	Butachlor Standard	200 mg
28	Tetrachlorvinphos(CVMP)	329	331	033-15081	CVMP Standard	200 mg
29	Paclobutrazol	236	125	160-26211	Paclobutrazol Standard	100 mg
30	( <i>E</i> )-Metominostrobin	191	196	139-15891	( <i>E</i> )-Metominostrobin Standard	100 mg
31	Thifluzamide	194	449	204-14774	Thifluzamide Standard	100 mg
32	Uniconazole P	234	236	212-00981	Uniconazole P Standard	200 mg
33	( <i>Z</i> )-Pyriminobac-methyl* <sup>3</sup>	302	256	163-19851	( <i>Z</i> )-Pyriminobac-methyl Standard	50 mg
34	Cyproconazole	222	139	039-23251	Cyproconazole Standard (mixture of isomers)	100 mg
35	( <i>E</i> )-Pyriminobac-methyl* <sup>3</sup>	302	256	166-19841	( <i>E</i> )-Pyriminobac-methyl Standard	200 mg
36	Propargite (BPPS)	173	150	024-06943	BPPS Standard	200 mg
37	Tebuconazole	250	125	203-13801	Tebuconazole Standard	200 mg
38	Orysastrobin	116	205	152-02671	Orysastrobin Standard	50 mg
39	Acetamiprid	152	126	010-16493	Acetamiprid Standard	100 mg
40	Cumyluron	267	120	034-17353	Cumyluron Standard	100 mg
41	Furametylpr	157	298	062-03741	Furametylpr Standard	200 mg
42	Indanofan	174	159	094-06521	Indanofan Reference Material CRM	100 mg
43	Phosalone	182	367	167-09383	Phosalone Standard	100 mg
44	Cyhalofop-butyl	256	229	035-22511	Cyhalofop-butyl Standard	100 mg
45	Pyraclofos	360	194	160-17801	Pyraclofos Standard	200 mg
46	Etobenzanid	179	149	055-06351	Etobenzanid Standard	200 mg
47	Boscalid	140	342	027-15821	Boscalid Standard	100 mg
48	Thiacloprid	126	101	203-15763	Thiacloprid Standard	100 mg
49	Difenoconazole	323	265	042-25241	Difenoconazole Standard (mixture of isomers)	200 mg
50	Pyrazoxyfen	105	91	164-16743	Pyrazoxyfen Standard	100 mg

<sup>\*1</sup> The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.<sup>\*2</sup> Dimethylvinphos contains 10 µg/mL each of (*E*)-dimethylvinphos (Peak No. 14) and (*Z*)-dimethylvinphos (Peak No. 17), 20 µg/mL in total.<sup>\*3</sup> Pyriminobac-methyl contains (*E*)-pyriminobac-methyl (Peak No. 35) and (*Z*)-pyriminobac-methyl (Peak No. 33), 20 µg/mL in total.

Code No.	Product Name	Grade	Volume
164-27613	Pesticides Mixture Standard Solution WQ-6 (Ferimzone, Pyraclonil, Nereistoxin each 20 µg/mL Methanol Solution)	for Pesticide Residue Analysis	1 mL
168-27611			1 mL×5A

### ■ LC/MS/MS chromatogram\*<sup>1</sup>



### Analysis conditions

[Instrument]  
Shimadzu LCMS-8040

#### [HPLC]

Column:	Product Name	Code No.	Volume* <sup>2</sup>
Wakopak® Wakosil®-II	231-50241	1 EA (D)	
3C18HG 2.0×150 mm	237-50243	1 EA (W)	

Column temperature: 40°C  
Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:	Time (min.)	B conc. (%)
	0-25	50-70
	25-30	70

Flow rate: 0.2 mL/min.

#### [MS]

Ionization: ESI  
Mode: MRM

### ■ List of 3 components (each 20 µg/mL methanol solution)

Peak No.	Components	Monitoring Ions (m/z)			Mode	Related Products		
		Precursor	Product			Code No.	Product Name	Volume
1	Nereistoxin* <sup>3</sup>	150	105	+		141-04161	Nereistoxin Oxalate Standard	200 mg
2	Pyraclonil	315	169	+		163-23521	Pyraclonil Standard	100 mg
3	(E)-Ferimzone* <sup>4</sup>	255	91	+		063-04131	(E)-Ferimzone Standard	200 mg
4	(Z)-Ferimzone* <sup>4</sup>	255	91	+		066-04121	(Z)-Ferimzone Standard	200 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

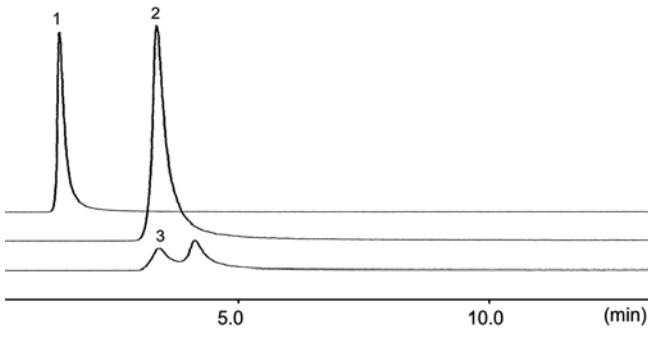
\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

\*3 The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.

\*4 Ferimzone contains (E)-ferimzone (Peak No. 3) and (Z)-ferimzone (Peak No. 4), 20 µg/mL in total. Ten µg/mL each of (E)-ferimzone and (Z)-ferimzone are prepared, but the ratio may change during storage.

Code No.	Product Name	Grade	Volume
168-27633	Pesticides Mixture Standard Solution WQ-7 (Iminoctadine, Diquat, Paraquat each 20 µg/mL Water Solution) <sup>*1</sup>	for Pesticide Residue Analysis	1 mL
162-27631			1 mL×5A

■ LC/MS/MS chromatogram<sup>\*2</sup>



Analysis conditions

[Instrument]  
Shimadzu LCMS-8040

[HPLC]

Column:	Product Name	Code No.	Volume <sup>*3</sup>
	Wakopak® Wakosil®-II	232-63461	1 EA (D)
	5SIL-AQ 2.0×150 mm	238-63463	1 EA (W)

Column temperature: 40°C  
Eluent: HCOONH<sub>4</sub> Buffer:CH<sub>3</sub>CN = 70:30  
Flow rate: 0.4 mL/min.

[MS]

Ionization: ESI  
Mode: MRM

■ List of 3 components (each 20 µg/mL water solution)

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Iminoctadine	179	69	+	092-03901	Iminoctadine Triacetate Standard	200 mg
					097-04051	Iminoctadine Albesilate Standard	200 mg
2	Diquat <sup>*4</sup>	183	157	+	047-30441	Diquat Dibromide Monohydrate Standard	100 mg
3	Paraquat <sup>*4</sup>	185	170	+	160-08871	Paraquat Dichloride Standard	100 mg

\*1 Use polytetrafluoroethylene or polypropylene utensils and containers for handling this product.

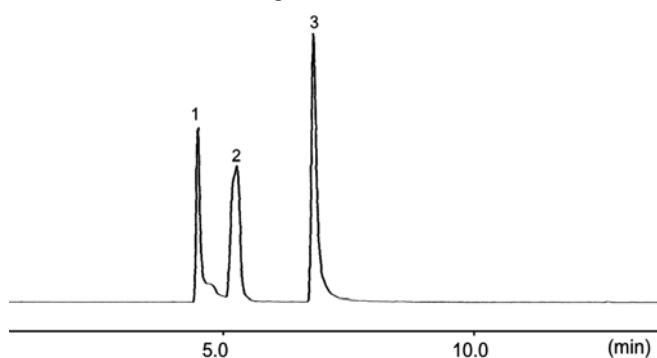
\*2 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*3 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

\*4 The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.

Code No.	Product Name	Grade	Volume
165-27643	Pesticides Mixture Standard Solution WQ-8 (Glyphosate, Glufosinate, AMPA each 20 µg/mL Water Solution) <sup>*1</sup>	for Pesticide Residue Analysis	1 mL
169-27641			1 mL×5A

■ LC/MS/MS chromatogram<sup>\*2</sup>



Analysis conditions

[Instrument]  
Shimadzu LCMS-8040

[HPLC]

Column:	Product Name	Code No.	Volume
	Wakopak® Ultra C18-5 4.6×150 mm	235-02651	1 EA

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O, B) CH<sub>3</sub>CN

Gradient:	Time (min.)	B conc. (%)
	0-15	30-100

Flow rate: 0.5 mL/min.

[MS]

Ionization: ESI  
Mode: MRM

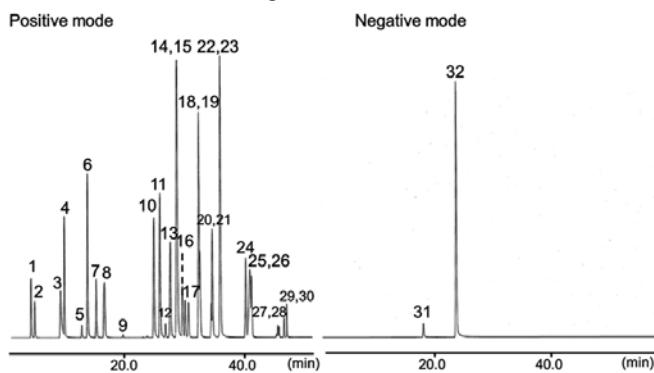
## ■ List of 3 components (each 20 µg/mL water solution)

Peak No.	Components	Monitoring Ions (m/z)			Mode	Related Products		
		Precursor	Product			Code No.	Product Name	Volume
1	Glyphosate	390	168	-		071-05951	Glyphosate Reference Material CRM	100 mg
2	Glufosinate <sup>*3</sup>	402	180	-		079-05371	Glufosinate Ammonium Standard	100 mg
3	AMPA ((Aminomethyl)-phosphonic Acid)	332	110	-		016-24641	(Aminomethyl)phosphonic Acid Reference Material	100 mg

<sup>\*1</sup> Use polytetrafluoroethylene or polypropylene utensils and containers for handling this product.<sup>\*2</sup> The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.<sup>\*3</sup> The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.

Code No.	Product Name	Grade	Volume
160-28433	29 Pesticides Mixture Standard Solution WQ-9		1 mL
164-28431	(each 20 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL×5A

### ■ LC/MS/MS chromatogram\*1



### Analysis conditions

**[Instrument]**  
Shimadzu LCMS-8040

**[HPLC]**

Column:	Product Name	Code No.	Volume*2
	Wakopak® Wakosil®-II	231-50241	1 EA (D)
	3C18HG 2.0×150 mm	237-50243	1 EA (W)

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:

Time (min.)	B conc. (%)
0-7	10-45
7-42	45-80
42-46	80-100
46-51	100

Flow rate: 0.2 mL/min.

**[MS]**

Ionization: ESI

Mode: MRM

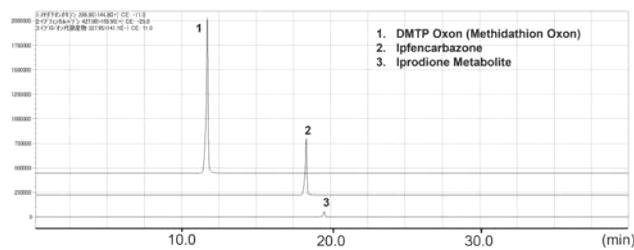
## ■ List of 29 components (each 20 µg/mL acetonitrile solution)

Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Methamidophos	142	94	+	139-11631	Methamidophos Standard	200 mg
2	Acephate	184	143	+	015-08954	Acephate Standard	100 mg
3	Amitraz Metabolite <sup>*3</sup>	163	107	+	011-14941	Amitraz Metabolite Hydrochloride Standard	200 mg
4	Tefuryltrione	460	262	+	207-19921	Tefuryltrione Standard	100 mg
5	Quinoclamine (ACN)	208	105	+	013-15741	ACN Standard	200 mg
6	Propoxur (PHC)	210	111	+	168-09293	PHC Standard	100 mg
7	Carbaryl (NAC)	202	145	+	144-03833	NAC Standard	100 mg
8	Fosthiazate	284	104	+	062-05941	Fosthiazate Reference Material (mixture of isomers)	100 mg
9	Benfuresate	274	18	+	023-12883	Benfuresate Standard	100 mg
10	Paclobutrazol	294	70	+	160-26211	Paclobutrazol Standard	100 mg
11	Orysastrobin <sup>*4</sup>	392	205	+	152-02671	Orysastrobin Standard	50 mg
12	(Z)-Dimethylvinphos <sup>*5</sup>	333	127	+	045-25231	(Z)-Dimethylvinphos Standard	200 mg
13	(5Z)-Orysastrobin <sup>*4</sup>	392	205	+	159-02681	(5Z)-Orysastrobin Standard	50 mg
14	(E)-Dimethylvinphos <sup>*5</sup>	333	127	+	044-26063	(E)-Dimethylvinphos Standard	50 mg
15	Metolachlor	284	252	+	131-17431	Metolachlor Standard	100 mg
16	Uniconazole P	292	70	+	212-00981	Uniconazole P Standard	200 mg
17	Fenoxanil	329	302	+	064-04301	Fenoxanil Standard	200 mg
18	Propaphos	305	221	+	168-10244	Propaphos Standard	100 mg
19	Pyrazoxyfen	403	91	+	164-16743	Pyrazoxyfen Standard	100 mg
20	Pyraclofos	361	257	+	160-17801	Pyraclofos Standard	200 mg
21	Phosalone	368	182	+	167-09383	Phosalone Standard	100 mg
22	Cadusafos	271	159	+	036-18871	Cadusafos Standard	100 mg
23	Chlorpyrifosmethyl	324	125	+	031-09673	Chlorpyrifosmethyl Standard	200 mg
24	Cinmethylin	292	105	+	035-16521	Cinmethylin Standard	200 mg
25	Butachlor	312	238	+	021-12161	Butachlor Standard	200 mg
26	Tolfenpyrad	384	197	+	209-16843	Tolfenpyrad Standard	100 mg
27	Dichlofenthion (ECP)	315	259	+	056-03503	ECP Standard	200 mg
28	Cypermethrin	433	191	+	039-15441	Cypermethrin Standard (mixture of isomers)	200 mg
29	trans-Permethrin <sup>*5</sup>	408	183	+	168-21033	trans-Permethrin Standard	100 mg
30	cis-Permethrin <sup>*5</sup>	408	183	+	168-16523	cis-Permethrin Standard	100 mg
31	Cyanophos (CYAP)	228	118	-	039-08493	CYAP Standard	200 mg
32	Ethiprole	395	331	-	055-07571	Ethiprole Standard	200 mg

<sup>\*1</sup> The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.<sup>\*2</sup> There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.<sup>\*3</sup> The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.<sup>\*4</sup> Oryzastrobin contains 10 µg/mL each of oryzastrobin (Peak No. 11) and (5Z)-oryzastrobin (Peak No. 13), 20 µg/mL in total.<sup>\*5</sup> Dimethylvinphos contains 10 µg/mL each of (Z)-dimethylvinphos (Peak No. 12) and (E)-dimethylvinphos (Peak No. 14), 20 µg/mL in total. Permethrin contains 10 µg/mL each of trans-permethrin (Peak No. 29) and cis-permethrin (Peak No. 30), 20 µg/mL in total.

Code No.	Product Name	Grade	Volume
166-29133	3 Pesticides Mixture Standard Solution WQ-10	for Pesticide Residue Analysis	1 mL
160-29131	(each 20 µg/mL Acetone Solution)		1 mL×5A

### ■ LC/MS/MS chromatogram\*1



### Analysis conditions

#### [Instrument]

Shimadzu LC/MS-8040

#### [HPLC]

Column:	Product Name	Code No.	Volume*2
Wakopak® Wakosil®-II	231-50241	1 EA (D)	
3C18HG 2.0×150 mm	237-50243	1 EA (W)	

Column temperature: 40°C

Eluent: A) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in H<sub>2</sub>O,  
B) 5 mmol/L CH<sub>3</sub>COONH<sub>4</sub> in CH<sub>3</sub>OH

Gradient:

Time (min.)	B conc. (%)
0-20	5-100
20-40	100

Flow rate: 0.2 mL/min.

#### [MS]

Ionization: ESI

### ■ List of 3 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)			Mode	Related Products		
		Precursor	Product			Code No.	Product Name	Volume
1	DMTP Oxon (Methidathion Oxon)	287	145	+	049-30381	DMTP Oxon Standard		50 mg
2	Ipencarbazone	427	156	+	099-07051	Ipencarbazone Standard		100 mg
3	Iprodione Metabolite	328	141	-	099-02394	Iprodione Metabolite Standard		100 mg

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.



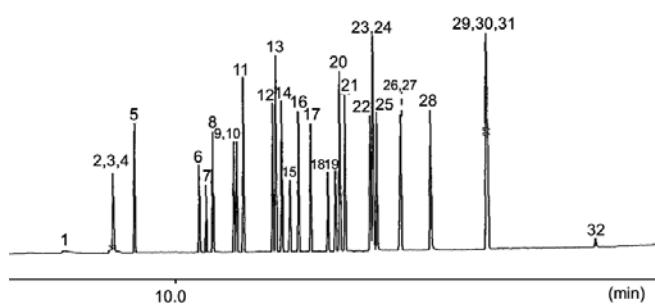
# Other Pesticide Mixture Standard Solutions

## ■ Product list of other pesticide mixture standard solutions

Code No.	Product Name	Volume	Number of Components	Analysis Equipment	Mark	Product Page
162-19201	32 Pesticides Mixture Standard Solution (each 10 µg/mL Acetone Solution)	1 mL×5A	32	GC/MS	PM32	P. 64
164-18421	13 Pesticides Mixture Standard Solution (each 10 µg/mL Acetone Solution)	1 mL×5A	13	GC/MS	PM13	P. 65
160-18401	8 Pesticides Mixture Standard Solution (each 10 µg/mL Acetonitrile Solution)	1 mL×5A	8	HPLC	PM8	P. 66

Code No.	Product Name	Grade	Volume
162-19201	32 Pesticides Mixture Standard Solution (each 10 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

### GC/MS chromatogram\*



### Analysis conditions

#### [Instrument]

Shimadzu QP-2010 Ultra

#### [GC]

Column: BP-1MS 0.1 µm, 0.25 mm×30 m  
Column temperature: 70°C (5 min.)→20°C/min.→170°C  
→10°C/min.→270°C (2 min.)

Injection temperature: 180°C

Carrier gas: He 2.0 mL/min.

Split: 1/20

#### [MS]

Ionization: EI

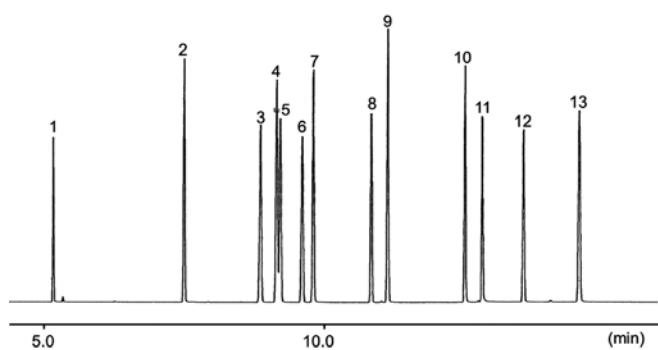
Interface temperature: 270°C

### List of 32 components (each 10 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
1	Methamidophos	94	139-11631	Methamidophos Standard	200 mg
2	Acephate	42	015-08954	Acephate Standard	100 mg
3	Trichlorfon (DEP)	109	041-31681	DEP Reference Material [CRM]	100 mg
4	Etridiazole (Echlomezol)	211	051-03494	Echlomezol Standard	100 mg
5	Chloroneb	191	036-14493	Chloroneb Standard	100 mg
6	Pencycuron	125	167-26221	Pencycuron Standard	100 mg
7	Benfluralin (Bethrodine)	292	026-11533	Bethrodine Standard	100 mg
8	Simazine (CAT)	44	030-22561	CAT Reference Material [CRM]	100 mg
9	Chlorothalonil (TPN)	266	207-19301	TPN Reference Material	100 mg
10	Propyzamide	173	169-25061	Propyzamide Reference Material [CRM]	100 mg
11	Diazinon	137	040-31891	Diazinon Reference Material [CRM]	100 mg
12	Tolclofos-methyl	265	207-11383	Tolclofos-methyl Standard	100 mg
13	Terbucarb (MBPMC)	205	132-10901	MBPMC Standard	200 mg
14	Metalaxyl	45	130-11683	Metalaxyl Standard	100 mg
15	Fenitrothion (MEP)	125	130-05534	MEP Standard	100 mg
16	Dithiopyr	354	048-25123	Dithiopyr Standard	100 mg
17	Chlorpyrifos	97	032-22881	Chlorpyrifos Reference Material	100 mg
18	Captan	79	034-08301	Captan Standard	200 mg
19	Pendimethalin	252	168-11903	Pendimethalin Standard	100 mg
20	Methyldymron	107	133-10791	Methyldymron Standard	200 mg
21	Isofenphos	58	090-03463	Isofenphos Standard	100 mg
22	Isoprothiolane	118	098-06281	Isoprothiolane Reference Material [CRM]	100 mg
23	Napropamide	72	144-05893	Napropamide Standard	100 mg
24	Butamifos	286	026-10933	Butamifos Standard	100 mg
25	Flutolanil	173	065-05811	Flutolanil Reference Material [CRM]	100 mg
26	Ixoathion	105	098-02244	Ixoathion Standard	100 mg
27	Triclopyrbutoxyethyl (Triclopyr-2-butoxyethyl)	57	204-14051	Triclopyr-2-butoxyethyl Standard	200 mg
28	Mepronil	119	131-07904	Mepronil Standard	100 mg
29	Pyributicarb	108	163-16213	Pyributicarb Standard	100 mg
30	Pyridaphenthion	340	169-10914	Pyridaphenthion Standard	100 mg
31	Iprodione	314	092-02384	Iprodione Standard	100 mg
32	SAP (Bensulide)	43	021-07673	Bensulide Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
164-18421	13 Pesticides Mixture Standard Solution (each 10 µg/mL Acetone Solution)	for Pesticide Residue Analysis	1 mL×5A

**■ GC/MS chromatogram\*****Analysis conditions****[Instrument]**

Shimadzu QP-2010 Ultra

**[GC]**

Column: BPX-5 0.25 µm, 0.32 mm×30 m  
 Column temperature: 50°C (1 min.)→30°C/min.→180°C  
 →5°C/min.→200°C→20°C/min.  
 →270°C (4 min.)

Injection temperature: 260°C

Carrier gas: He 2.3 mL/min.

Splitless: 1 min.

**[MS]**

Ionization: EI

Interface temperature: 250°C

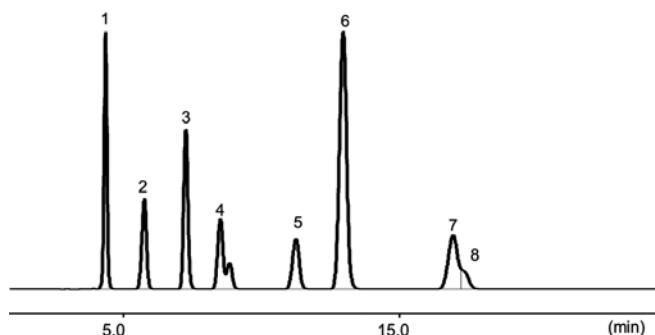
**■ List of 13 components (each 10 µg/mL acetone solution)**

Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
1	Dichlorvos (DDVP)	109	046-16633	DDVP Standard	200 mg
2	Fenobucarb (BPMC)	121	021-06774	BPMC Standard	100 mg
3	Simazine (CAT)	201	030-22561	CAT Reference Material CRM	100 mg
4	Diazinon	137	040-31891	Diazinon Reference Material CRM	100 mg
5	Propyzamide	173	169-25061	Propyzamide Reference Material CRM	100 mg
6	Chlorothalonil (TPN)	266	207-19301	TPN Reference Material	100 mg
7	Iprobenfos (IBP)	91	093-02233	IBP Standard	200 mg
8	Fenitrothion (MEP)	277	130-05534	MEP Standard	100 mg
9	Thiobencarb (Benthiocarb)	100	029-06954	Benthiocarb Standard	100 mg
10	Isoprothiolane	118	098-06281	Isoprothiolane Reference Material CRM	100 mg
11	Isoxathion	105	098-02244	Isoxathion Standard	100 mg
12	Chlornitrofen (CNP)	317	032-08983	CNP Standard	200 mg
13	EPN	157	058-02843	EPN Standard	100 mg

\* The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

Code No.	Product Name	Grade	Volume
160-18401	8 Pesticides Mixture Standard Solution (each 10 µg/mL Acetonitrile Solution)	for Pesticide Residue Analysis	1 mL×5A

### HPLC chromatogram\*1



### Analysis conditions

#### [Instrument]

Shimadzu LC-20AB

#### [HPLC]

Column:	Product Name	Code No.	Volume*2
Wakopak® Wakosil®	237-59361	1 EA (D)	
Agri-9 4.6×250 mm	233-59363	1 EA (W)	

Column temperature: 35°C

Eluent:	Product Name	Code No.	Volume
Wakosil® Agri-9 Eluent, for 4.6×250 mm	238-01281	1 L	

Flow rate: 1.0 mL/min.

Detection: 0-5 min. UV 270 nm

5-30 min. UV 230 nm

### List of 8 components (each 100 µg/mL acetonitrile solution)

Peak No.	Components	Related Products		
		Code No.	Product Name	Volume
1	Asulam	015-13523	Asulam Standard	100 mg
2	Mecoprop (MCPP)	132-10423	MCPP Standard	100 mg
3	Thiuram	200-11373	Thiuram Standard	100 mg
4	Siduron	195-10073	Siduron Standard	100 mg
5	Iprodione	092-02384	Iprodione Standard	100 mg
6	Chlorothalonil (TPN)	207-19301	TPN Reference Material	100 mg
7	Pencycuron	167-26221	Pencycuron Standard	100 mg
8	SAP (Bensulide)	021-07673	Bensulide Standard	100 mg

\*1 The measurement conditions and charts are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.



# Related Products

## Solvents for Pesticide Residue Analysis (PCB 300 / 5,000 Series)

This product series includes solvents that are guaranteed to conform to the following test (suitability for pesticide residue-PCB analysis) when a solvent is concentrated 300 and 5,000 times. It can be used as a solvent for extraction of trace amounts of pesticides, GC sample preparation, etc.

### Suitability for pesticide residue-PCB analysis

- ECD-GC: Impurities in the solvent are less than 1/2 of the peak height at 20 pg of  $\gamma$ -BHC (organic chlorine pesticide).
- FPD-GC: Impurities in the solvent are less than 1/5 of the peak height at 0.5 ng of MPP (organic phosphate pesticide).

## Solvents for HPLC and LC/MS

Solvents for HPLC and LC/MS are used as liquid chromatography mobile phase. These products are guaranteed for changes in the refractive index due to water, peroxides, residue after evaporation, and impurities in the solvent, and low baseline noise in UV absorbance and fluorescence tests. In addition, since filtration is performed with a 0.45  $\mu$ m membrane filter in the final process, clogging of the pipeline and filter and strain on the column are minimized. This means highly reproducible data can be obtained.

In addition to the features of the HPLC solvent series, the LC/MS solvent series guarantee low baseline noise in MS (suitability for LC/MS analysis) and an guaranteed particle size to prevent capillary clogging. In addition, the solvents for LC/MS have been reviewed in terms of manufacturing methods and caps to further reduce background noise in line with the increased sensitivity of LC/MS equipment.

### Features of LC/MS solvent series

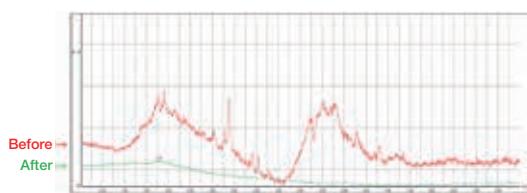
- Guaranteed low background noise in the mass spectrometer (suitability for LC/MS analysis).
- Uses special glass bottles that suppress elution of sodium and other substances (Patent No. 4586729).
- Guaranteed particle size to prevent capillary clogging.
- Guaranteed specification items of HPLC solvent series in addition to the above items.

### Comparison of specification items in each solvent grade

Grade	Requirement			
Guaranteed Reagent				
for HPLC	Absorbance test	Gradient test	Fluorescence test	
for LC/MS	Absorbance test	Gradient test	Fluorescence test	Particles Stability for LC/MS analysis

### Renewed to further reduce background noise!

- Replacing aluminum caps with resin caps reduces the risk of solvent contamination due to cap-derived aluminum foil.
- Background noise has been further reduced compared to conventional products by reviewing the manufacturing process.



## ■ Product list

Code No.	Product Name	Volume
<b>for Pesticide Residue Analysis PCB 300 Series</b>		
015-11281	Acetone	1 L
011-11283		3 L
015-11301	Acetonitrile	1 L
011-11303		3 L
021-08631	Benzene	1 L
024-14351	<i>t</i> -Butyl Methyl Ether	1 L
039-11801	Chloroform	1 L
038-16751		1 L
034-16753	Cyclohexane	3 L
133-08841		1 L
139-08843	Dichloromethane	3 L
050-04461	Diethyl Ether	1 L
056-04441		1 L
052-04443	Ethanol	3 L
052-04421		1 L
058-04423	Ethyl Acetate	3 L
084-04761		1 L
080-04763	Hexane	3 L
139-08821	Methanol	1 L
135-08823		3 L
165-12971	Petroleum Ether	1 L
203-11601		1 L
209-11603	Toluene	3 L
<b>for Pesticide Residue Analysis PCB 5,000 Series</b>		
011-19201	Acetone	1 L
017-19203		3 L
013-19401	Acetonitrile	1 L
019-19403		3 L
028-14751	Benzene	1 L
020-14831	<i>t</i> -Butyl Methyl Ether	1 L
033-18641	Chloroform	1 L
036-18631	Cyclohexane	1 L
043-28451		1 L
049-28453	Dichloromethane	3 L
040-28461	Diethyl Ether	1 L
053-07011	Ethanol	1 L
052-06981		1 L
058-06983	Ethyl Acetate	3 L
083-07911		1 L
089-07913	Hexane	3 L
132-14161		1 L
138-14163	Methanol	3 L
162-20671	Petroleum Ether	1 L
209-15581		1 L
205-15583	Toluene	3 L
<b>Solvents for HPLC</b>		
014-08681	Acetone	1 L
010-08683		3 L
019-08631	Acetonitrile	1 L
015-08633		3 L
023-10801	1-Butanol	1 L
024-12771	<i>t</i> -Butyl Methyl Ether	1 L
034-08661	Carbon Tetrachloride	1 L
033-08631		1 L
039-08633	Chloroform	3 L

Code No.	Product Name	Volume
031-20531	Chloroform, Amylene added	1 L
037-20533		3 L
033-08511	Cyclohexane	1 L
039-08513		3 L
046-18671	<i>o</i> -Dichlorobenzene	1 L
048-22301	1,2-Dichloroethane	1 L
136-06751	Dichloromethane	1 L
132-06753		3 L
042-20621	<i>N,N</i> -Dimethylformamide	1 L
048-20623		3 L
042-16691	1,4-Dioxane	1 L
046-16971	Distilled Water	1 L
042-16973		3 L
056-03341	Ethanol (99.5)	1 L
052-03343		3 L
057-03371	Ethyl Acetate	1 L
053-03373		3 L
085-03691	Heptane	1 L
085-06991	1,1,1,3,3-Hexafluoro-2-propanol	100 mL
087-06995		500 mL
084-03421	Hexane	1 L
080-03423		3 L
138-06473	Methanol	1 L
132-06471		3 L
162-13461	1-Propanol	1 L
165-09161	2-Propanol	1 L
161-09163		3 L
209-06811	Tetrahydrofuran, Stabilizer Free	1 L
205-06813		3 L
209-06791	Toluene	1 L
206-16451	0.1 vol% Trifluoroacetic Acid -	1 L
202-16453	Acetonitrile	3 L
207-06731	2,2,4-Trimethylpentane	1 L
200-19391	Tetrahydrofuran, with Stabilizer	1 L
206-19393		3 L
<b>Solvents for LC/MS</b>		
012-19851	Acetonitrile	1 L
018-19853		3 L
050-09221	Ethanol (99.5)	1 L
056-09223		3 L
138-14521	Methanol	1 L
134-14523		3 L
168-25531	2-Propanol	1 L
164-25533		3 L
214-01301	Ultrapure Water	1 L
210-01303		3 L



## GalloTect™

GalloTect™ is a protective equipment for gallon glass jug. It was developed in response to customer feedback such as “gallon glass jugs broke when they were lifted or bumped,” or “gallon glass jugs tipped over and rolled during an earthquake.”



### Received iF DESIGN AWARD 2022!



Sponsored by the “iF International Forum Design GmbH,” the iF DESIGN AWARD is one of the world’s most prestigious awards for outstanding industrial design.



GalloTect™ is made from biomass plastic.

Biomass plastic is a “renewable organic resource” made from plant-derived raw materials.

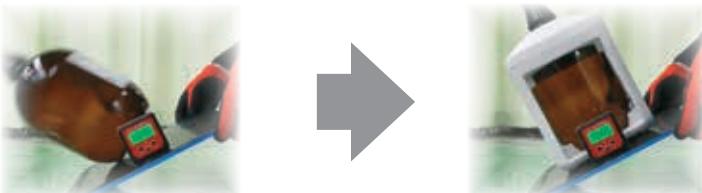
Fujifilm Wako aims to reduce CO<sub>2</sub> emissions by 15 t/year by 2030.  
(as of December 2023)

Our Approach



#### Features

- Makes it hard for the gallon glass jug to tip over!



- High durability!

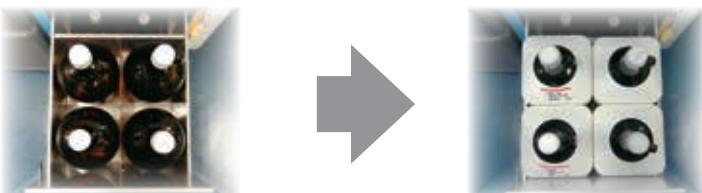


Pulled by a force of 350 N  
(about 35 kg)

- Carried out solvent resistance test with 11 kinds solvents!

Acetone	Acetonitrile	Benzyl Alcohol	1-Butanol
DMF	DMSO	Ethanol	Glycerin
Methanol	2-Propanol	Water	

- Just fits your reagent shelf!\*



\*Our survey scope

#### Product list

Code No.	Product Name	Volume
293-36321	GalloTect™ (White)	1 pcs
295-36881	GalloTect™ (Red)	1 pcs

TOP > Common Chemicals & Lab Tools > Labware > GalloTect™  
<https://labchem-wako.fujifilm.com/us/category/02166.html>



# Solid Phase Extraction Columns, Presep® Series

This product is a solid-phase extraction column filled with styrene divinylbenzene-polymethacrylate resin for quick and easy pretreatment of samples containing pesticides.

## Features

- Divinylbenzene-polymethacrylate resin with features of both normal and reverse phase, is effective for concentration of trace hydrophobic analytes in water, and has better retention of highly polar analytes and metal-coordinating analytes (asulam, oxine-copper), etc. that are difficult to recover.
- The lineup includes two types: a cartridge with both ends closed and a syringe type.

## Additive recovery test of pesticides in drinking water using Presep®-C Agri (Short) and Presep®-C Na<sub>2</sub>SO<sub>4</sub>

### Solid phase extraction conditions

Internal standard: acenaphthene and chrysene (each 2 µg/mL in hexane solution)

Sample: sample + internal standard (100 µL) + hexane (→1 mL)

#### Presep®-C Agri (Short)

- Conditioning
- 1) Dichloromethane (5 mL)
- 2) Methanol (5 mL)
- 3) Distilled water (5 mL)

#### Presep®-C Na<sub>2</sub>SO<sub>4</sub> (×2)

- Conditioning
- 1) Dichloromethane (10 mL)

#### Loading

Distilled water (200 mL) + standard solution or sample (100 µL)

Flow rate: 10-20 mL/min.

#### Elution

- 1) Air purge (10 min.)
- 2) Connecting Presep®-C Na<sub>2</sub>SO<sub>4</sub> (x2)
- 3) Dichloromethane (2.5 mL) (Eluent 1)
- 4) Remove Presep®-C Agri (Short)
- 5) Dichloromethane (6 mL) (Eluent 2)

#### Concentration

- 1) Eluent 1 + Eluent 2 + Hexane (2 mL)
- 2) Concentrate under airflow of N<sub>2</sub> (→ about 0.8 mL)

#### GC/MS

**Analysis conditions****[Instrument]**

GC: HP5890 PACKARD SERIESE GC/MS  
MS: AUTO mass JMS-AM150 (JEOL)

**[GC]**

Column: 100% Dimethylpolysiloxane packed column  
0.25 µm, 0.25 mm×30 m  
Column temperature: 60°C (2 min.)→20°C/min.→120°C→10°C/min.→300°C (5 min.)  
Injector temperature: 250°C

**Additive recovery test for various pesticides**

Product Name	Recovery Rate (%)	Product Name	Recovery Rate (%)
Benfluralin	82.3	Isoxathion	91.8
BPMC	107.5	MBPMC	106.3
Butamifos	84.1	MEP	97.3
Captan	103.9	Mepronil	116.6
Chloroneb	91.8	Metalaxy	100.7
Chlorpyrifos	88.9	Methyldymron	84.6
CNP	112.0	Napropamide	99.7
DDVP (Dichlorvos)	108.9	Pencycuron	90.8
Diazinon	97.7	Pendimethalin	85.7
Dithiopyr	89.4	Propyzamide	95.8
EPN	115.4	Pyributicarb	93.5
Etridiazole	92.3	Pyridaphenthion	106.5
Futolanil	100.3	Simazine	101.5
IBP	115.1	Thiobencarb	101.0
Iprodione	98.0	Tolclofos-methyl	89.7
Isofenphos	91.3	TPN	95.8
Isoprothiolane	96.6	Triclopyr-2-butoxyethyl	94.1

TOP > Analysis Chemistry > Solid-Extraction Columns > SPE Column for Pesticides Analysis

<https://labchem-wako.fujifilm.com/us/category/00992.html>

**■ Product list of Presep® series**

Packing Agent	Code No.	Product Name	Packing Agent Amount (mg/cartridge)	Column Shape	Volume
Alumina	290-32051	Presep®-C Alumina	1,700	cartridge	10 pcs x 5
Silica gel	294-31851	Presep®-C Silica Gel	800	cartridge	50 pcs
C18 modified silica gel (ODS)	296-36791	Presep®-C C18 (ODS)-II (Short)	300	cartridge	10 pcs x 5
	299-36781	Presep®-C C18 (ODS)-II	600	cartridge	10 pcs x 5
	292-36771	Presep® C18 (ODS)-II (2 g/15 mL)	2,000/15 mL	syringe	100 EA
Styrene divinyl benzene copolymer	296-32651	Presep®-C Agri (short)	220	cartridge	10 pcs x 5
	291-26851	Presep®-C Agri	500	syringe	50 EA
Floridil	290-31951	Presep®-C Florisil®	800	cartridge	10 pcs x 5
Polyamide	298-33571	Presep® (Luer Lock) Polyamide C-200 Type M (2 g/25 mL)	2,000/25 mL	syringe	10 pcs x 5
Sodium sulfate (Na <sub>2</sub> SO <sub>4</sub> )	296-32151	Presep®-C Na <sub>2</sub> SO <sub>4</sub>	2,300	cartridge	10 pcs x 5

TOP > Analytical Chemistry > Solid-Phase Extraction Columns

<https://labchem-wako.fujifilm.com/us/category/analysis/solidphase/index.html>



# HPLC Columns, Wakopak® Series

Wakopak® is our HPLC analytical column series. A variety of products are available for use (reverse and normal phase, and HILIC).

## Features

- Quality assurance for peace of mind (GMP analysis validation support is also provided for some products)

To each column in the Wakopak® series is attached a "Wakopak® Column Performance Report," which provides a test results of packing condition. Also, to the Wakopak®-II HG/RS/AR series of the Wakopak® series a "Wakopak® Certificate of Analysis" is attached. This is guaranteed reproducibility by describing the [1] various physical properties of unbonded raw silica gel and [2] the various characteristics of packing agents after modification as support for the analytical validation.

## Typical Wakopak® series\*

	Functional Group	Product Series	Futures
Reverse Phase	C18	Wakosil®	<ul style="list-style-type: none"><li>Standard ODS columns for HPLC.</li><li>3 types of end capping (high end capping, end capping, and non-end capping).</li><li>Two carbon content types.</li></ul>
		Wakosil® - II HG	<ul style="list-style-type: none"><li>The highest number of theoretical plates of any of our products (around 15,000 plates for a column size of 4.6 mm x 150 mm).</li></ul>
		Wakosil® - II RS	<ul style="list-style-type: none"><li>High retention capacity due to large specific surface area.</li><li>High end capping ensures high separation and retention capacity even with aqueous eluents and is useful for the separation of highly polar analytes.</li></ul>
		Wakosil® - II AR	<ul style="list-style-type: none"><li>High stereoselectivity due to polymer-type chemical modification.</li><li>Highly durable, allowing the use of mobile phases over a wide pH range (pH 1.4-9.4).</li></ul>
		Wakosil® Navi	<ul style="list-style-type: none"><li>Analysis with different alkyl chain lengths of C18, C22 and C30 is possible.</li><li>C22 and C30 may show excellent structural recognition ability for analytes of homologues, etc.</li></ul>
		Ultra	<ul style="list-style-type: none"><li>Highly durable, allowing the use of mobile phases over a wide pH range (pH 1.6-10).</li><li>Available in three particle sizes (5, 2 and 3 µm) for use in HPLC and UHPLC.</li></ul>
Normal / Reverse Phase	Ph	Wakosil® Agri-9	<ul style="list-style-type: none"><li>Guaranteed separation in simultaneous analysis of the 9 pesticides using dedicated eluent.</li></ul>
		Wakosil® Ph	<ul style="list-style-type: none"><li>Compared to general ODS columns, the lower carbon content and lower hydrophobicity of ODS columns enable shorter elution times.</li><li>May show specific separation for aromatic analytes.</li></ul>
		Wakosil® 5NH <sub>2</sub>	<ul style="list-style-type: none"><li>Available in both normal and reverse phase.</li><li>Useful for the analysis of monosaccharides and disaccharides due to the ion exchange capacity derived from the NH<sub>2</sub> groups.</li></ul>
Normal Phase	NH <sub>2</sub>	Wakosil® CN	<ul style="list-style-type: none"><li>Available in both normal and reverse phase.</li><li>Compared to general ODS columns, the lower carbon content and lower hydrophobicity of ODS columns enable shorter elution times.</li><li>Useful for the analysis of mixture samples with strong hydrophilic interactions and large polarity differences.</li></ul>
		Wakosil® - II CN	<ul style="list-style-type: none"><li>The π-electron interaction due to the triple bonding of CN groups and the hydrogen bonding action of unshared electron pairs localized on the nitrogen atom may result in specific separation for aromatic compounds, etc.</li></ul>
HILIC	OH (Unmodified)	Wakosil® SIL Wakosil® SIL-120	<ul style="list-style-type: none"><li>The use of non-polar organic solvents as mobile phase makes it useful for the separation of highly polar analytes that are difficult to separate in reverse phase.</li><li>Two pore sizes (SIL: 6 nm, SIL-120: 12 nm).</li></ul>
	OH (Unmodified)	Wakosil® - II 5SIL-AQ	<ul style="list-style-type: none"><li>In reverse phase, available in analysis of polar analytes under the same mobile phase conditions.</li><li>Analysis conditions can be set up without ion-pair reagents (easy transfer to LC/MS analysis).</li></ul>

\* Other packing agents and HPLC columns for specialized applications are also available.

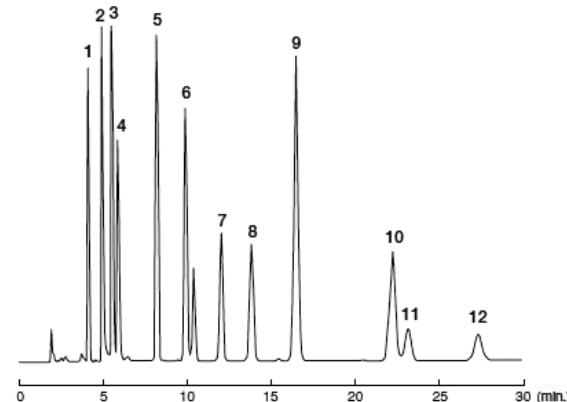
## Wakopak® Wakosil® Agri-9

Wakopak® Wakosil® Agri-9 is suitable for the analysis of pesticides in drinking water. By combining with a dedicated eluent, it guarantees separation of 9 pesticides\* in simultaneous analysis.

\* Asulam, Bensulide, Iprodione, MCPP, Oxine-copper, Pencycuron, Siduron, Thiuram, TPN

### Example of simultaneous analysis of 12 pesticide analytical standards

#### HPLC chromatogram\*



#### Analysis conditions

##### [HPLC]

Column:	Product Name	Code No.	Volume* <sup>2</sup>
	Wakopak® Wakosil® Agri-9 4.6×250 mm	237-59361	1 EA (D)
		233-59363	1 EA (W)

Column temperature: 35°C

Eluent:	Product Name	Code No.	Volume
	Wakosil® Agri-9 Eluent, for 4.6×250 mm	238-01281	1 L

Flow rate: 1.0 mL/min.

Detection: UV 230 nm-270 nm

#### Component list

Peak No.	Components	Peak No.	Components
1	Asulam	7	Propyzamide
2	Oxine-Cu	8	Iprodione
3	Simazine (CAT)	9	Chlorothalonil (TPN)
4	Mecoprop (MCPP)	10	Pencycuron
5	Thiuram	11	Bensulide
6	Siduron	12	Butamifos

\*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

\*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

Top > Analytical Chemistry > Column for HPLC > Reverse Phase Chromatography (C18)  
> HPLC Column for Pesticide Residue Analysis "Wakopak® Wakosil® Agri-9"



<https://labchem-wako.fujifilm.com/us/category/01094.html>

#### Product list of Wakopak® series

	Functional Group	Product Series	Particle Size	Column Size
Reverse Phase	C18	Wakosil®	5 µm, 7 µm, 10 µm	
		Wakosil® - II HG	3 µm, 5 µm	I. D. : 1-20 mm
		Wakosil® - II RS	3 µm, 5 µm	Length: 10-300 mm
		Wakosil® - II AR	3 µm, 5 µm	
		Wakosil® Navi	5 µm	I. D. : 2-20 mm
		Ultra	2 µm, 3 µm, 5 µm	Length: 10-250 mm
		Wakosil® Agri-9	5 µm	I. D. : 4.6 mm Length: 30 mm, 150 mm, 250 mm
Normal / Reverse Phase	Ph	Wakosil® 5Ph	5 µm	I. D. : 4.0 mm, 4.6 mm Length: 10-250 mm
	NH <sub>2</sub>	Wakosil® 5NH <sub>2</sub>	5 µm	I. D. : 2-10 mm Length: 10-300 mm
	CN	Wakosil® 5CN Wakosil® - II 5CN	5 µm	I. D. : 2-10 mm Length: 50-250 mm
Normal Phase	OH (Unmodified)	Wakosil® SIL Wakosil® SIL-120	5 µm, 7 µm, 10 µm	I. D. : 2-20 mm Length: 10-300 mm
HILIC	OH (Unmodified)	Wakosil® - II 5SIL-AQ	5 µm	I. D. : 4.6 mm Length: 150 mm, 250 mm

TOP > Analytical Chemistry > Column for HPLC

<https://labchem-wako.fujifilm.com/us/category/analysis/hplc/index.html>

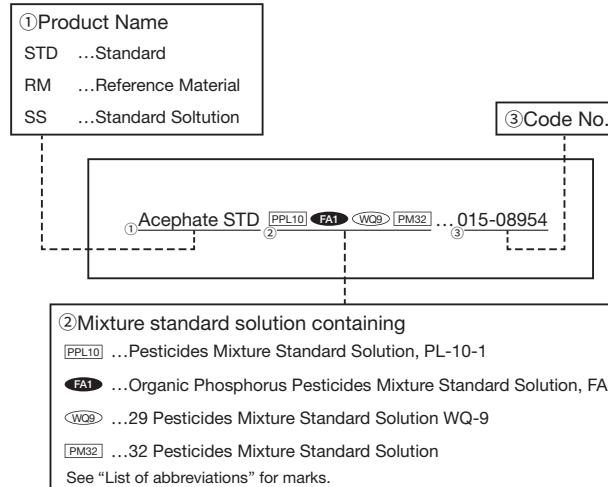




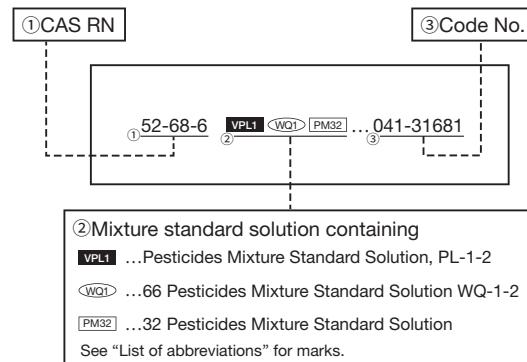
# List of Pesticides and Veterinary Drugs Analytical Standards (Index)

## How to read the index

### Index - Arranged Alphabetically



### Index - Arranged CAS RN



## List of abbreviations

### P Pesticides / veterinary-drugs mixture standard solutions for the simultaneous analysis method of JP Food Sanitation Act "Positive List System," PL series: P. 6-30

[PPL1] ... PL-1-2	[PPL2] ... PL-2-1	[PPL3] ... PL-3-3	[PPL4] ... PL-4-2
[PPL5] ... PL-5-1	[PPL6] ... PL-6-3	[PPL7] ... PL-7-2	[PPL8] ... PL-8-1
[PPL9] ... PL-9-2	[PPL10] ... PL-10-1	[PPL12] ... PL-12-1	[PPL13] ... PL-13-1
[PPL14] ... PL-14-2	[PPL15] ... PL-15-1	[PPL16] ... PL-16-2	[PPL17] ... PL-17-2
[VPL1] ... PL-1-3	[VPL2] ... PL-2-1		

### V Veterinary drugs mixture standard solutions by drug classification: P. 31-35

[VDQ] ... Quinolone	[VDS] ... Sulfonamide + Antifolate	[VDM] ... Macrolide	[VDH] ... Hormone
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### FA Organic phosphorus pesticides mixture standard solutions, FA series: P. 36-39

[FA1] ... FA-1	[FA2] ... FA-2	[FA3] ... FA-3	[OP] ... Organophosphorus Pesticides Mixture Standard Solution
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### NP Neonicotinoid pesticides mixture standard solution: P. 40-41

[NP] ... Neonicotinoid Pesticides Mixture Standard Solution
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### WQ Pesticides mixture standard solutions for the simultaneous analysis method specified in JP Water Quality Act, WQ series: P. 42-62

[WQ1] ... WQ-1-2	[WQ2] ... WQ-2	[WQ3] ... WQ-3	[WQ4] ... WQ-4
[WQ5] ... WQ-5	[WQ6] ... WQ-6	[WQ7] ... WQ-7	[WQ8] ... WQ-8
[WQ9] ... WQ-9	[WQ10] ... WQ-10		

### PM Other pesticides mixture standard solutions: P. 63-66

[PM32] ... 32 Pesticides Mixture Standard Solution	[PM13] ... 13 Pesticides Mixture Standard Solution	[PM8] ... 8 Pesticides Mixture Standard Solution
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# Index - Arranged Alphabetically

## A

Abamectin STD [PPL7]	016-20361
Acephate STD [PPL10] [FA1] [WQ3] [PM32]	015-08954
Acequinocyl STD	018-18591
Acequinocyl-hydroxy STD	011-18601
Acetaminophen STD	015-22651
Acetamiprid STD [PPL3] [NP] [WQ4] [WQ5]	010-16493
Acetamiprid Metabolite IM-2-1 STD	019-25851
Acetochlor STD [PPL5]	013-20511
2-Acetylaminino-5-nitrothiazole STD [VPL1]	018-21421
Acibenzolar Acid STD	018-19451
Acibenzolar-S-methyl STD [PPL14] [WQ4]	014-18331
Acifluorfen STD [PPL8]	010-20521
ACN STD [PPL6] [WQ5] [WQ9]	013-15741
Acrinathrin STD [PPL5]	014-16653
Acynonapyr STD	012-27921
Acynonapyr Metabolite C STD	019-27931
Afidopyropen STD	016-27941
Aklomide STD	011-21411
Alachlor STD [PPL2] [WQ1]	012-16333
Alanycarb STD	017-15521
Aldicarb STD [PPL10] [PPL15]	012-14111
Allethrin STD [PPL3] [VPL1]	018-17011
Allodochlor STD	019-20611
Alloxydium-sodium STD	015-09733
Altrenogest STD	013-21231
Ametoctradin STD	018-26541
Ametryn STD [PPL4] [PPL17] [WQ4] [WQ5]	015-13643
1-Aminohydantoin Hydrochloride STD	015-21171
(Aminomethyl)phosphonic Acid RM [WQ8]	016-24641
4-Aminopyridine STD	015-20451
Amisulbrom STD	016-24761
Amitraz STD [PPL17]	015-09593
Amitraz Metabolite Hydrochloride STD [WQ8]	011-14941
Amitrole STD	016-14011
Amoxicillin Trihydrate STD	018-20441
AMOZ STD	014-25541
Ampicillin STD	017-20531
Ampronil Hydrochloride STD	017-20651
Anilofos STD [PPL4] [PPL7] [WQ1]	012-20243
Anthracene-d <sub>10</sub>	013-15361
AOZ STD	011-25551
Arsenic SS (As 1,000)	013-15481
Asulam STD [WQ3] [PM8]	015-13523
Atrazine STD [PPL1] [WQ1]	016-15633
8,9-Z-Avermectin B1a STD	018-24961
Azaconazole STD [PPL4]	013-21611
Azamethiphos STD [PPL7] [PPL13]	013-23311
Azaperol STD	015-26791
Azaperone STD	015-21671
Azimsulfuron STD [PPL16]	018-18253
Aziraphos-ethyl STD [FA3]	016-22061
Aziraphos-methyl STD [PPL1] [PPL7] [FA3]	012-16051
Azocyclotin STD	019-15601
Azoxystrobin STD [PPL10] [PPL14] [WQ3]	015-19003

## B

Barban STD [PPL17]	026-17231
Benalaxyli STD [PPL5] [PPL17]	028-12791
Bendiocarb STD [PPL10] [PPL14] [WQ4]	028-11691
Benfuracarb STD [PPL17]	023-09551
Benfuresate STD [PPL5] [WQ3] [WQ9]	023-12883
Benomyl STD	028-18411
Benoxacor STD [PPL6]	028-16831
Bensulfuron-methyl STD [PPL16] [WQ3]	029-12623
Bensulide STD [WQ3] [PM32] [PM8]	021-07673
Bensulfur STD	024-09363
Bentazone STD [WQ3]	027-07594
Benthiahalicarb-isopropyl STD	021-15961
(R,R)-Benthiahalicarb-isopropyl STD	025-19141
(S,S)-Benthiahalicarb-isopropyl STD	021-19121

(R,S)-Benthiahalicarb-isopropyl STD	028-19131
Benthio carb STD [PPL1] [WQ4] [PM13]	029-06954
Benzobicyclon STD [WQ4]	023-15781
Benzocaine STD	020-15791
Benoepin Sulfate STD [PPL5] [WQ2]	026-06763
Benzofenap STD [PPL7] [WQ4]	021-16223
Benzomate STD	021-07313
Benzymroxan STD	026-19431
Benzymroxan Metabolite M5 STD	023-19441
6-Benzylaminopurine STD	022-15251
Benzylpenicillin Potassium STD	025-15501
Betamethasone STD	026-15271
Bethrodine STD [PPL6] [WQ1] [PM32]	026-11533
γ-BHC STD	025-05731
δ-BHC STD [PPL4]	028-05743
Bialaphos Sodium Salt	026-15411
Bifenazate STD	029-17601
Bifenazate Metabolite B STD	029-18821
Bifenox STD [PPL5] [WQ1]	027-08253
Bifenthrin RM [PPL1]	028-19871
Binapacyl STD	023-12861
Biphenyl STD	026-12731
Bispyribac-sodium STD	024-14111
Bitertanol STD [PPL3]	024-10233
Bitihonol STD	028-15351
Boscalid STD [PPL13] [PPL15] [WQ4] [WQ5]	027-15821
BPMC STD [PPL9] [VPL1] [WQ1] [PM13]	021-06774
BPPS STD [PPL2] [WQ5]	024-06943
Brilliant Green STD	023-16021
Broflanilide STD	025-19641
Bromacil RM [PPL6] [PPL17] [WQ4] [WQ5]	020-17511
Bromide Ion SS (Br 1000)	024-15331
9-Bromoanthracene STD	025-14141
Bromobutide STD [PPL6] [WQ1]	026-17591
Bromobutide-debromo STD	028-12671
Bromofenox Monohydrate STD	027-15681
Bromophos STD [PPL5]	028-12811
Bromophos-ethyl STD [PPL12] [FA3]	025-12821
Bromoxynil STD [PPL8]	023-15541
Bromuconazole STD	020-17991
Brotizolam STD	021-15343
Bromophos-ethyl STD [PPL12] [FA3]	028-06963
BRP STD	028-19631
Bupirimate STD [PPL4]	021-16821
Buprofezin STD [PPL2] [WQ1]	022-08264
Buquinolate STD	021-18761
Butachlor STD [PPL4] [WQ3] [WQ9]	021-12161
Butafenacil STD [PPL7]	028-19631
Butamifos STD [PPL6] [FA2] [WQ1] [PM32]	026-10933
Butamifos Oxon STD [WQ2]	024-15571
Butylate STD	026-12971
Butylhydroxyanisole STD	020-15311

## C

Cadusafos STD [PPL5] [FA1] [WQ5] [WQ9]	036-18871
Cafenstrole STD [PPL6] [WQ1]	035-17001
Caption STD [WQ1] [PM32]	034-08301
Carazolol Hydrochloride STD	030-17291
Carbadox STD	033-16681
Carbendazim STD	032-23361
Carbetamide STD [PPL17]	039-22031
Carbofuran STD [PPL2] [PPL15] [WQ3]	039-16323
Carbon Disulfide	034-01243
Carbosulfan STD [PPL17]	031-16361
Carboxin STD [PPL12]	030-19773
Carfentrazole-ethyl STD [PPL12] [PPL17]	030-20361
Carprofen STD	037-19761
Carpropamid STD [PPL14] [WQ3]	034-22721
Cartap Hydrochloride STD	033-22431
CAT RM [PPL3] [WQ1] [PM32] [PM13]	030-22561
Cefalexin STD	035-22371
Cefapirin Sodium Salt STD	030-20481
Cefazolin Sodium Salt STD	034-22841
Cefquinome Sulfate STD	031-21751

Ceftiofur Hydrochloride STD	030-21101
Cefuroxime Sodium Salt STD	037-20491
Cephalonium Dihydrate STD	032-19691
Chinomethionate STD	039-08611
Chlormethoxynil STD	038-10293
Chloramphenicol STD	037-19641
Chlorantraniliprole STD	038-21261
Chlorbenside STD [PPL12]	038-22121
Chlorbufam STD [PPL17]	031-22111
Chlordimeform STD	038-22861
Chlorfenapyr RM [PPL1]	039-22531
Chlorfluazuron STD [PPL17]	034-14391
Chlorhexidine STD	035-20291
Chlorimuron-ethyl STD [PPL16]	036-16671
Chlormadione STD	034-25141
Chlormequat STD	033-14981
Chlorobenzilate STD [PPL3]	033-08273
2-Chloroethanol STD	031-26011
Chloro IPC STD [PPL5]	034-08323
Chloroneb STD [PPL9] [WQ1] [PM32]	036-14493
6-Chloronicotinic Acid STD	039-23491
6-Chloropicolinic Acid STD	032-20561
Chloropicrin SS (1 mg/mL in Hexane)	032-13851
Chloropropylate STD	037-09653
Chlorothalonal Metabolite I STD	032-25681
Chlorotoluron STD	037-25251
Chloroxuron STD [PPL14]	030-19751
Chlorpromazine Hydrochloride STD	036-19611
Chlorpyrifos RM [PPL3] [FA2] [WQ1] [PM32]	032-22881
Chlorpyrifos Oxon STD [WQ2]	037-20131
Chlorpyrifos-methyl STD [PPL1] [FA1] [WQ5] [WQ9]	031-09673
Chlorsulfuron STD	039-17141
Chlortetracycline Hydrochloride STD	037-18041
Chlozolinate STD	037-24911
Chromafenozide STD [PPL7] [WQ4]	033-18141
CIA STD	031-20771
Cinidon-ethyl STD [PPL12]	034-24041
Cinmethilin STD [WQ5] [WQ9]	035-16521
Cinosulfuron STD [PPL16] [WQ4]	033-16441
Ciprofloxacin Hydrochloride	033-19621
Monohydrate STD [VQ1]	033-19861
Clenbuterol Hydrochloride STD [VPL1]	032-20441
Clethodim STD	030-18651
Clodinafop STD [PPL16]	032-22021
Clodinafop-propargyl STD [PPL17]	032-21661
Clofentezine STD [PPL15]	031-14541
Clomazone STD [PPL12]	037-20371
Clomeprop STD [WQ4]	033-20731
Clomeprop Metabolite B STD	037-23051
Clopolid STD	038-19931
Cloprop STD [PPL8]	033-19861
(±)-Coprostanol Sodium Salt STD	032-21801
Clopyralid STD	038-24941
Cloquintocet-mexyl STD [PPL7]	039-21671
Clorsulam methyl (100 µg/mL in Acetonitrile)	051-03221
Clorsulon STD [VPL1]	033-20471
Closantel STD	032-16531
Clostebol STD [VDH]	034-20141
Clothianidin RM [PPL7] [NP] [WQ4]	034-22581
Cloxacillin Sodium Salt Monohydrate STD	038-20281
CNA STD [PPL4]	036-08621
CNP STD [WQ1] [PM13]	032-08983
CNP-amino RM	036-22541
Colistin Sulfate	032-20941
Copper(II) Terephthalate Trihydrate STD	033-15581
Coumaraphos STD [FA3]	033-16463
Coumatetralyl STD	030-22821
4-CPA STD [PPL8]	030-19511
CPCBS STD [PPL12]	030-16451
CPF STD [NP]	037-17201
CPMA STD	031-19421
CPMF [NP]	036-26061
CPT STD	031-19281
Crystal Violet STD	032-20201

Diethofencarb STD [PPL4]	045-24131	Ethoxysulfuron STD [PPL16] (WQ4)	054-06821	Fluoxastrobin STD	067-06971	Iminoctadine Albesilate STD (WQ7)	
Diethylstilbestrol STD	048-30111	Ethychlorate STD	057-06431	Fluoxastrobin Metabolite M55 STD	062-07021	Indoxacarb-MP STD (WQ7)	097-04051
N,N-Diethyl-m-toluamide	045-26211	Ethyl Carbamate STD	052-08201	Fluxopaxam STD	062-05561	Iminocadine Triacetate STD (WQ7)	
Difenconazole STD [PPL2] (WQ4) (WQ5)	042-25241	Ethylenethiourea STD	053-06151	Flupropanate STD	063-05731	Inabenfide STD (WQ4)	092-03901
Difenconazole Metabolite D STD	045-33661	Ethyliothiomethen STD [PPL12] (FA3) (WQ1)	055-03154	Flupyrimin STD	069-06931	Indanofan RM [PPL14] (WQ4) (WQ5)	092-06821
Difenzosquat Methyl Sulfate STD	045-25851	Etiproston Tromethamine STD	050-08501	Fluridone STD [PPL2] (PPL15)	062-04601	Indoxacarb-MP STD [PPL7]	094-06521
Difloxacin STD (VQD)	049-30021	Etobenazid STD (WQ1) (WQ5)	055-06351	Fluroxypyr STD [PPL8]	069-05071	Inpyrfluxam STD	097-07351
Diflubenzuron RM [PPL15] (WQ4)	043-31901	Etofenprox STD [PPL5] (WQ1)	051-05194	Flusilazole STD [PPL9]	065-03591	Iodomethane	137-02663
Diflufenican STD [PPL1]	044-28121	Etoxazole STD [PPL4] (PPL17)	050-06683	Flusulfamide STD (WQ4)	068-03363	Iodosulfuron-methyl STD [PPL16]	096-07061
Diflumetorin STD	046-27461	Etoxazole-amino Hydrochloride STD		Fluthiacet-methyl STD [PPL5]	062-04461	Ioxynil STD [PPL8]	098-05561
Difolatan STD	042-16211	Eugenol STD	051-06691	Flutianil STD	063-02111	Ioxynil Octanoate STD	098-03861
Dimepiperite STD [PPL4] (WQ1)	043-25173	Erimfos SS (1 mg/mL in Hexane) (FA2)		Flutolanil RM [PPL3] (WQ1) (PM32)	065-05811	Ipcconazole STD	098-04221
Dimethachlon STD	041-32421	Etriamide STD	058-06081	Flutolanil Metabolite M4 STD	064-06481	Ipfencarbazone STD (WQ10)	099-07051
Dimethametryn STD [PPL5] (WQ1)	048-28261	F		Flutriafol STD [PPL12]	065-05671	Ipfleuroquon STD	095-07411
Dimethenamid STD [PPL4]	043-26751	Famoxadone STD [PPL13]	064-04203	Fluvalanate STD [PPL1]	061-02471	Iprodione STD [PPL9] (WQ1) (WQ3) (PM32) (PM8)	092-02384
Dimethipin STD	046-25521	Famphur STD [PPL9] (VPL1)	069-06431	Fluxametamide STD	065-06891	Iprodione Metabolite STD [PPL9] (WQ10)	
Dimethirimol STD [PPL7]	040-26901	Febantel STD	066-05081	Fluxapyroxad STD	068-06881	Ipronidazole STD	098-02394
Dimethoate STD [PPL1] (FA2) (WQ1)	041-15843	Fenamiphos STD [PPL1] (FA3)	066-03521	Folpet STD	068-03461	Ipronidazole Metabolite B STD	095-07271
Dimethomorph STD [PPL15]	049-28671	Fenarimol STD [PPL1]	069-05191	Fomesafen STD [PPL8]	060-04761	Iprovalicarb STD [PPL7]	095-06551
Dimethyl Ethylenebisdiethiocarbamate STD	043-33601	Fenazaquin STD	064-06981	Fonofos STD	067-03431	Isazofos STD [PPL12]	095-05451
Dimethyl 1-Methylethylenebisdiethiocarbamate STD	040-33611	Fenbendazole STD	064-04661	Forbchlorfenuron STD [PPL8]	066-04621	Isocarbophos STD	097-06631
N,N-Dimethylhydrazine STD	048-25221	Fenbuconazole STD [PPL2]	068-05041	Formetanate Hydrochloride STD	060-03541	Isocyanuric Acid STD	091-05311
1,4-Dimethylaphthalene STD	040-35051	Fenbutatin Oxide STD	067-02951	Formothion STD [PPL12] (FA2)	068-01303	Isoeugenol	059-01952
4,4-Dimethyl-2-oxazolidinone STD	046-28441	Fenchlorphos STD [PPL12]	068-03581	Fosetyl STD	065-01813	Isofenphos STD [PPL2] (FA2) (WQ1) (PM32)	090-03463
(E)-Dimethylvinphos STD (FA1) (WQ5) (WQ9)	044-26063	Fenhexamid STD [PPL16]	069-04111	Fosfomycin Sodium STD	063-06331	Isofenphos-methyl STD	097-06871
(Z)-Dimethylvinphos STD	045-25231	Fenoprop STD	066-04861	Fosthiazate RM [PPL4] (FA1) (WQ5) (WQ9)	062-05941	Isofenphos Oxon STD [PPL2] (WQ2)	
Dimetridazole STD	047-30181	Fenothiocarb STD [PPL5]	066-05961	Fthalide STD [PPL4] (WQ1)	061-01594	Isofetamid STD	098-03981
Dimetridazole Metabolite A STD	045-34141	Fenoxanil STD [PPL6] (WQ9)	064-04301	Furametpyr STD [PPL14] (WQ4) (WQ5)		Isofetamid Metabolite C STD	091-07371
Diminazene Diaceturate STD	048-29501	Fenoxaprop-ethyl STD [PPL9] (PPL14)		Furametpyr-hydroxy STD	069-03871	Isometamidium Chloride STD	094-05301
Diniconazonol STD	044-32411	Fenpropidin STD [PPL1] (PPL17)		Furathiocarb STD [PPL7] (PPL13)	062-03981	N-isopropylaniline STD	094-07241
Dinitolmide STD	049-29531	Fenpyrazamine STD	069-06171	Furilazole STD	062-06301	Isoprothiolane RM [PPL2] (WQ1) (PM32) (PM13)	
Dinotefuran STD (NP) (WQ4)	041-29731	Fenpyroximate STD [PPL15]	063-03293	G		Isoprothiolane Metabolite C STD	091-07491
Dinoterb STD	042-34031	(Z)-Fenpyroximate STD [PPL15]	067-05011	Gamithromycin STD	072-06841	Isopyrazam STD	097-07471
Diofenolan STD	047-32521	Fenpyroximate Metabolite M-3 STD		Gentamicin C1 STD	079-06591	Isonanil STD	097-06991
Dioxathion STD	049-34041	Fenquinotrione STD	066-06941	Giberellin A <sub>3</sub> STD [PPL8]	078-05081	Isonour STD	099-06831
Diphacinone STD	045-33781	Fenquinotrione Metabolite C STD	060-06841	Glufosinate Ammonium STD (WQ8)		Isoxabent STD	092-03923
Diphenamid STD [PPL6]	041-17021	Fensulfotiothion STD [PPL5] (FA2)	064-02961	Glufosinate Metabolite Z STD	076-06861	Isoxadifen-ethyl STD	097-07231
Diphenylamine STD [PPL9]	041-25211	Fentrazamide STD [WQ4]	062-05201	Glycyrrhetic Acid STD	070-06021	Isoxaflutole STD [PPL7]	090-07101
Dipropyl Isocinchomeronate STD	046-33951	Fenvalerate STD [PPL3]	060-03281	Glyphosate RM (WQ8)	071-05951	Isoxaflutole Metabolite B STD	097-07111
Diquat Dibromide Monohydrate STD (WQ7)	047-30441	(E)-Ferimzone STD [PPL7] (WQ6)	063-04131	H		Isoxathion STD [PPL5] (FA3) (WQ1) (PM32) (PM13)	
Ditalimfos STD	045-32701	(Z)-Ferimzone STD [PPL7] (WQ8)	066-04121	Halfenprox STD [PPL4]	088-07101	Isoxathion Oxon STD (WQ2)	093-03931
Dithianon STD	044-18373	Fipronil STD [PPL3] (WQ3)	068-04103	Halofuginone STD	089-10681	Ivermectin STD	090-05521
Dithiopyr STD (WQ1) (PM32)	048-25123	Fipronil Sulfone STD	062-04961	Halosulfuron-methyl STD [PPL16] (WQ3)		J	
DMTPT STD [PPL1] (FA2) (WQ1)	043-17081	Flamprop-methyl STD [PPL6] (PPL17)		Halogen STD	089-07251	Josamycin STD	101-00181
DMTP Oxon STD (WQ10)	049-30381	Fenzelarate STD	063-04991	Haloxon STD	084-10011	K	
DNPB STD	043-25151	Fiazasulfuron STD [PPL16] (WQ3)	060-03323	Haloxypyfop STD [PPL8]	089-09191	Kanamycin Monosulfate STD	113-00941
Dodine STD	047-25291	Flometoquin STD	060-06961	Haloxypyfop-methyl STD	088-10271	Kasugamycin Hydrochloride	
Doxycycline Hydrate STD	049-31481	Flonicamid STD	060-04881	Heptenophos STD	088-09821	Monohydrate STD	115-00761
DPA Sodium STD	046-25141	Florasulam STD [PPL8]	064-05021	Hexaconazole RM [PPL6]	083-09731	2-Ketomolinolate STD	116-01031
DPC STD	042-26601	Florfenicol STD [VPL1]	060-05001	Hexaflumuron STD [PPL14]	084-09141	Ketoprofen STD	111-00741
Dymron STD [PPL14] (WQ3)	043-26251	Fluacyrrypyrim STD [PPL4]	066-04481	Hexazinone STD [PPL2]	081-08311	Kresoxim-methyl STD [PPL1]	118-00533
E		Fluazifop-Butyl STD	064-03441	Hexazinone Metabolite B STD	082-10171	Kresoxim-methyl Metabolite M9 STD	
Echlomezol STD [PPL3] (WQ1) (PM32)		Fluazinam STD (WQ1)	068-02861	Hexazinone Metabolite C STD	086-10211	Kanamycin Monosulfate STD	110-01051
ECP STD [PPL6] (FA2) (WQ5) (WQ9)	051-03494	Fluazinam Metabolite D STD	069-07031	Hexazinone Metabolite F STD	089-10181	Kasugamycin Hydrochloride	
EDDP STD [PPL6] (FA1) (WQ1)	053-03133	Fluazinam Metabolite E STD	066-07041	Hexythiazox STD [PPL15]	087-05351	Monohydrate STD	
Endothal Monohydrate STD	053-06411	Fluazuron STD [PPL17]	063-04871	Hexythiazox Metabolite PT-1-3 STD		2-Ketomolinolate STD	
Enrofloxacin STD (VQD)	059-07471	Flubendazole STD	065-06411	081-10521	2-Ketomolinolate STD		
EPN STD [PPL5] (FA2) (OP) (WQ1) (PM13)	058-02843	Flubendiamide STD	061-05031	Hydramethylnon STD	081-08551	Ketoprofen STD	
EPN Oxon STD (WQ2)	059-06011	Flucarbazone STD	060-06581	Hydrocortisone STD [VPL1]	086-08241	Kresoxim-methyl STD [PPL1]	
Epoxiconazole STD [PPL12] (PPL15)	054-07661	Flucetsulfuron STD	063-05471	4-Hydroxybiphenyl STD	086-08501	Kresoxim-methyl Metabolite M9 STD	
EPTC STD [PPL9]	058-06221	Flucythrinate STD [PPL1]	069-02911	3-Hydroxycarbofuran STD [PPL17]	085-08571	Lactofen STD	122-06431
Erythromycin A STD (VDM)	056-07361	Fludioxonil STD	060-03683	Hydroxycrotonic Acid STD	070-06021	Lancotriione Sodium STD	121-06881
Esfenvalerate STD	052-08061	Fluensulfone STD	060-07061	Glycyrrhetic Acid STD	070-06021	Lead SS (Pb 1000)	124-04291
Espirocarb STD [PPL5] (WQ1)	055-05893	Flufenacet STD [PPL13] (PPL15)	063-06831	Glycosaminoglycan STD	070-06021	Lenacil STD [PPL4]	123-03801
Etaboxam STD	053-08471	Flufenacet Metabolite P1 STD	064-06861	Glufosinate STD	076-06861	Lepimectin STD	125-06421
Ethalfluralin STD [PPL4]	052-07461	Flufenacet Metabolite W STD	067-06851	Glufosinate Ammonium STD	076-06861	Leucocrystal Violet STD	120-05371
Ethametsulfuron-methyl STD [PPL16]	059-07591	Flufenoxuron STD [PPL14]	063-03553	Glufosinate Metabolite Z STD	076-06861	Leucomalachite Green STD	121-05301
Ethephon STD	050-04961	Flufenpyr-ethyl STD [PPL12]	068-04681	Glufosinate Metabolite Z STD	076-06861	Leucomycin A <sub>5</sub> (VDM)	125-06301
Ethiofencarb STD	051-04033	Flumequine STD (VQD)	069-04971	Glufosinate Metabolite Z STD	076-06861	Levamisole Hydrochloride STD [VPL2]	
Ethion STD [PPL2] (FA1)	051-03173	Flumetsulam STD [PPL8]	063-04751	Glufosinate Metabolite Z STD	076-06861	Lincomycin Hydrochloride	
Ethiozin STD	057-06551	Flumiclorac-pentyl STD [PPL5]	067-04771	Glufosinate Metabolite Z STD	076-06861	Monohydrate STD [VPL1]	121-05781
Ethiprole STD (WQ9)	055-07571	Flumioxazin STD [PPL6]	060-04141	Glufosinate Metabolite Z STD	076-06861	Linuron RM [PPL15] (WQ4)	124-06131
Ethofumesate STD [PPL12]	055-07451	Flunixin Meglumine STD	063-05091	Glufosinate Metabolite Z STD	076-06861	Lomefloxacin Hydrochloride STD	122-06671
Ethofumesate Metabolite M2 STD	053-09211	Fluometuron STD	063-06571	Glufosinate Metabolite Z STD	076-06861	Lufenuron RM [PPL15]	122-06171
Ethopabate STD [VPL2]	055-06231	Fluopicolide STD	064-06361	Glufosinate Metabolite Z STD	076-06861	M	
Ethoprophos STD [PPL3] (FA2)	051-05611	Fluopyram STD	060-06721	Glufosinate Metabolite Z STD	076-06861	Maduramicin Ammonium STD	137-16811
		Fluopyram Metabolite M21 STD	067-06731	Glufosinate Metabolite Z STD	076-06861	Mafoprazine STD	130-18481
		Fluoroimide STD	063-03531	Glufosinate Metabolite Z STD	076-06861	Malachite Green Oxalate STD	132-15141
				Glufosinate Metabolite Z STD	076-06861	Malachite Green Oxalate STD	137-15211
				Glufosinate Metabolite Z STD	076-06861	Malathion STD [PPL1] (FA1) (WQ1)	
				Glufosinate Metabolite Z STD	076-06861	Maleic Hydrazide STD	136-05514
				Glufosinate Metabolite Z STD	076-06861	Mandestrobin STD	139-18571

Mandipropamid STD	135-17831	(Z)-Mevinphos STD [PPL4]	139-15531	Oxoconazole-formyl STD	154-02371	Propiconazole STD [PPL2] [WQ1]	169-16771
Manzеб STD	133-06803	Milbemectin STD	133-18231	Oxycarboxin STD [PPL14]	158-03011	Propineb STD	160-26331
Marbofloxacin STD [VDO]	133-15291	Mloxacin STD	136-18461	Oxyclozanide STD	159-02561	Propoxycarbazone Metabolite A STD	
MBPMC STD [WQ1] [PM32]	132-10901	MIPC STD [PPL5] [WQ1]	130-06813	Oxyfluorfen STD [PPL3]	150-02591	Propylene Oxide	164-27331
MCC STD	133-06761	Mirosamicin STD	133-17631	Oxytetracycline Hydrochloride STD	157-02001	5-Propylsulfonyl-1H-benzimidazole-	
MCP RM [PPL16] [WQ4]	135-16971	Moenomycin A STD	131-18911	2-amine STD [VPL2]		2-amine	161-25381
MCP Ethyl Ester STD	138-07573	Molinate STD [WQ1]	130-12163	Proprysulfuron STD		Proprysulfuron	163-25341
MCPB STD [PPL8]	133-12491	Monocrotophos STD [PPL4] [FA3] [WQ4]		Propyzamide RM [PPL2] [WQ1] [PM32] [PM13]		Propyzamide	169-25061
MCPB-ethyl STD	138-17821			PAC STD [PPL7]	163-18991	Prosulfocarb STD	165-25921
MCPP STD [PPL8] [WQ3] [PM8]	132-10423	Monolinuron STD [PPL15]	136-17001	Paclobutrazol STD [PPL6] [WQ5] [WQ9]		Prosuluron STD [PPL16]	160-27291
MCPP-P STD	130-15441	Morantel Citrate Monohydrate STD	135-12691			Prothioconazole Metabolite M17 STD	
Mebendazole STD	130-15201	Morantel Metabolite A STD	131-19251				167-29261
Mecarban STD [PPL12]	136-16881	Mosapride STD	135-19411			Prothioconazole STD [PPL5] [FA2]	163-26201
Mecillinam STD	133-18471	Moxidectin STD	139-18951			Prothioconazole Oxon STD	165-11913
Mefenacet STD [PPL4] [WQ1]	133-11673	MPID STD	135-15371			Pydiflumetofen STD	167-29401
Mefenpyr-diethyl STD [PPL4] [PPL17]		MPMC STD	138-06831			Pyflubumide STD	163-27541
	137-16551	MPP STD [PPL2] [FA2] [WQ1] [WQ3]				Pyflubumide Metabolite B STD	160-27551
Mefentrifluconazole STD	132-19041					Pymetrozine STD [PPL17] [WQ3]	163-19971
Melengestrol Acetate STD [VPL2]	132-15401	MPP Oxon STD [WQ2] [WQ3]	137-14971			Pycladofos STD [PPL2] [FA2] [WQ5] [WQ9]	
Meloxicam STD	135-15131	MPP Oxon Sulfone STD [WQ2] [WQ3]					160-17801
Menbutone STD	135-15011					Pyracronil STD [WQ6]	163-23521
MEP STD [PPL2] [FA2] [WQ1] [PM32] [PM13]		MPP Oxon Sulfoxide STD [WQ2] [WQ3]				Pyraclostrobin STD [PPL17]	163-22921
	130-05534					Pyralfufen-ethyl STD [PPL5]	169-19831
MEP Oxon STD [WQ2]	131-11691	MPP Sulfone STD [WQ2] [WQ3]	138-06691			Pyrantel Pamoate STD	167-18391
Mepanipyrim STD [PPL14]	137-12651	MPP Sulfoxide STD [WQ2] [WQ3]	131-06701			Pyraziflumid STD	168-28571
Mepanipyrim Propanol STD	138-18421	MTMC STD	131-06821			Pyrazolate STD [PPL7] [WQ4]	165-17091
Mepiquat Chloride STD	130-14841	Myclobutanil STD [PPL2]	135-11133			Pyrazophos STD [PPL6] [PPL17]	168-25031
Mepronil STD [PPL5] [WQ1] [PM32]		Myclobutanil Hydroxide STD	132-11121			Pyrasulfuron-ethyl STD [PPL16] [WQ4]	
	131-07904						168-17841
Mesotriione STD	136-17501	N				Pyraxoxyfen STD [WQ5] [WQ9]	164-16743
(E)-Metflumizone STD	139-18191	NAC STD [PPL10] [PPL15] [WQ9]	144-03833			Pyrethrins SS (Pyrethrin I+II) [PPL1]	
(Z)-Metflumizone STD	132-18201	Nalidixic Acid STD [VDO]	144-06611				161-29161
Metaflumizone Metabolite D STD	139-18211	Naphthalophos STD	142-09451			Pyribencarb STD	163-28761
Metalaxylyl STD [PPL10] [WQ1] [PM32]		1-Naphthylacetamide STD [PPL12]	141-06501			Pyribencarb Metabolite B STD	160-28771
	130-11683	1-Naphthylacetic Acid STD [PPL8]	148-06511			Pyributicarb STD [PPL6] [WQ1] [PM32]	
Metalaxylyl-M STD [PPL6]	134-15623	Naproaonilide STD [PPL7] [WQ4]	148-08211				163-16213
Metaldehyde STD	130-18741	Napropamide STD [PPL6] [WQ1] [PM32]				Pyridaben STD [PPL3]	162-16381
Metamifop STD	135-19151		144-05893			Pyridalyl STD	163-21941
Metamitron STD	137-17411	Naptalam STD [PPL16]	140-08271			Pyridaphenthion STD [PPL4] [FA1] [WQ1] [PM32]	
Metam-sodium STD	130-18001	Neomycin Sulfate	146-08871				169-10914
Metazosulfuron STD	131-17931	Neospirimycin I STD [VDM]	147-07061			Pyridate STD	163-17771
cis-Metconazole STD	138-17701	Nequinate STD	147-09141			Pyridate Metabolite STD	166-17761
trans-Metconazole STD	135-17691	Nereistoxin Oxalate STD [WQ6]	141-04161			(E)-Pyrifenoxy STD [PPL5]	167-16691
Methabenzthiazuron STD [PPL14]	131-12311	Nicarbazin STD	146-07151			(Z)-Pyrifenoxy STD [PPL6]	160-16701
Methacrifos STD [PPL3]	131-18391	Nicosulfuron STD	143-08401			Pyrifluquinazon STD	160-25351
Methamidophos STD [FA1] [WQ5] [PM32]		Nicotine SS (0.1 g/mL in Sulfuric Acid)				Pyrifluquinazon Metabolite B STD	167-25361
	139-11631	NIP STD	147-03921			Pyrifitalid STD [PPL7]	167-23161
Methazole STD	131-18411	Phosphamidon STD [PPL4]	167-09383			Pyrithiamine STD [VPL1] [VDS]	163-18631
Methiocarb Sulfone STD	131-12171	Phosphonic Acid	168-18441			Pyrithamini RM [PPL5] [PPL17]	160-29491
Methiocarb Sulfoxide STD	131-15611	Nitralin STD	145-09201			Pyrithamini Metabolite B STD	166-27391
Methioczin STD	137-19091	Nitrapyrin STD [PPL13]	141-08201			Pyrithamini Metabolite C STD	166-27411
Methomyl RM [PPL14] [WQ3]	132-17461	Nitrofurazone STD	146-08511			Pirimidifen STD	168-18701
Methoprene STD [PPL12]	136-17621	Nitrothol-isopropyl STD [PPL6]	146-08491			(E)-Pyrinobac-methyl STD [PPL4] [WQ4] [WQ5]	
Methoxychlor STD [PPL2]	139-12231	Nitroxynil STD	142-08231				166-19841
Methoxyfenozide STD [PPL7]	135-15491	Norfloxacin STD [VDO]	149-08241			(Z)-Pyrinobac-methyl STD [PPL4] [WQ4] [WQ5]	
Methyl Demeton STD [OP]	134-15601	Norfuralzon STD [PPL1]	144-08931				163-19851
Methyl Dimethylthiocarbamate STD		Novaluron STD [PPL15]	143-09361			Pyrimisulfan STD	166-26291
	137-14373	Novobiocin Sodium Salt STD	148-09171			Pyriofenone STD	168-28831
Methyldymuron STD [WQ1] [PM32]	133-10791					Pyriproxyfen STD [PPL2] [WQ3]	163-18751
Methylene Blue Trihydrate STD	135-17571					Pyroquilon STD [PPL4] [WQ1]	164-18041
Methyl Isothiocyanate STD	139-14791					Pyrosulfone STD	167-28801
Methylparathion STD [PPL3] [OP]		O					
	131-06061	Octachlorostyrene STD	152-02051				
3-(Methylphosphinico)propionic Acid STD	134-11941	Oflloxacin STD [VDO]	150-02611				
Methylprednisolone STD [VDH]	137-15451	Olaquindox STD	150-01991				
4-Methyl-1,2,3-thiadiazole-5-carboxylic Acid STD	131-15731	Omethoate STD [PPL1] [FA3]	157-01881				
Methyl Thioacetohydroxamate STD	138-06853	Oribifloxacin STD [VDO]	154-03351				
Metiram STD	131-13151	Ormetoprim STD [PPL2] [VDS]	152-02551				
Metobromuron STD	138-19401	Oryzastrobin STD [WQ5] [WQ9]	152-02671				
Metoclopramide STD	132-14921	Oryzastrobin STD [WQ8]	159-02681				
Metofluthrin STD	130-18981	Oryzalin STD [PPL7]	158-02651				
Metolachlor STD [PPL2] [WQ5] [WQ9]		Oxabetrinil STD [PPL13] [PPL17]	155-03021				
	131-17431	Oxacilllin Sodium Monohydrate STD					
(E)-Metominostrobin STD [WQ4] [WQ5]							
	139-15891	Oxadiazole STD [WQ4]	155-02661				
(Z)-Metominostrobin STD	139-15911	Oxadiazon STD [PPL1]	151-01203				
Metosulam STD [PPL16]	134-18881	Oxadixyl STD [PPL6]	157-01521				
Metrafenone STD	139-19311	Oxamyl STD [PPL15] [WQ4]	151-01781				
Metribuzin STD [PPL10] [WQ4] [WQ5]		Oxathiapiprolin STD	153-03561				
	134-17421	Oxaziclidomefone STD [PPL14] [WQ4]					
Metribuzin DA STD	137-11791	Oxazosulfyl STD	150-02851				
Metribuzin DADK STD	130-11781	Oxfendazole STD	151-03621				
Metribuzin DK STD	130-11801	Oxfendazole Sulfone STD	155-02541				
Metronidazole STD	139-14931	Oxibendazole STD	153-02601				
Metsulfuron-methyl STD [PPL16]	131-12671	Oxine-copper SS (50 µg/mL MeOH)					
Metyltetraprole STD	131-19131	Oxine-copper STD	159-01961				
(E)-Mevinphos STD [PPL4]	132-15521	Oxolinic Acid STD [VDO]	156-01214				
		Oxoconazole-formyl STD	157-02361				
		Oxoconazole-fumarate STD	157-02361				

Sethoxydim 5-OH-M-SO <sub>2</sub> STD	190-15121	Tetramethrin STD	203-19021	Triphenenamine Hydrochloride STD	208-17011
Siduron STD [WQ3] [PM8]	195-10073	Tetraniliprole STD	204-21141	Triphenyltin(IV) Acetate STD	204-13331
Silaflufen STD [PPL14] [WQ4]	199-11193	TFNA STD	205-16781	Triphenyltin(IV) Chloride STD	201-13341
Simeconazole STD [PPL7] [WQ4] [WQ5]	196-12781	TFNA-AM STD	202-16791	Triphenyltin(IV) Hydroxide STD	208-13351
Simetryn STD [PPL5] [WQ1]	191-08044	TFNG STD	208-16771	Triticonazole STD [PPL13] [PPL14]	204-18331
Sodium Nifurystrenate STD	146-08251	Thenylchlor STD [PPL5] [WQ1]	203-13421	Tulathromycin A STD	201-21411
Spectinomycin Dihydrochloride Pentahydrate		Thiabendazole STD [PPL7] [PPL10] [VPL2]	200-13213	Tylosin STD [VDM]	208-19331
	191-11533	Thiacloprid STD [PPL7] [PPL13] [NP] [WQ4] [WQ5]	203-15763	Tyallosin Tartrate	204-21521
Spinetoram STD	194-16741	Thiaclor-amide STD [NP]	204-15771	<b>U</b>	
Spinosad STD [PPL14]	195-15051	Thiadiazin STD	205-19581	(R)-Uniconazole STD	215-01331
Spiramycin I STD [VDM]	197-11971	Thiamethoxam RM [PPL7] [NP] [WQ4] [WQ5]	201-19061	Uniconazole P STD [PPL4] [WQ3] [WQ5]	212-00981
Spirodiclofen STD [PPL12]	199-14231	Thiamphenicol STD [VPL2]	203-13921		
Spirodiclofen Metabolite M1 STD	199-17411	Thiazopyr STD	204-16991	<b>V</b>	
Spiromesifen STD	194-15141	Thidiazuron STD [PPL8]	203-16221	Validamycin A STD	221-02211
Spiromesifen Metabolite M1 STD	192-17261	Thifensulfuron STD	203-20371	Valnemulin Hydrochloride STD	228-02461
Spirotetramat STD	196-18881	Thifensulfuron-methyl STD [PPL8]	207-16741	Varnidothion STD [FA3]	227-01711
Spirotetramat Metabolite M1 STD	194-18821	Thifluzamide STD [WQ4] [WQ5]	204-14774	Vedaprofen STD	227-02291
Spiroxamine STD [PPL1]	198-16401	Thiocyclam Hydrogen Oxalate STD	207-20891	Vernolate STD	229-02011
Streptomycin Sulfate	192-14341	Thiodicarb STD [PPL14] [WQ3]	207-11361	Vinclozolin STD [PPL2]	228-00744
Sulfabenzamide STD [VDS]	193-14871	Thiometon SS (1 mg/mL in Hexane) [FA2]	207-13181	Virginiamycin	221-02451
Sulfabromomethazine STD [VDS]	192-16921	Thiophanate STD	204-13613		
Sulfacetamide STD [VPL1] [VDS]	192-14581	Thiophanate-methyl STD	200-19411	<b>W</b>	
Sulfachlorpyridazine Sodium Salt STD		Thiuram STD [WQ3] [PM8]	200-11373	Warfarin STD	238-02283
[VPL2] [VDS]	194-14661	Tiadinil RM [WQ4]	205-18741		
Sulfadiazine STD [VPL2] [VDS]	198-11381	Tiadinil Metabolite C STD	207-21251	<b>X</b>	
Sulfadimethoxine STD [VPL2] [VDS]	190-11101	Tiadinil Metabolite E STD	204-21261	XMC STD [PPL6]	244-00503
Sulfadimidine STD [VPL2] [VDS]	198-11141	Tiamulin Fumarate STD [VPL1] [VDM]	201-16881	Xylazine Hydrochloride STD [VPL1]	240-00821
Sulfadoxine STD [VPL2] [VDS]	192-14221	Tildipirosin STD	205-21171	2,6-Xylydine	247-00772
Sulfaethoxypyridazine STD [VDS]	199-16931	Tilmicosin STD [VPL1] [VDM]	200-19151		
Sulfaguanidine Monohydrate STD	192-15561	Tiopronin STD	204-16871	<b>Z</b>	
Sulfamerazine STD [VPL2] [VDS]	192-11301	Tolclofos-methyl STD [PPL4] [FA2] [WQ1] [PM32]	207-11383	Zeranol STD [VPL2] [VDH]	262-01461
Sulfamethoxazole STD [VPL2] [VDS]	191-11131	Tolclofos-methyl Oxon STD [WQ2]	202-16551	Zineb STD	266-00783
Sulfametoxydiazine STD [VDS]	198-17001	Tolfenamic Acid STD	208-16911	Ziram STD	264-01301
Sulfamethoxypyridazine STD [VPL2] [VDS]	190-14641	Tolfenpyrad STD [PPL6] [WQ5]	209-16843		
Sulfamonomethoxine Monohydrate STD		Tolprocarb STD	207-21371		
[VPL2] [VDS]	198-18961	Tolpyralate STD	207-21131		
Sulfamoyldapsone STD	199-17771	Toltrazuril STD	205-16921		
Sulfanamido STD [VDS]	198-14061	Toltrazuril Sulfone STD	201-17241		
Sulfantran STD [VPL2] [VDS]	195-17011	Toltrazuril Sulfoxide STD	204-17231		
Sulfapyridine STD [VPL2] [VDS]	199-14471	Tolyfluaniid STD	200-13171		
Sulfaquinoxaline Sodium Salt STD		TPN RM [WQ1] [PM32] [PM13] [PM8]	207-19301		
[VPL2] [VDS]	194-11481	Tralkoxydim STD	207-20391		
Sulfathiazole STD [VPL2] [VDS]	197-14651	Tralomethrin STD [PPL4]	209-12661		
Sulfatoxazole STD [VDS]	196-16941	$\alpha$ -Trenbolone STD [VPL2] [VDH]	203-20991		
Sulfentrazone STD [PPL16]	193-14751	$\beta$ -Trenbolone STD [VPL2] [VDH]	205-16281		
Sulfisomidine STD [VDS]	190-11221	Triadimenol STD [PPL3]	203-08494		
Sulfisoxazole STD [VDS]	191-16991	Triadimenol STD [PPL2]	208-08503		
Sulfisozole Sodium STD [VDS]	195-14071	Triafamone STD	206-21221		
Sulfosulfuron STD [PPL16]	195-17751	Tri-allate STD [PPL2]	208-16531		
Sulfoxaflor STD	190-19021	Triasulfuron STD [PPL16]	206-17931		
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3861-47-0	.....	098-03861	13749-94-5	.....	138-06853	24151-93-7	PPL6	WQ1	.....	160-11223	38260-54-7	FA2	.....	058-06081	
4101-80-8	.....	048-33771	13952-84-6	.....	168-27471	24157-81-1	.....	043-29811	38527-90-1	.....	.....	065-01813	38677-85-9	(Meglumine Salt)	.....
4630-95-9	.....	14086-35-2	WQ2	WQ3	139-15151	24307-26-4	.....	130-14841	38826-14-5	.....	.....	063-05091	39148-24-8	.....	026-10933
4726-14-1	.....	145-09201	14698-29-4	VDQ	.....	156-01851	24356-60-3	.....	030-20481	39300-45-3	.....	.....	042-26601	39450-09-8	
4824-78-6	PPL12	FA3	.....	14769-73-4	VPL2	.....	126-04991	24390-14-5	.....	049-31481	39515-41-8	PPL3	.....	042-26601	
5131-24-8	.....	045-32701	14761-18-3	PPL17	WQ4	.....	160-23631	24579-73-5	.....	161-16731	39574-25-6	PPL1	WQ1	PM32	PM8
5221-53-4	PPL7	.....	040-26901	14885-29-1	.....	163-16811	24916-50-5	VDM	.....	197-11971	39807-15-3	WQ4	.....	049-30381	
5234-68-4	PPL12	.....	030-19773	14985-29-1	.....	098-07261	24928-89-0	.....	116-01031	39856-16-1	WQ10	.....	049-30381	40020-01-7	
5259-88-1	PPL14	.....	158-03011	15090-23-0	.....	134-11941	25013-16-5	.....	020-15311	40204-42-1	PPL1	WQ1	PM32	PM8	
5326-23-8	.....	039-23491	15263-53-3	.....	033-22431	25057-89-0	WQ3	.....	027-07594	40487-42-1	PPL1	WQ1	PM32	PM8	
5355-16-8	VDS	.....	048-29621	15299-99-7	PPL6	WQ1	PM32	.....	090-03463	40596-69-8	PPL12	.....	.....	168-11903	
5486-03-3	.....	021-18761	15318-45-3	VPL2	.....	144-05893	25319-90-8	.....	168-18441	40665-92-7	.....	.....	032-21801	40754-22-7	
5575-21-3	.....	032-19691	15545-48-9	.....	037-25251	25389-94-0	.....	113-00941	41083-11-8	.....	.....	019-15601	40875-96-3	(Sodium Salt)	
5598-13-0	PPL1	FA1	WQ5	WQ9	15686-71-2	15686-83-6	25875-50-7	.....	186-01991	41198-08-7	PPL3	FA1	.....	169-17653	
5598-15-2	WQ2	.....	037-20131	15686-71-2	15686-83-6	167-18391	25876-10-2	.....	186-01991	41394-05-2	.....	.....	063-03531	41205-21-4	
5836-10-2	.....	037-09653	15686-83-6	.....	167-18391	25876-10-2	.....	079-06591	4137-17411	.....	.....	063-03531	41483-43-6		
5836-29-3	.....	030-22821	15972-60-8	PPL2	WQ1	.....	012-16333	26002-80-2	PPL6	.....	163-22661	PPL4	.....	021-16821	
5902-51-2	PPL5	.....	209-15341	16118-49-3	PPL17	.....	039-22031	26016-99-9	.....	063-06331	41814-78-2	PPL5	WQ3	.....	202-19111
5915-41-3	.....	206-20361	16484-77-8	VDS	.....	130-15441	26087-47-8	PPL5	FA1	WQ1	PM13	42461-84-7	.....	.....	063-05091
6101-20-8	.....	192-16921	16484-77-8	(Free Acid)	VPL2	.....	126-04991	26225-79-6	PPL12	.....	093-02233	42509-80-8	PPL12	.....	095-04541
6164-98-3	.....	038-22861	16595-80-5	VPL2	.....	168-10923	26244-33-7	PPL12	.....	055-07451	42576-02-3	PPL5	WQ1	.....	027-08253
6190-55-2	.....	192-15561	16672-87-0	.....	050-04961	26306-61-6	.....	053-09211	42609-52-9	PPL14	WQ3	.....	043-26251		
6291-84-5	.....	131-19251	16752-77-5	PPL14	WQ3	.....	132-17461	26306-61-6	.....	026-22541	42609-73-4	WQ1	PM32	.....	133-10791
6385-62-2	.....	047-30441	16846-24-5	.....	101-00181	26491-30-5	.....	202-13491	42835-25-6	VDQ	.....	069-04971	42874-03-3	PPL3	.....
6552-12-1	WQ2	WQ3	137-14971	17109-49-8	PPL6	FA1	WQ1	.....	093-02233	42874-03-3	PPL3	.....	150-02591	43056-63-9	
6552-13-2	WQ2	WQ3	136-15161	17606-31-4	.....	053-03133	26644-46-2	.....	202-08861	43121-43-3	PPL3	.....	023-08494	43222-48-6	
6804-07-5	.....	033-16681	17615-73-5	.....	024-09363	26654-39-7	.....	046-28441	43210-67-9	.....	064-04661	43222-48-6	.....	045-25851	
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6923-22-4	PPL4	FA3	WQ4	.....	17757-70-9	.....	037-25011	27164-46-1	.....	034-22841	43923-24-2	.....	.....	032-26041	
6980-18-3	.....	138-11101	17804-35-2	.....	028-18411	27314-13-2	PPL1	.....	044-08931	50471-44-8</td					

51997-43-4	030-17291	66332-96-5	PPL3 WO1 PM32	80844-07-1	PPL5 WO1	051-05194	101205-02-1	038-17591
52236-30-3	130-11781			065-05811	80983-34-2	VPL2	161-25381	101312-92-9
52315-07-8	PPL3 WO9	039-15441	66441-23-4	PPL9 PPL14	062-03621	81261-84-9	166-27391	(Hydrochloride)
52570-16-8	PPL7 WQ4	148-08211	66652-06-0	VPL2 VDS	198-18961	81334-34-1	099-04011	101463-69-8
52756-25-9	PPL6 PPL17	063-04991	66841-25-6	PPL4	209-12661	81335-37-7	092-04001	101831-37-2
52888-80-9		165-25921	67485-29-4		081-08551	81335-77-5	093-05511	101903-30-4
52918-63-5	PPL3	043-23473	67564-91-4	PPL1 PPL17	066-04981	81405-85-8	PPL4	096-05501
53112-28-0	PPL6 PPL17	160-29491	67628-93-7	PPL5 FA1 WO5 WQ9	81777-89-1	PPL12	037-20371	103361-09-7
53716-49-7		037-19761			82050-13-3		069-06671	103980-44-5
53716-50-0		155-02541	67747-09-5	PPL9	162-17903	82097-50-5	PPL16	206-17931
54029-20-8		157-02861	68085-85-8	PPL3	030-22941	82211-24-3	WQ4	092-06821
54992-23-3		146-08251	68157-60-8	PPL8	066-04621	82419-36-1	VDQ	150-02611
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55179-31-2	PPL3	024-10233	68505-69-1	PPL5 WO5 WQ9	82560-54-1	PPL17	023-09551	093-05491
55219-65-3	PPL2	208-08503			82657-04-3	PPL1	028-19871	105024-66-6
55268-74-1		160-22931	68694-11-1	PPL13 PPL17 WQ4 WQ5	82692-44-2	PPL7 WQ4	021-16223	105512-06-9
55283-68-6	PPL4	052-07461			83055-99-6	PPL16 WQ3	029-12623	105779-78-0
55285-14-8	PPL17	031-16361	68786-66-3		83121-18-0	PPL15	204-12373	105827-78-9
55290-64-7		046-25521	69004-03-1		83130-01-2		017-15521	106613-06-3
55297-95-5	VPL1 VDM	201-16881	69004-04-2		83164-33-4	PPL1	044-28121	106791-37-1
	(Fumarate)	69004-15-5			83207-22-9	PPL5	167-16691	106917-52-6
55297-96-6	VPL1 VDM	201-16881	69327-76-0	PPL2 WO1	83227-23-0	PPL6	160-16701	107534-96-3
55335-06-3	PPL8 WQ3	202-12911	69335-91-7	PPL16 WO4	83657-16-3		215-01331	203-13801
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	(Sodium Salt)	69409-94-5	PPL1	061-02471	83657-24-3		044-32411	205-10181
55635-13-7		015-09733	69525-81-1		84087-01-4		172-00451	110235-47-7
55814-41-0	PPL5 WO1 PM32		69806-34-4	PPL8	84087-33-2		174-00771	110488-70-5
	(Hydrochloride)	69806-40-2		089-09191	84332-86-5		110956-75-7	111479-05-1
55861-78-4		099-06831	69806-50-4		888-10271		111872-58-3	111872-58-3
56238-63-2		037-20491	70124-77-5	PPL1	88496-85-5	PPL4	203-20731	111988-49-9
56362-05-1	WQ2	024-15571	70193-21-4		84878-61-5		137-16811	112281-77-3
56507-37-0		130-11801	70253-62-2	VDM	85509-19-9	PPL9	065-03591	112281-77-3
56611-54-2		082-10171	70288-86-7		85721-33-1	VDQ	033-19621	112281-77-3
56611-55-3		089-10181	70458-96-7	VDQ	149-08241			205-19101
57018-04-9	PPL4 FA2 WO1 PM32		70630-17-0	PPL6	134-15623	(Hydrochloride)		112398-08-0
					85785-20-2	PPL5 WO1	055-05893	043-29551
					86209-51-0	PPL16	165-24561	(Mesylate)
57369-32-1	PPL4 WQ1	164-18041	71048-99-2		86393-32-0	VDQ	033-19621	112410-23-8
57520-17-9	WQ7	092-03901	71125-38-7		86479-06-3	PPL14	084-09141	112636-83-6
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57801-81-7		021-15341	71422-67-8	PPL17	86611-58-7	PPL17	063-04871	113136-77-9
57808-65-8		032-16531	71561-11-0	WQ5 WQ9	87130-20-9	PPL4	045-24131	113507-06-5
57837-19-1	PPL10 WQ1 PM32		71626-11-4	PPL5 PPL17	87674-68-8	PPL4	067-04771	113617-63-3
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					87820-88-0		114311-32-9	095-04591
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57966-95-7	PPL17	032-16793	72585-88-7		88678-67-5	PPL6 WO1 PM32	115550-35-1	115580-27-6
58001-44-8		166-21791	73231-34-2	VPL1	860-05001		163-16213	1135-17691
	(Potassium Salt)	73247-57-1	VDS		86805-35-0		168-18061	115850-28-7
58011-68-0	PPL7 WQ4	165-17091			89269-64-7	PPL7 WQ5	066-04121	115852-48-7
58306-30-2		066-05081	73250-68-7	PPL4 WO1	133-11673	90274-24-1	116007-11-5	116255-48-2
59669-26-0	PPL14 WQ3	207-11361	73634-73-8		90982-32-4	PPL16	136-16671	116714-46-6
59756-60-4	PPL2 PPL15	062-04601	73684-69-2		91296-87-6	VDQ	195-14211	116714-46-6
60168-88-9	PPL1	069-05191	74003-63-7		91306-60-6	VDQ	059-07471	116928-93-9
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61432-55-1	PPL4 WQ1	043-25173	76095-39-1		95266-40-3	WQ4	207-15401	119168-77-3
61949-76-6	PPL1 WQ9	168-16523	76280-91-6		95465-99-9	PPL5 FA1 WQ5 WQ9	036-18871	119446-68-3
61949-77-7	PPL1 WQ9	168-21033	76578-12-6		95737-68-1	PPL2 WQ1	163-18751	119446-68-3
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62610-77-9	PPL13	131-18391	76674-21-0	PPL12	965-05671	WQ5	118134-30-8	1204-16991
62850-32-2	PPL5	066-05961	76738-62-0	PPL6 WQ5 WQ9	96941-05-3	PPL5 WQ1	203-13421	1204-16991
62865-36-5	WQ4	044-25201			97483-08-4	WQ2	202-16551	1204-16991
62893-20-3		035-19941	77182-82-2	WQ8	97878-45-8	PPL16	059-07591	1204-16991
63409-12-1		204-21521	77359-18-3	PPL7 WQ6	98079-51-7	WQ1 PM32	048-25123	1204-16991
	(Tartrate)	77458-01-6	PPL2 FA2 WQ5 WQ9		98377-35-6		122-06671	1204-16991
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126535-15-7	PPL16	204-16751	160430-64-8	PPL3	NP WO4 WO5	874195-61-6
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126833-17-8	PPL16	069-04111	161050-58-4	PPL7		875915-78-9
127277-53-6		168-18061	161326-34-7	PPL12 PPL15		881685-58-1
	(Free Acid)		162650-77-3		053-08471	887973-21-9
128639-02-1	PPL12 PPL17	030-20361	163520-33-0		097-07231	897204-31-3
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131341-86-1		060-03683	174212-12-5		157-02361	937717-66-3
131475-57-5		206-19511	175013-18-0	PPL17		942515-63-1
131807-57-3	PPL13	064-04203	177406-68-7		021-15961	946578-00-3
131860-33-8	PPL10 PPL14	WO3	178813-81-5	PPL4	066-04481	957144-77-3
		015-19003	179101-81-6		163-21941	958647-10-4
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	(Spinosad)		181373-11-5		110-01051	1031756-98-5
131929-63-0		195-15051	181587-01-9	WO9	055-07571	110132-67-5
	(Spinosad)		183304-68-9		204-21261	1112127-95-3
131983-72-7	PPL13 PPL14		183675-82-3		164-28811	1201920-88-8
133220-30-1	PPL14	WO4 WO5	188425-85-6	PPL13 PPL15 WO4 WO5		200-14891
		094-06521			127-15821	1207727-04-5
133408-50-1	WO4	WO5	188489-07-8	PPL12		025-19641
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133855-98-8	PPL12	PPL15	201668-31-7		115-00761	1229654-66-3
133868-46-9		054-07661	201668-33-9		067-06851	1253511-94-2
134098-61-6	PPL15		228-02461		064-06861	1263133-33-0
134605-64-4	PPL7		203312-38-3		194-18821	1285071-33-1
135158-54-2	PPL14	WO4	203313-25-1		196-18881	1314008-27-9
135186-78-6	PPL7		204571-52-8		138-18421	1332838-17-1
135590-91-9	PPL4	PPL17	167-23161		208-16771	1342891-70-6
136337-67-2		137-16551	208521-24-8		051-07431	1352994-67-2
136849-15-5	PPL16		208764-25-4	NP	036-26061	1403836-05-4
137641-05-5	PPL12		210880-92-5	PPL7 NP WO4		1417782-03-6
139528-85-1	PPL16		212201-70-2	WO10	034-22581	1426296-49-2
139920-32-4	PPL5		217500-96-4		099-07051	1449021-97-9
139970-56-2		132-18201	219714-96-2	PPL16	201-21411	1472649-01-6
140163-89-9		091-06911	220899-03-6		201-21411	1486617-21-3
140923-17-7	PPL7		221205-90-9		202-19121	(Sodium Salt)
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141517-21-7	PPL6	PPL17	221654-72-4		021-19121	1516678-32-0
141776-32-1	PPL16		221654-73-5		028-19131	1549099-21-4
142459-58-3	PPL13	PPL15	063-06831	223580-51-6	034-22581	15611678-32-0
142891-20-1	PPL12		224049-04-1		099-07051	1570021-97-9
143294-89-7		206-15591	229977-93-9		066-04481	1589566-03-7
143390-89-0	PPL1		239110-15-7		064-06361	1590244-66-1
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143807-66-3	PPL7	WO4	097-07111		130-18981	1620008-03-7
144171-61-9	PPL7		033-18141	248593-16-0	WO5 WO9	162-06881
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145099-21-4	PPL16		272451-65-7		061-05031	16426296-49-2
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148477-71-8	PPL12		400882-07-7		037-20631	172-06881
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149508-90-7	PPL7	WO4 WO5	447399-55-5		167-28801	175-06881
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153233-91-1	PPL4	PPL17	519002-09-6		060-06881	182-06881
153719-23-4	PPL7	NP WO4 WO5	560121-52-0		030-22681	183-06881
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