

4th

Analytical Standards and Mixture Standard Solutions for Pesticides / Veterinary Drugs



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Analytical Standards
and Mixture Standard
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PL-1-3 / PL-2-1

Analytical Standards
and Mixture Standard
Solutions for Pesticides
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Analytical Standards
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Organic Phosphorus Pesticides Mixture Standard Solutions

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Analytical Standards
and Mixture Standard
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Neonicotinoid Pesticides Mixture Standard Solution

Analytical Standards
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Pesticides Mixture Standard Solutions

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Analytical Standards
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Other Pesticides Mixture Standard Solutions

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Pesticides Mixture Standard Solutions

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Analytical Standards
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Related Products

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Solvents for Pesticide Residue Analysis / Solvents for HPLC and LC/MS / GalloTect™ / Solid-phase Extraction Columns,
Presep® Series / HPLC Columns, Wakopak® Series

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

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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>



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 Search by CAS RN®

ECP e.g. 23184-68-9, 723-48-8

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

Benfuresate

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



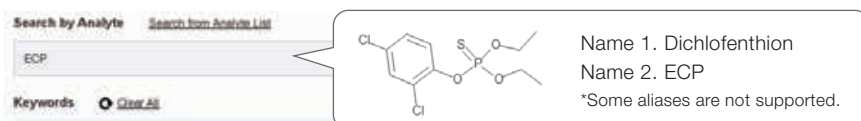
Click on the search system banner!

How to search

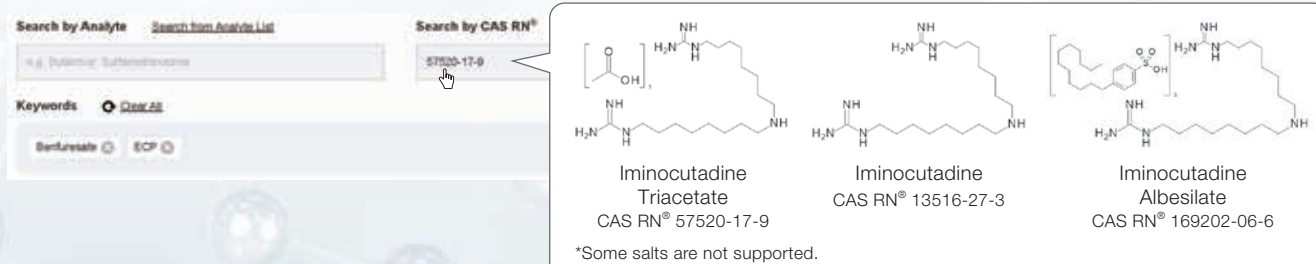
In the “Search System for Mixture Standard Solutions of Pesticides / Veterinary-drugs,” you can register analytes by [1] name or CAS RN® and [2] from the analyte list. In addition, in [1], you can search for analytes by their aliases and salt CAS RN®.

[1] Register analytes by name or CAS RN®

Analytes with multiple aliases can be searched by any alias!

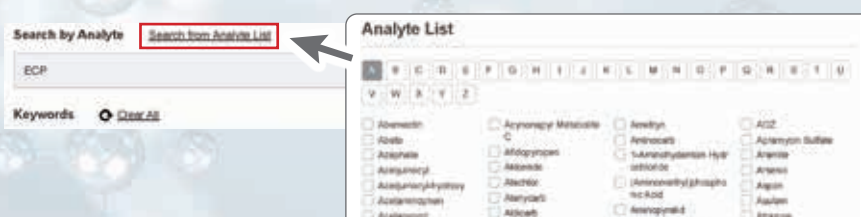


You can also search for analytes from the salt CAS RN®!



[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

[illegible]

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

■ Please refer to our website for details.

How to Use

https://labchem-wako.fujifilm.com/us/user_guide/pesticides_search/index.html





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

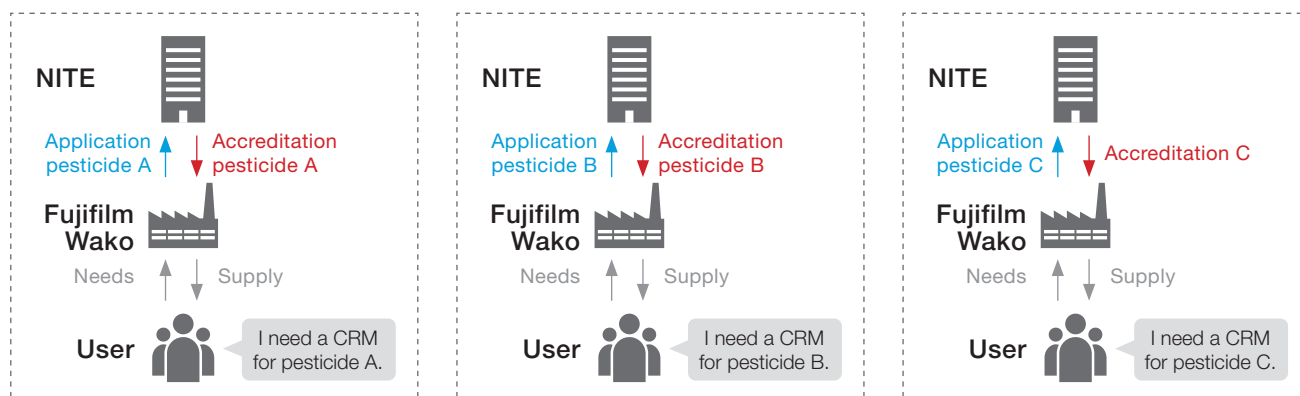
In 2023, Fujifilm Wako became the first company in the world to obtain comprehensive accreditation (flexible scope of accreditation) as a producer of reference materials (RMs), which will enable Fujifilm Wako to quickly and stably produce certified reference materials (CRMs) for pesticide residue analysis.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

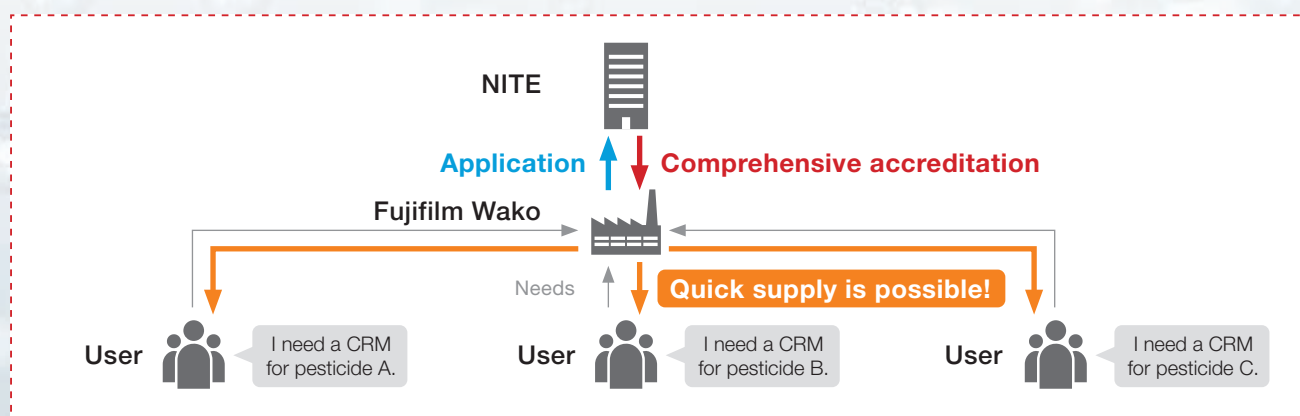
Conventional system

- 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.

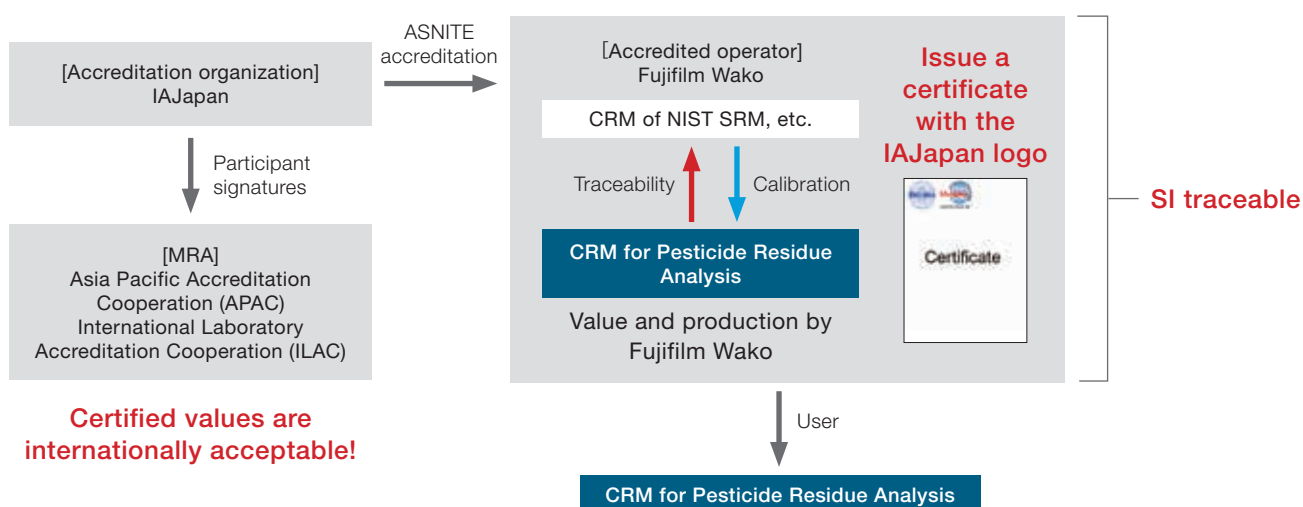


■ SI traceability mechanism CRM for pesticide residue analysis

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]*1	TraceSure®	Traceable Reference Material (TRM)	for Pesticide Residue Analysis [non-CRM]*1
Accreditation system	ASNITE*2		—	—
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>





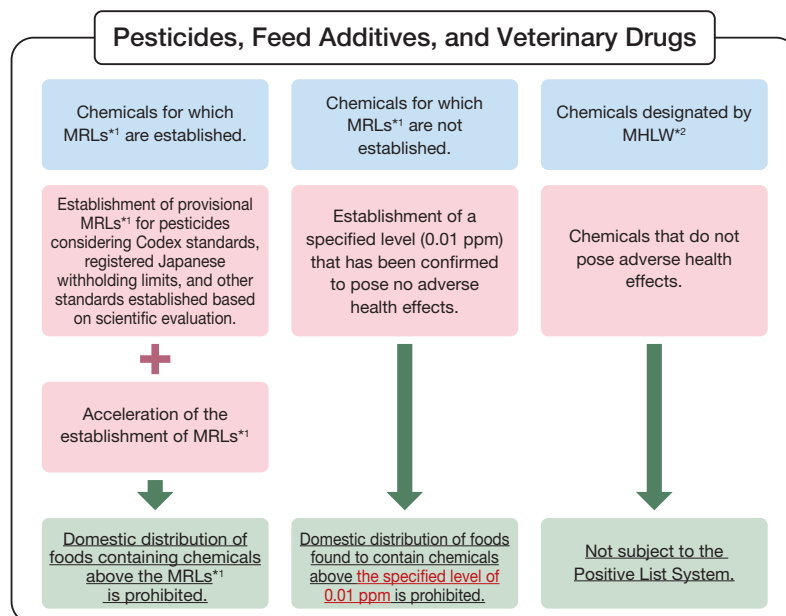
Pesticides / Veterinary-drugs Mixture Standard Solutions for the Simultaneous Analysis Method Under the JP Food Sanitation Act “Positive List System,” PL Series

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.¹⁾

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.



Positive List System¹⁾

*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) ^{*1,2}
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, Liver, 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.

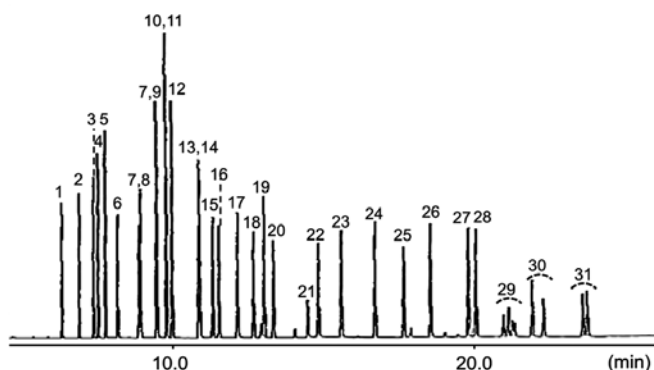
1) Ministry of Health, Labour and Welfare of Japan website

■ 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	1 mL	31	GC/MS	PPL1	P. 8
161-26643	(each 20 µg/mL Acetone Solution)	1 mL×5A				
164-22973	Pesticides Mixture Standard Solution PL-2-1	1 mL	31	GC/MS	PPL2	P. 9
168-22971	(each 20 µg/mL Acetone Solution)	1 mL×5A				
166-26671	Pesticides Mixture Standard Solution PL-3-3	1 mL	27	GC/MS	PPL3	P. 10
162-26673	(each 20 µg/mL Acetone Solution)	1 mL×5A				
162-24593	Pesticides Mixture Standard Solution PL-4-2	1 mL	36	GC/MS	PPL4	P. 12
166-24591	(each 20 µg/mL Acetone Solution)	1 mL×5A				
165-23003	Pesticides Mixture Standard Solution PL-5-1	1 mL	37	GC/MS	PPL5	P. 14
169-23001	(each 20 µg/mL Acetone Solution)	1 mL×5A				
165-24603	Pesticides Mixture Standard Solution PL-6-3	1 mL	35	GC/MS	PPL6	P. 15
169-24601	(each 20 µg/mL Acetone Solution)	1 mL×5A				
169-23023	Pesticides Mixture Standard Solution PL-7-2	1 mL	29	LC/MS	PPL7	P. 16
163-23021	(each 20 µg/mL Acetonitrile Solution)	1 mL×5A				
166-23033	Pesticides Mixture Standard Solution PL-8-1	1 mL	21	LC/MS	PPL8	P. 18
160-23031	(each 20 µg/mL Acetonitrile Solution)	1 mL×5A				
168-25313	Pesticides Mixture Standard Solution PL-9-2	1 mL	17	GC/MS	PPL9	P. 19
162-25311	(each 20 µg/mL Acetone Solution)	1 mL×5A				
160-23053	Pesticides Mixture Standard Solution PL-10-1	1 mL	9	GC/MS	PPL10	P. 20
164-23051	(each 20 µg/mL Acetone Solution)	1 mL×5A				
167-23943	Pesticides Mixture Standard Solution PL-12-1	1 mL	26	GC/MS	PPL12	P. 21
161-23941	(each 20 µg/mL Acetone Solution)	1 mL×5A				
164-23953	Pesticides Mixture Standard Solution PL-13-1	1 mL	15	GC/MS	PPL13	P. 22
168-23951	(each 20 µg/mL Acetone Solution)	1 mL×5A				
161-23963	Pesticides Mixture Standard Solution PL-14-2	1 mL	30	LC/MS	PPL14	P. 23
165-23961	(each 20 µg/mL Acetonitrile Solution)	1 mL×5A				
168-23973	Pesticides Mixture Standard Solution PL-15-1	1 mL	28	LC/MS	PPL15	P. 24
162-23971	(each 20 µg/mL Acetonitrile Solution)	1 mL×5A				
165-23983	Pesticides Mixture Standard Solution PL-16-2	1 mL	30	LC/MS	PPL16	P. 26
169-23981	(each 20 µg/mL Acetonitrile Solution)	1 mL×5A				
164-23693	Pesticides Mixture Standard Solution PL-17-2	1 mL	29	LC/MS	PPL17	P. 28
168-23691	(each 20 µg/mL Acetonitrile Solution)	1 mL×5A				
226-01683	Veterinary Drugs Mixture Standard Solution PL-1-3	1 mL	21	LC/MS	VPL1	P. 29
220-01681	(each 20 µg/mL Methanol Solution)	1 mL×5A				
223-01693	Veterinary Drugs Mixture Standard Solution PL-2-1	1 mL	24	LC/MS	VPL2	P. 30
227-01691	(each 20 µg/mL Methanol Solution)	1 mL×5A				

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

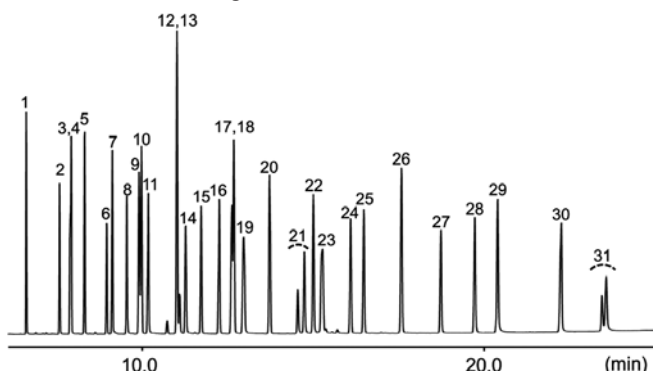
List of 31 components (each 20 µg/mL acetone solution)

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	100 126 100 101 126	198-16401	Spiroxamine Standard (mixture of isomers)	100 mg
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	123 133 162 107 133 160	161-29161	Pyrethrins Standard Solution (Pyrethrin I+II: 1 mg/mL Acetone Solution)	1 mL×5A
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	for Pesticide Residue Analysis	1 mL
168-22971	(each 20 µg/mL Acetone Solution)		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

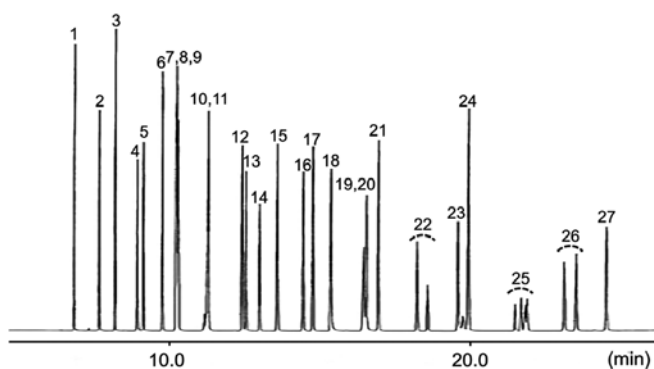
■ List of 31 components (each 20 µg/mL acetone solution)

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	Quintozene (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	α-CVP Standard	50 mg
			033-22791	β-CVP Standard	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	171 252 128	081-08311	Hexazinone Standard	200 mg
23	Propargite (BPPS)	173 150	024-06943	BPPS Standard	200 mg
24	Phosmet (PMP)	160 161 133	163-09221	PMP Standard	200 mg
25	Methoxychlor	227 274 228	139-12231	Methoxychlor Standard	200 mg
26	Pyriproxyfen	136 226	163-18751	Pyriproxyfen Standard	200 mg
27	Pyraclufos	360 194	160-17801	Pyraclufos 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	for Pesticide Residue Analysis	1 mL
162-26673	(each 20 µg/mL Acetone Solution)		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

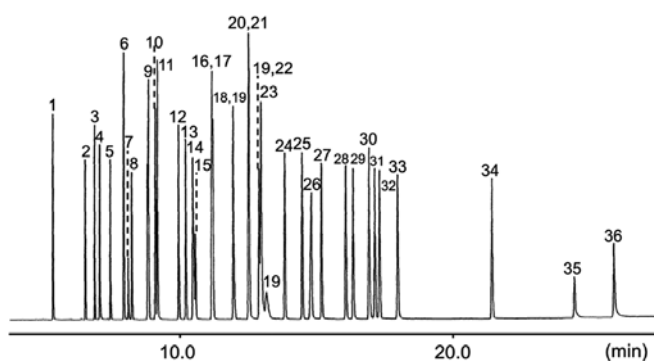
■ List of 27 components (each 20 µg/mL acetone solution)

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	for Pesticide Residue Analysis	1 mL
166-24591	(each 20 µg/mL Acetone Solution)		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)

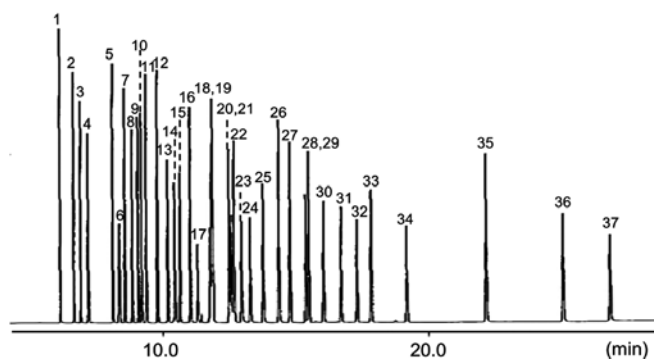
Peak No.	Components	Monitoring Ions (m/z)			Related Products		
					Code No.	Product Name	Volume
1	Mevinphos ((E)-Mevinphos, (Z)-Mevinphos)	127	109	192	132-15521	(E)-Mevinphos Standard	100 mg
					139-15531	(Z)-Mevinphos Standard	100 mg
2	Tecnazene	203	215	261	209-16441	Tecnazene Standard	200 mg
3	Ethalfuralin	276	316		052-07461	Ethalfuralin 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	Phenthoate (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	Ettoxazole	141	359	300	050-06683	Ettoxazole 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*2	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	for Pesticide Residue Analysis	1 mL
169-23001	(each 20 µg/mL Acetone Solution)		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

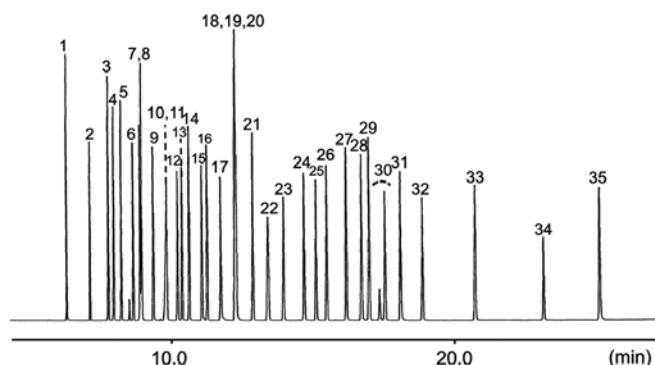
List of 37 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
1	Isoprocarb (MIPC)	121 136	130-06813	MIPC Standard	100 mg
2	Propachlor	120 176	164-22191	Propachlor Standard	200 mg
3	Chloroprotham (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	Benalaxyl	148 206 228	028-12791	Benalaxyl 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	for Pesticide Residue Analysis	1 mL
169-24601	(each 20 µg/mL Acetone Solution)		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

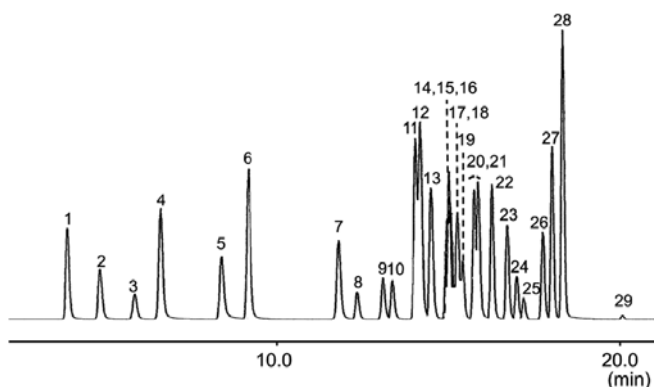
List of 35 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
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)-Pyrifenox	262 294 264	160-16701	(Z)-Pyrifenox 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	Phenothrin	123 183	163-22661	Phenothrin 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 CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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	Pyrifthalid	319.1	139.0	+	167-23161	Pyrifthalid 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	Methoxyphenozide	369.2	149.0	+	135-15491	Methoxyphenozide 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	Fenoxycarb	302.3	116.0	+	068-02981	Fenoxycarb 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.

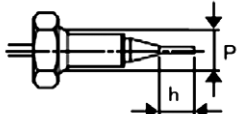
HPLC column connection types

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

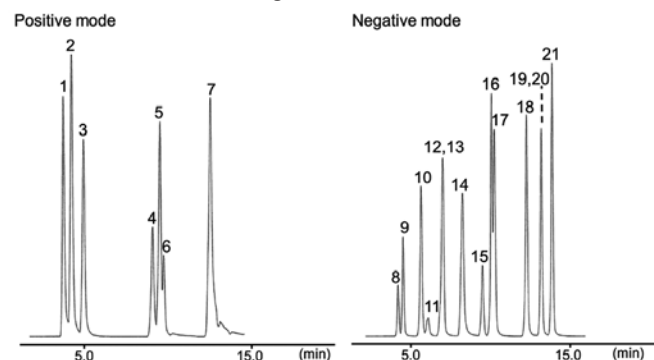
column, it was necessary to select a column with the same types of connection as the column previously used.

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)
	10-32 UNF P: 4.8 mm ferrule type	D	2.3-2.9
		W	3.5

Code No.	Product Name	Grade	Volume
166-23033	Pesticides Mixture Standard Solution PL-8-1	for Pesticide Residue Analysis	1 mL
160-23031	(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 CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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)

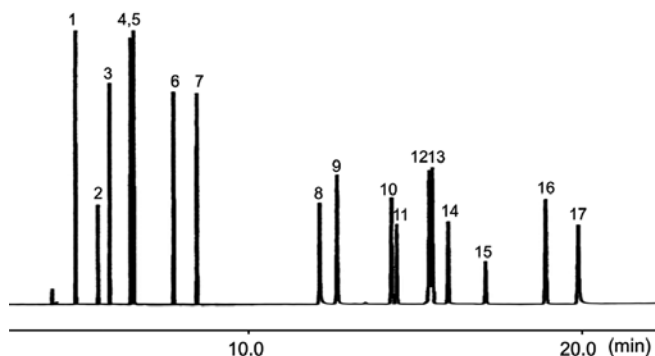
Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Flumetsulam	326.2	128.9	+	063-04751	Flumetsulam Standard	100 mg
2	Thifensulfuron-methyl	388.2	167.0	+	207-16741	Thifensulfuron-methyl Standard	200 mg
3	Florasulam	360.1	128.9	+	064-05021	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 ₃)	345.1	143.2	-	078-05081	Gibberellin A ₃ 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 (MCP)	213.1	141.1	-	132-10423	MCP Standard	100 mg
17	Dichloroprop	233.0	161.1	-	049-29411	Dichloroprop 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	Haloxypop	356.0	288.2	-	089-09191	Haloxypop 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	for Pesticide Residue Analysis	1 mL
162-25311	(each 20 µg/mL Acetone Solution)		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

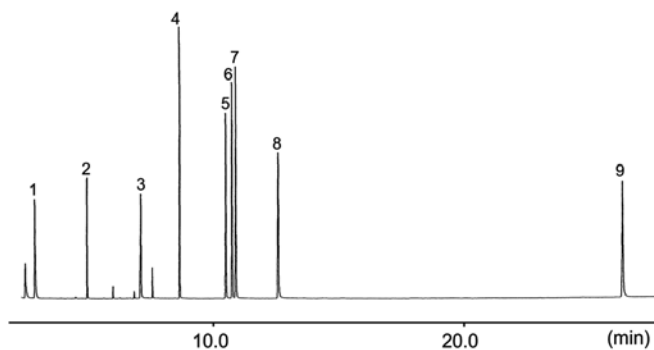
■ List of 17 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
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	Fenoxaprop-ethyl	288 361 261	062-03621	Fenoxaprop-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	for Pesticide Residue Analysis	1 mL
164-23051	(each 20 µg/mL Acetone Solution)		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

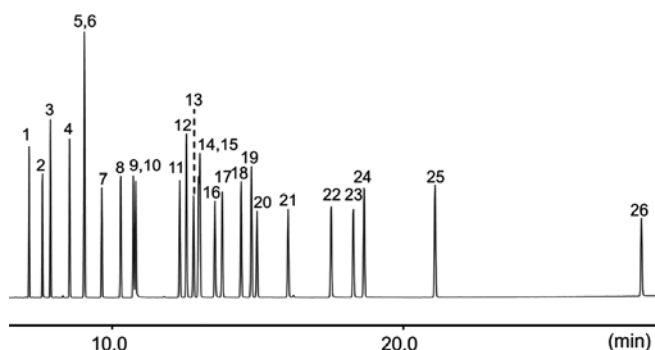
■ List of 9 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
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	for Pesticide Residue Analysis	1 mL
161-23941	(each 20 µg/mL Acetone Solution)		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)

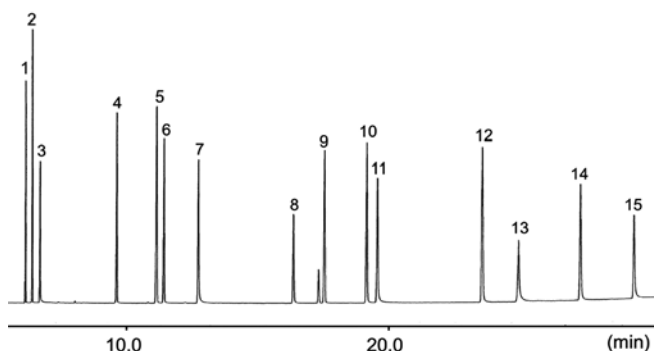
Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
1	Chlorethoxyfos	153 263	-	-	-
2	Dicrotophos	127 193 237	-	-	-
3	Phorate	75 121 260	166-22911	Phorate Standard	100 mg
4	Clomazone	125 204	037-20371	Clomazone Standard	100 mg
5	Isazofos	161 257 172	095-05451	Isazofos 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	for Pesticide Residue Analysis	1 mL
168-23951	(each 20 µg/mL Acetone Solution)		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

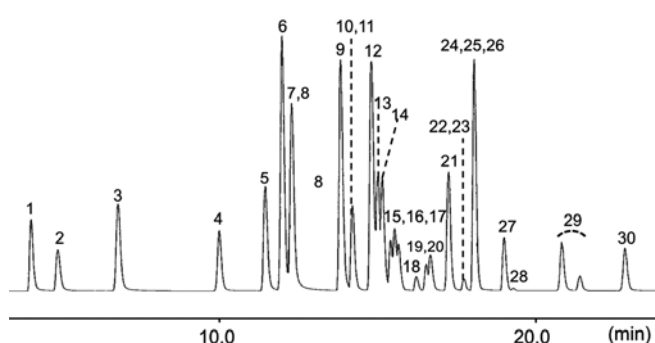
List of 15 components (each 20 µg/mL acetone solution)

Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
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 CH₃COONH₄ in H₂O,B) 5 mmol/L CH₃COONH₄ in CH₃OH

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	(Spinosyn A)	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

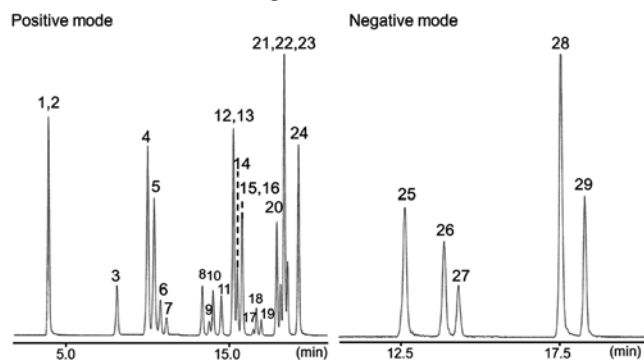
*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

*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	for Pesticide Residue Analysis	1 mL
162-23971	(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 CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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	Carbaryl (I 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 ^{*3}	389.0	302.1	+	049-28671	Dimethomorph Standard (mixture of isomers)	200 mg
10	(Z)-Dimetomorph ^{*3}	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

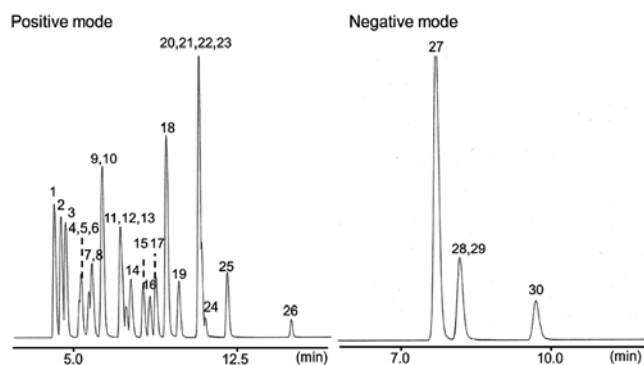
*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

*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	for Pesticide Residue Analysis	1 mL
169-23981	(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 CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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)

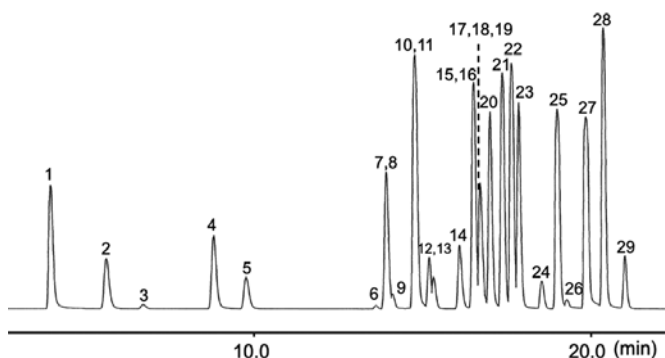
Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Metsulfuron-methyl	382.1	167.0	+	131-12671	Metsulfuron-methyl Standard	200 mg
2	Azimsulfuron	425.1	182.0	+	018-18253	Azimsulfuron Standard	100 mg
3	Cinosulfuron	414.1	183.0	+	033-16441	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	Trifloxysulfuron	438.1	182.0	+	201-17861	Trifloxysulfuron 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	for Pesticide Residue Analysis	1 mL
168-23691	(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 CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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)

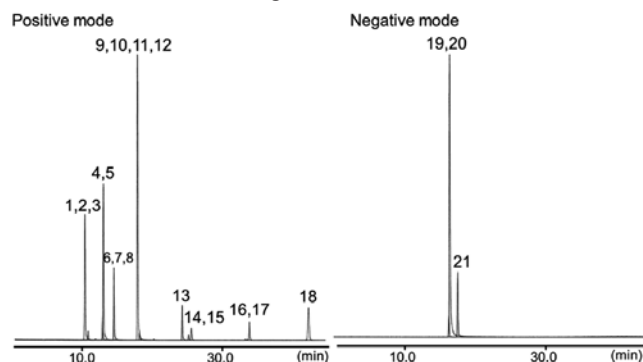
Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Pymetrozine	218.1	105.1	+	163-19971	Pymetrozine Standard	200 mg
2	3-OH Carbofuran (3-Hydroxycarbofuran)	255.1	163.1	+	085-08571	3-Hydroxycarbofuran Standard	50 mg
3	Cymoxanil	199.2	128.1	+	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	Triflumizole Metabolite	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	for HPLC	1 mL
220-01681	(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 H₂O, B) 0.1% HCOOH in CH₃CN

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	Allethrin	303.2	135.1	+	018-17011	Allethrin Standard	200 mg
18	Monensin	688.4	125.1	+	-	-	-
19	Florfenicol	358.1	185.1	-	060-05001	Florfenicol Standard	200 mg
20	2-Acetylamino-5-nitro thiazole	186.2	139.1	-	018-21421	2-Acetylamino-5-nitrothiazole Standard	200 mg
21	Clorsulon	380.0	344.0	-	033-20471	Clorsulon Standard	100 mg

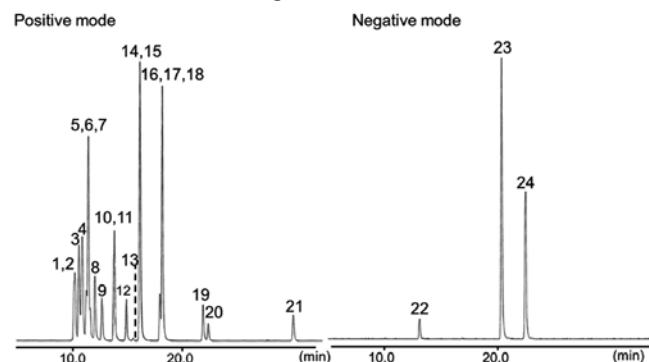
*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

*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 H₂O, B) 0.1% HCOOH in CH₃CN

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-1H-benzimidazole-2-amine	240.1	133.1	+	161-25381	5-Propylsulfonyl-1H-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	Sulfamonomethoxine	281.1	156.0	+	198-18961	Sulfamonomethoxine 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	Sulfantran	334.0	136.1	-	195-17011	Sulfantran 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. ¹⁾ 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.

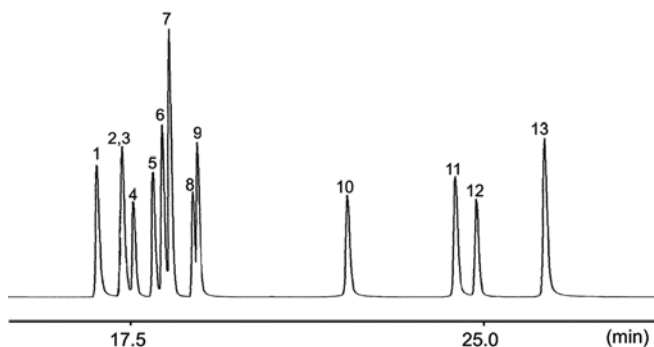
■ Product list of veterinary drug mixture standard solutions by drug classification

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

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 H₂O, B) CH₃CN

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

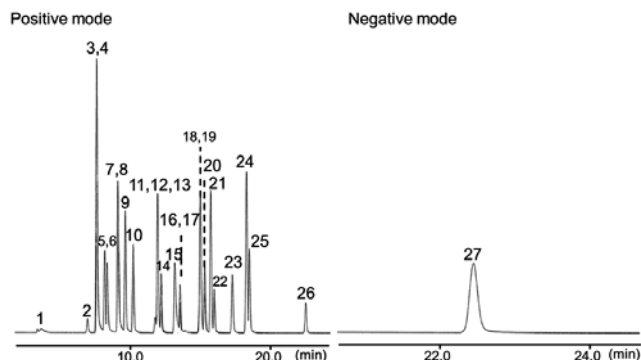
*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

*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*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) 0.01% HCOOH in H₂O, B) CH₃CN

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	Sulfisozole*3	240	156	+	195-14071	Sulfisozole Sodium Standard	200 mg
12	Sulfamethoxydiazine	281	92	+	198-17001	Sulfamethoxydiazine 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	Sulfamonomethoxine	281	92	+	198-18961	Sulfamonomethoxine Monohydrate Standard	100 mg
17	Sulfachlorpyridazine*3	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*3	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

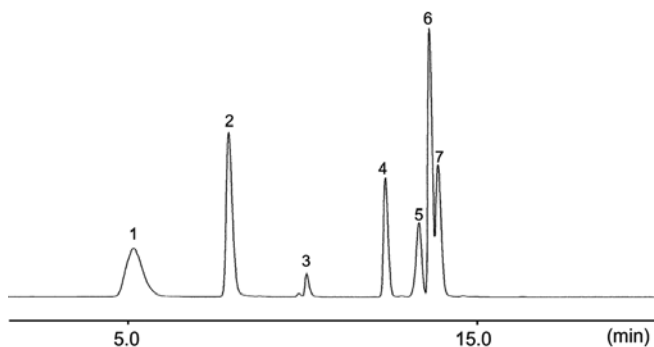
*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

*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 H₂O, B) 0.5% HCOOH in CH₃CN

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)

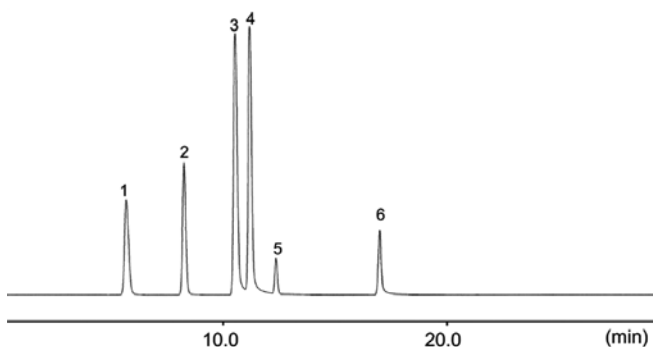
Peak No.	Components	Monitoring Ions (m/z)	Mode	Related Products		
				Code No.	Product Name	Volume
1	Neospiramycin I	350	+	147-07061	Neospiramycin I Standard	10 mg
2	Spiramycin I	422	+	197-11971	Spiramycin I Standard	10 mg
3	Tilmicosin (mixture of isomers)	870	+	200-19151	Tilmicosin Standard (mixture 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 ₅	772	+	125-06301	Leucomycin A ₅	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 H₂O, B) CH₃CN

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.¹⁾ The use of our FA series enables simultaneous analysis studies of organic phosphorus pesticides.

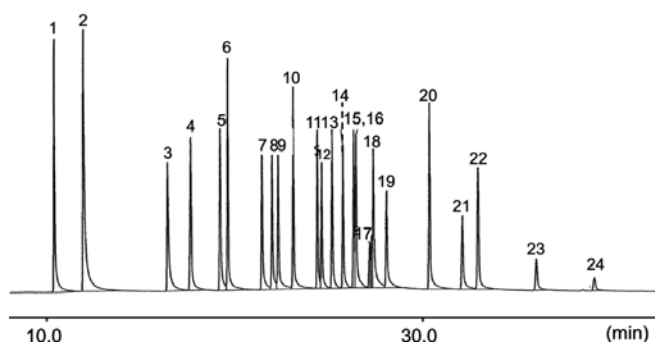
■ Product list of organic phosphorus pesticides mixture standard solutions, FA series

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

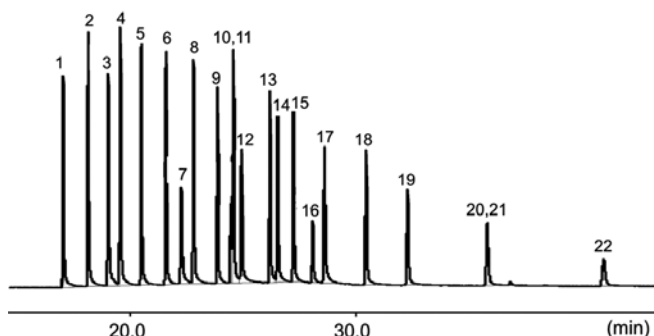
■ List of 24 components (each 20 µg/mL)

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 (α-CVP)	033-21691	α-CVP Standard	50 mg
15	Quinalphos	175-00441	Quinalphos Standard	200 mg
16	(Z)-Chlorfenvinphos (β-CVP)	033-22791	β-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)

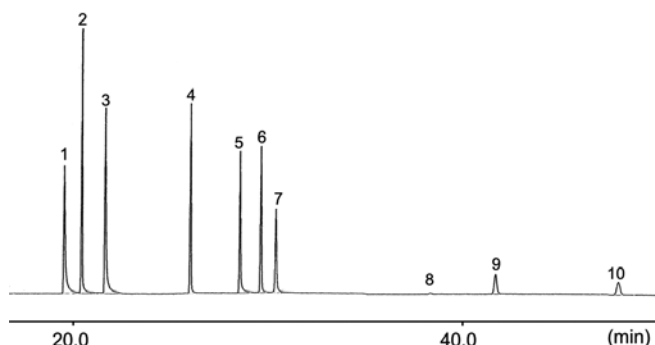
Peak No.	Components	Related Products		
		Code No.	Product Name	Volume
1	Ethoprophos	051-05611	Ethoprophos Standard	200 mg
2	Phorate	166-22911	Phorate Standard	100 mg
3	Thiometon	207-13181	Thiometon Standard Solution (1 mg/mL Hexane Solution)	1 mL×5A
4	Terbufos	200-12691	Terbufos Standard	200 mg
5	Etrimfos	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 spitless 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

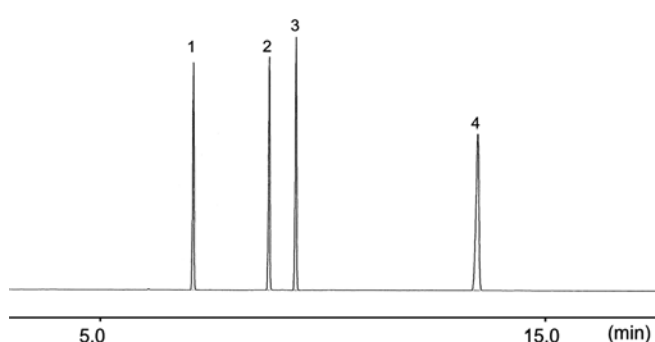
List of 10 components (each 20 µg/mL acetone solution)

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.¹⁾ Fujifilm Wako provides a mixture standard solution of neonicotinoid pesticides and their metabolites.

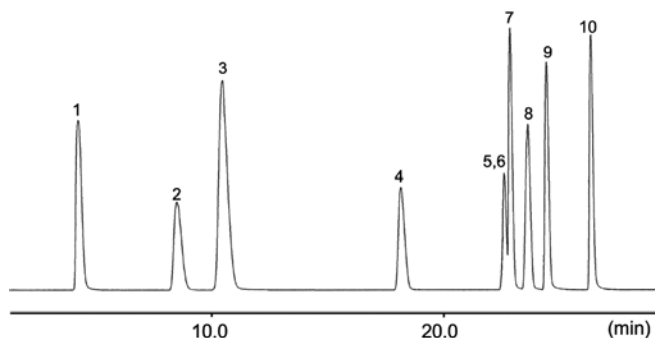
Product list of neonicotinoid pesticides mixture standard solution

Code No.	Product Name	Volume	Number of Components	Analysis Equipment	Mark	Product Page
149-09461	Neonicotinoid Pesticides Mixture Standard	1 mL	10	LC/MS		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	for Pesticide Residue Analysis	1 mL
145-09463	(each 20 µg/mL Acetonitrile Solution)		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 CH₃COONH₄

B) CH₃OH

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)

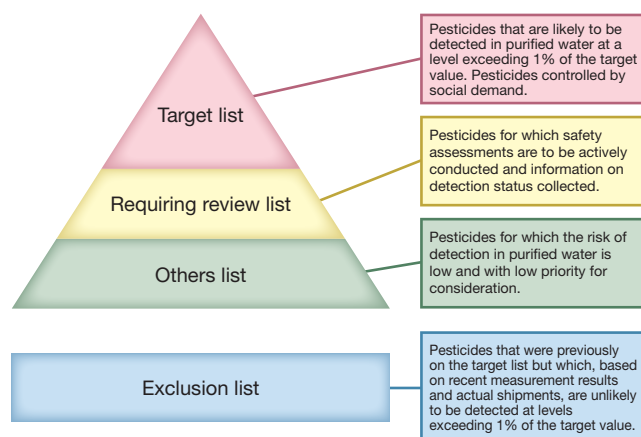
Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
1	CPMF	212	036-26061	CPMF	200 mg
2	Dinotefuran	203	041-29731	Dinotefuran Standard	100 mg
3	Nitenpyram	271	142-06771	Nitenpyram Standard	200 mg
4	Thiamethoxam	292	201-19061	Thiamethoxam Reference Material CRM	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.



Summary of pesticide classification¹⁾

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.

Classification	Code No.	Product Name ^{*1}	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										○
Review	010-16493	Acetamiprid Standard	for Pesticide Residue Analysis	100 mg				○	○					
Other	014-18331	Acibenzolar-S-methyl Standard	for Pesticide Residue Analysis	200 mg				○						
Target	013-15741	ACN Standard (Quinoclamine)	for Pesticide Residue Analysis	200 mg					○				○	
Target	012-16333	Alachlor Standard	for Pesticide Residue Analysis	100 mg	○									
Other	015-13643	Ametryn Standard	for Pesticide Residue Analysis	100 mg				○	○					
	016-24641	(Aminomethyl)phosphonic Acid Reference Material	Traceable Reference Material	100 mg									○	
Target	015-09593	Amitraz Standard	for Pesticide Residue Analysis	200 mg										
	011-14941	Amitraz Metabolite Hydrochloride Standard	for Pesticide Residue Analysis	200 mg									○	
Other	016-14011	Amitrole Standard	for Pesticide Residue Analysis	200 mg										
Target	012-20243	Anilofos Standard	for Pesticide Residue Analysis	100 mg	○									
Target	015-13523	Asulam Standard	for Pesticide Residue Analysis	100 mg				○						
Target	016-15633	Atrazine Standard	for Pesticide Residue Analysis	100 mg	○									
Other	018-18253	Azimsulfuron Standard	for Pesticide Residue Analysis	100 mg										
Exclusion	015-19003	Azoxystrobin Standard	for Pesticide Residue Analysis	100 mg				○						
Other	028-11691	Bendiocarb Standard	for Pesticide Residue Analysis	200 mg				○						
Target	023-09551	Benfuracarb Standard	for Pesticide Residue Analysis	200 mg										
Target	023-12883	Benfuresate Standard	for Pesticide Residue Analysis	100 mg					○				○	
Target	028-18411	Benomyl Standard	for Pesticide Residue Analysis	100 mg										
Exclusion	029-12623	Bensulfuron-methyl Standard	for Pesticide Residue Analysis	100 mg				○						
Exclusion	021-07673	Bensulide Standard	for Pesticide Residue Analysis	100 mg				○						
Other	024-09363	Bensultap Standard	for Pesticide Residue Analysis	200 mg										

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

Classification	Code No.	Product Name ^{*1}	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	Benthicarb 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	Cinmethylin 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 (III)) ^{*2}												
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	DCCA 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 ^{*2}												

Classification	Code No.	Product Name*1	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	Dicloromezine 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	Echloomezol 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 (α-Benzoepin)*2												
Target	-	Endosulfan II (β-Benzoepin)*2												
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	Ethylthiomethon 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	Fenoxanil 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	Flutolanil Reference Material	TraceSure® CRM	100 mg	○									
	064-06481	Flutolanil 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	Iminoctadine 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 ^{*1}	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) ^{*2}												
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 ^{*2}												
Target	133-06803	Manzeb Standard	for Pesticide Residue Analysis	200 mg										
Target	132-10901	MBPMC Standard (Terbucarb)	for Pesticide Residue Analysis	200 mg	○									
Target	135-16971	MCP Reference Material (4-Chloro-o-tolylxyacetic 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) ^{*2}												
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	Metalddehyde 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	Orysastrobins Standard	for Pesticide Residue Analysis	50 mg					○				○	
	159-02681	(5Z)-Orysastrobins Standard	for Pesticide Residue Analysis	50 mg									○	
Other	155-02661	Oxadiazyl Standard	for Pesticide Residue Analysis	100 mg				○						
Other	151-01781	Oxamyl Standard	for Pesticide Residue Analysis	200 mg				○						
Target	150-02851	Oxaziclonofone 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	Paclobutrazol Standard	for Pesticide Residue Analysis	100 mg					○				○	
Target	161-27081	PAP Standard (Phenthoate)	for Pesticide Residue Analysis	100 mg	○									
Target	160-08871	Paraquat Dichloride Standard	for Pesticide Residue Analysis	100 mg							○			

Classification	Code No.	Product Name ^{*1}	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	○									
Target	168-11903	Pendimethalin Standard	for Pesticide Residue Analysis	100 mg	○									
Review	169-19691	Pentoxazone Standard	for Pesticide Residue Analysis	200 mg				○						
Other	168-16523	<i>cis</i> -Permethrin Standard	for Pesticide Residue Analysis	100 mg									○	
Other	168-21033	<i>trans</i> -Permethrin Standard	for Pesticide Residue Analysis	100 mg									○	
Other	168-09293	PHC Standard (Propoxur)	for Pesticide Residue Analysis	100 mg					○				○	
Review	167-09383	Phosalone Standard	for Pesticide Residue Analysis	100 mg					○				○	
Other	163-16811	Phoxim Standard	for Pesticide Residue Analysis	200 mg				○						
Target	160-11223	Piperophos Standard	for Pesticide Residue Analysis	200 mg	○									
Other	161-13713	Pirimiphos-methyl Standard	for Pesticide Residue Analysis	100 mg				○	○					
Target	167-26581	Polycarbamate Standard	for Pesticide Residue Analysis	100 mg										
Target	168-16361	Pretilachlor Standard	for Pesticide Residue Analysis	200 mg	○									
Target	168-17483	Probenazole Standard	for Pesticide Residue Analysis	100 mg			○							
Target	161-11214	Procymidone Standard	for Pesticide Residue Analysis	100 mg	○									
Other	168-18061	Prohexadione Standard	for Pesticide Residue Analysis	200 mg										
Other	167-15373	Prometryn Standard	for Pesticide Residue Analysis	100 mg				○	○					
Other	168-10244	Propaphos Standard	for Pesticide Residue Analysis	100 mg					○				○	
Target	169-16771	Propiconazole Standard	for Pesticide Residue Analysis	200 mg	○									
Target	160-26331	Propineb Standard	for Pesticide Residue Analysis	100 mg										
Target	169-25061	Propyzamide Reference Material	TraceSure [®] CRM	100 mg	○									
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				○						
Review	160-17801	Pyraclofos Standard	for Pesticide Residue Analysis	200 mg					○				○	
Target	163-23521	Pyracilonil Standard	for Pesticide Residue Analysis	100 mg						○				
Target	165-17091	Pyrazolate Standard	for Pesticide Residue Analysis	200 mg				○						
Other	168-17841	Pyrazosulfuron-ethyl Standard	for Pesticide Residue Analysis	200 mg				○						
Target	164-16743	Pyrazoxyfen Standard	for Pesticide Residue Analysis	100 mg					○				○	
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	○									
Target	169-10914	Pyridaphenthion Standard	for Pesticide Residue Analysis	100 mg	○									
Other	166-19841	(<i>E</i>)-Pyrminobac-methyl Standard	for Pesticide Residue Analysis	200 mg				○	○					
Other	163-19851	(<i>Z</i>)-Pyrminobac-methyl Standard	for Pesticide Residue Analysis	50 mg				○	○					
Exclusion	163-18751	Pyriproxyfen Standard	for Pesticide Residue Analysis	200 mg	○									
Target	164-18041	Pyroquilon Standard	for Pesticide Residue Analysis	200 mg	○									
Other	179-00721	Quizalofop-ethyl Standard	for Pesticide Residue Analysis	100 mg				○						
Other	191-10651	Sethoxydim Standard	for Pesticide Residue Analysis	50 mg										
Exclusion	195-10073	Siduron Standard	for Pesticide Residue Analysis	100 mg			○							
Other	199-11193	Silafluofen Standard	for Pesticide Residue Analysis	100 mg				○						
Other	196-12781	Simeconazole Standard	for Pesticide Residue Analysis	200 mg				○	○					
Target	191-08044	Simetryn Standard	for Pesticide Residue Analysis	100 mg	○									
Other	195-15051	Spinosad Standard	for Pesticide Residue Analysis	100 mg										
Other	202-07901	TCTP Standard (Chlorthal-dimethyl)	for Pesticide Residue Analysis	200 mg					○					
Review	203-13801	Tebuconazole Standard	for Pesticide Residue Analysis	200 mg				○	○					
Other	207-19041	Tebufenozide Reference Material	Traceable Reference Material	100 mg				○						
Other	205-13481	Tecloftalam Standard	for Pesticide Residue Analysis	200 mg										
Target	207-19921	Tefuryltrione Standard	for Pesticide Residue Analysis	100 mg									○	
Other	205-19101	Tetraconazole Reference Material	TraceSure [®] CRM	100 mg				○	○					
Exclusion	203-13421	Thenylchlor Standard	for Pesticide Residue Analysis	200 mg	○									
Other	203-15763	Thiacloprid Standard	for Pesticide Residue Analysis	100 mg				○	○					
Other	205-19581	Thiadiazin Standard (Milneb)	for Pesticide Residue Analysis	100 mg										
Other	201-19061	Thiamethoxam Reference Material	TraceSure [®] CRM	100 mg				○	○					
Other	204-14774	Thifluzamide Standard	for Pesticide Residue Analysis	100 mg				○	○					
Other	207-20891	Thiocyclam Hydrogen Oxalate Standard	for Pesticide Residue Analysis	100 mg										
Target	207-11361	Thiodicarb Standard	for Pesticide Residue Analysis	200 mg			○							
Target	200-19411	Thiophanate-methyl Standard	for Pesticide Residue Analysis	100 mg										
Target	200-11373	Thiuram Standard	for Pesticide Residue Analysis	100 mg			○							
Target	205-18741	Tiadinil Reference Material	TraceSure [®] CRM	100 mg				○						
Exclusion	207-11383	Tolclofos-methyl Standard	for Pesticide Residue Analysis	100 mg	○									
	202-16551	Tolclofos-methyl Oxon Standard	for Pesticide Residue Analysis	100 mg		○								
Other	209-16843	Tolfenpyrad Standard	for Pesticide Residue Analysis	100 mg									○	
Target	207-19301	TPN Reference Material (Chlorothalonil)	Traceable Reference Material	100 mg	○									
Target	202-12911	Triclopyr Standard	for Pesticide Residue Analysis	200 mg			○							
Target	202-19111	Tricyclazole Reference Material	TraceSure [®] CRM	100 mg			○							
Other	202-10191	Triflumizole Standard	for Pesticide Residue Analysis	200 mg				○	○					

Classification	Code No.	Product Name ^{*1}	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	Uniconazole 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.

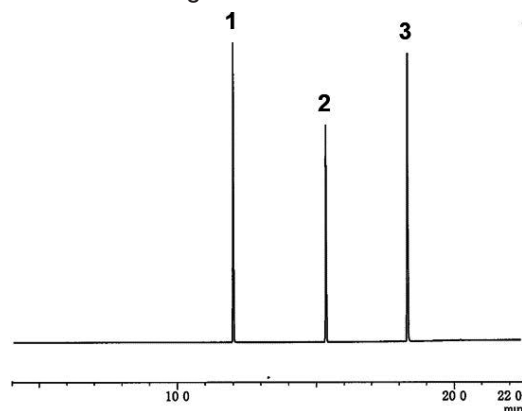
Product list of mixture standard solutions for the simultaneous analysis method of JP Water Quality Act, WQ series

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
169-23883	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
168-26011	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
164-27613	Pesticides Mixture Standard Solution WQ-6 (Ferimzone, Pyraclostrobin, 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
165-27643	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
166-29133	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)

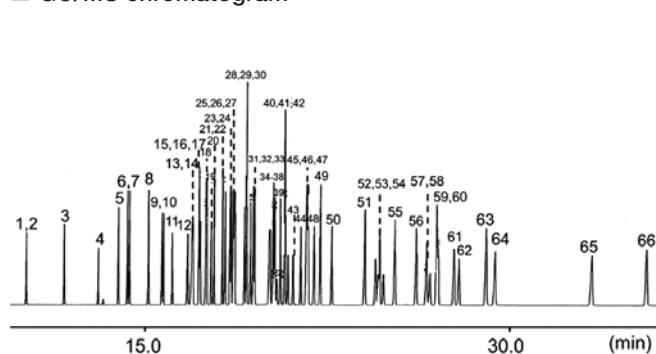
Peak No.	Components	Related Products		
		Code No.	Product Name	Volume
1	Anthracene-d ₁₀	018-28121	Anthracene-d ₁₀	1 g
2	9-Bromoanthracene	025-14141	9-Bromoanthracene Standard	200 mg
3	Chrysene-d ₁₂	037-16081	Chrysene-d ₁₂	100 mg

* 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	for Pesticide Residue Analysis	1 mL
164-26633	(each 20 µg/mL Acetone Solution)		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)

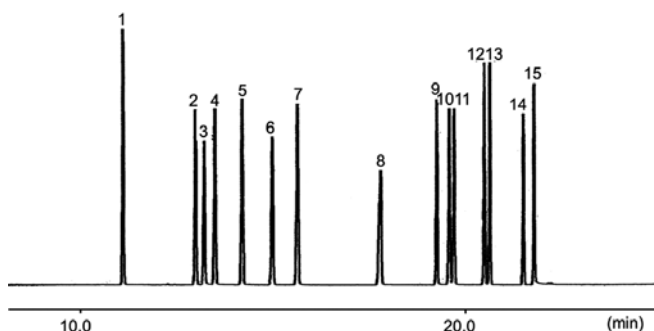
Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
1	Dichlorvos (DDVP)	79 109 185	046-16633	DDVP Standard	200 mg
2	Trichlorfon (DEP) (deg.)	109 79 185	041-31681	DEP Reference Material CRM	100 mg
3	Dichlobenil (DBN)	171 100 173	048-25461	DBN Standard	200 mg
4	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	Esprocarb	91	222	162	055-05893	Esprocarb 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	Phenthoate (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	for Pesticide Residue Analysis	1 mL
163-23881	(each 20 µg/mL Acetone Solution)		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)

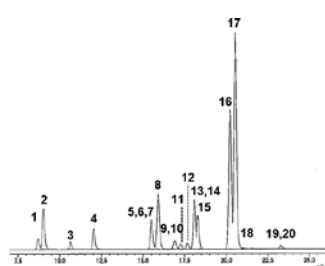
Peak No.	Components	Monitoring Ions (m/z)	Related Products		
			Code No.	Product Name	Volume
1	Diazinon Oxon	137 273 288	042-24021	Diazinon Oxon Standard	200 mg
2	Tolclofos-methyl Oxon	249 109 251	202-16551	Tolclofos-methyl Oxon Standard	100 mg
3	MEP Oxon	244 109 261	131-11691	MEP Oxon Standard	200 mg
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.

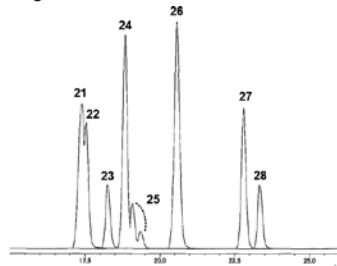
Code No.	Product Name	Grade	Volume
166-23893	28 Pesticides Mixture Standard Solution WQ-3	for Pesticide Residue Analysis	1 mL
160-23891	(each 20 µg/mL Acetonitrile Solution)		1 mL×5A

■ LC/MS/MS chromatogram*

Positive mode



Negative mode



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 H₂O, B) CH₃CN

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)

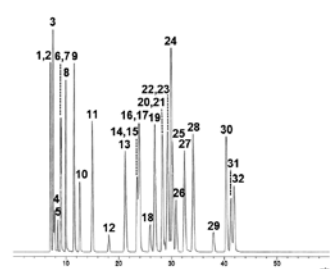
Peak No.	Components	Monitoring Ions (m/z)		Mode	Related Products		
		Precursor	Product		Code No.	Product Name	Volume
1	Asulam	231.1	156.0	+	015-13523	Asulam Standard	100 mg
2	Methomyl	163.1	106.2	+	132-17461	Methomyl Reference Material CRM	100 mg
3	MPP Oxon Sulfoxide	279.1	263.9	+	136-15161	MPP Oxon 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.

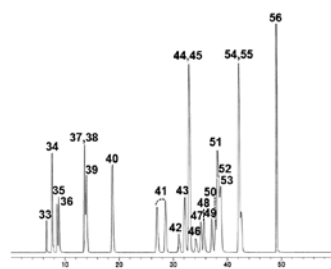
Code No.	Product Name	Grade	Volume
168-26011	63 Pesticides Mixture Standard Solution WQ-4	for Pesticide Residue Analysis	1 mL
164-26013	(each 20 µg/mL Acetonitrile Solution)		1 mL×5A

■ LC/MS/MS chromatogram*1

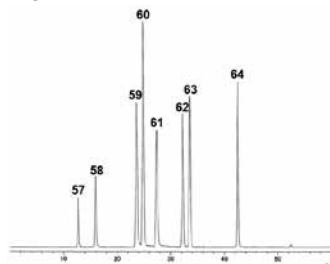
Positive mode ①



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 CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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	Chromafenozide	395	175	+	033-18141	Chromafenozide 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	Dicloromezine	255	141	+	044-25201	Dicloromezine 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	Inabنفide	337	122	-	092-06821	Inabنفide Standard	100 mg
61	Tiadinil	266	71	-	205-18741	Tiadinil 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

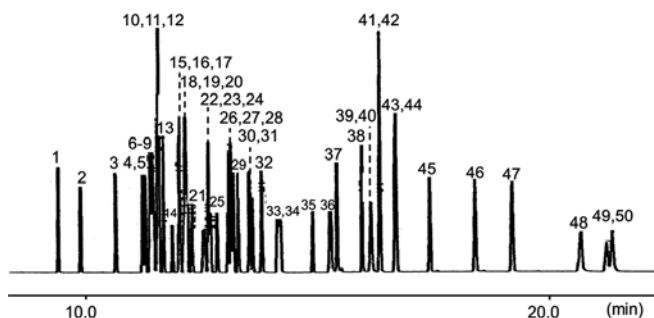
*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

*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	for Pesticide Residue Analysis	1 mL
167-26003	(each 20 g/mL Acetone Solution)		1 mL×5A

■ GC/MS/MS chromatogram*1



Analysis conditions

[Instrument]

Shimadzu QP-2010 Ultra

[GC]

Column: BPX5 0.25 μ m, 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 (m/z)		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	(E)-Dimethylvinphos* ²	295	297	044-26063	(E)-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	(Z)-Dimethylvinphos* ²	295	297	045-25231	(Z)-Dimethylvinphos Standard	200 mg
18	Chlorthal-dimethyl(TCTP)	301	299	202-07901	TCTP 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	(E)-Metominostrobin	191	196	139-15891	(E)-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	(Z)-Pyriminobac-methyl* ³	302	256	163-19851	(Z)-Pyriminobac-methyl Standard	50 mg
34	Cyproconazole	222	139	039-23251	Cyproconazole Standard (mixture of isomers)	100 mg
35	(E)-Pyriminobac-methyl* ³	302	256	166-19841	(E)-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	Furametpyr	157	298	062-03741	Furametpyr 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

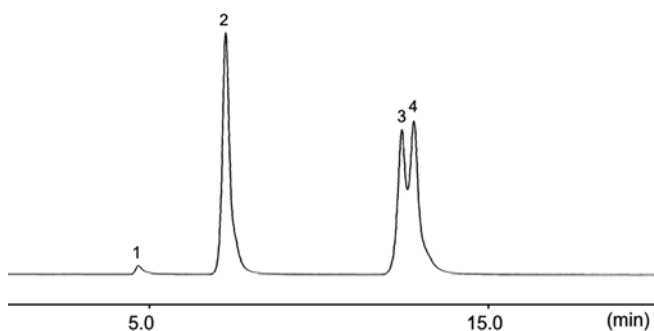
*1 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

*2 Dimethylvinphos contains 10 µg/mL each of (E)-dimethylvinphos (Peak No. 14) and (Z)-dimethylvinphos (Peak No. 17), 20 µg/mL in total.

*3 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,	for Pesticide Residue Analysis	1 mL
168-27611	Pyraclonil, Nereistoxin 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	231-50241	1 EA (D)
3C18HG 2.0×150 mm	237-50243	1 EA (W)

Column temperature: 40°C

Eluent: A) 5 mmol/L CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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*3	150	105	+	141-04161	Nereistoxin Oxalate Standard	200 mg
2	Pyraclonil	315	169	+	163-23521	Pyraclonil Standard	100 mg
3	(E)-Ferimzone*4	255	91	+	063-04131	(E)-Ferimzone Standard	200 mg
4	(Z)-Ferimzone*4	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.

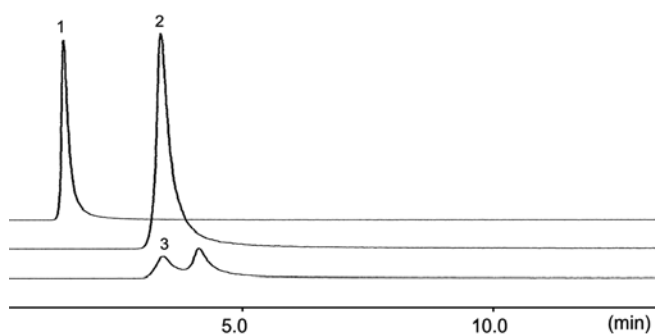
*2 There are two types of column connection: W type and D type. For details, please refer to "HPLC Column Connection Types" P. 17.

*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,	for Pesticide Residue Analysis	1 mL
162-27631	Diquat, Paraquat each 20 µg/mL Water Solution)* ¹		1 mL×5A

■ LC/MS/MS chromatogram*²



Analysis conditions

[Instrument]

Shimadzu LCMS-8040

[HPLC]

Column:

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

Column temperature: 40°C

Eluent: HCOONH₄ Buffer:CH₃CN = 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* ⁴	183	157	+	047-30441	Diquat Dibromide Monohydrate Standard	100 mg
3	Paraquat* ⁴	185	170	+	160-08871	Paraquat Dichloride Standard	100 mg

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

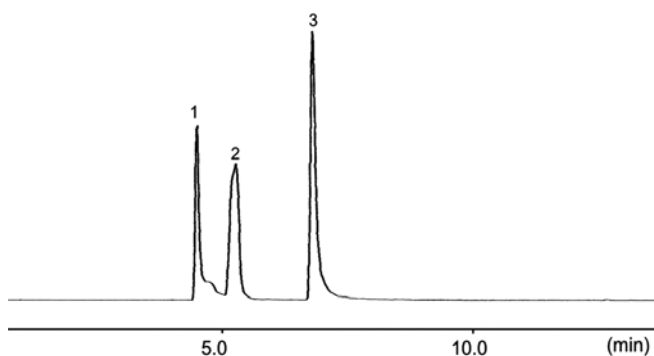
*2 The measurement conditions, charts and monitoring ions are for reference only and do not constitute a guarantee for the product.

*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,	for Pesticide Residue Analysis	1 mL
169-27641	Glufosinate, AMPA each 20 µg/mL Water Solution)* ¹		1 mL×5A

■ LC/MS/MS chromatogram*²



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 CH₃COONH₄ in H₂O, B) CH₃CN

Gradient:

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

Flow rate: 0.5 mL/min.

[MS]

Ionization: ESI

Mode: MRM

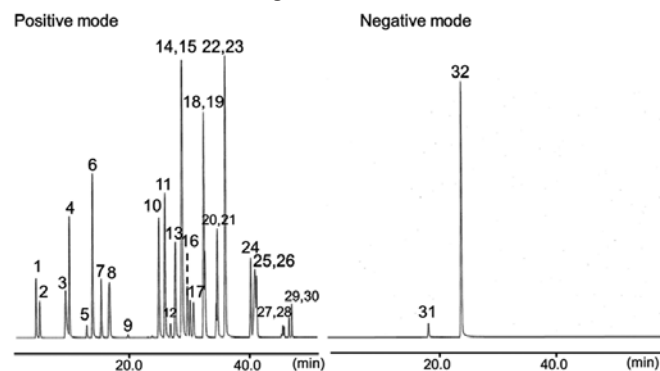
■ List of 3 components (each 20 µg/mL water solution)

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* ³	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

*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 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	for Pesticide Residue Analysis	1 mL
164-28431	(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 CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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* ³	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	Oryzastobin* ⁴	392	205	+	152-02671	Oryzastobin Standard	50 mg
12	(Z)-Dimethylvinphos* ⁵	333	127	+	045-25231	(Z)-Dimethylvinphos Standard	200 mg
13	(5Z)-Oryzastobin* ⁴	392	205	+	159-02681	(5Z)-Oryzastobin Standard	50 mg
14	(E)-Dimethylvinphos* ⁵	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	<i>trans</i> -Permethrin* ⁵	408	183	+	168-21033	<i>trans</i> -Permethrin Standard	100 mg
30	<i>cis</i> -Permethrin* ⁵	408	183	+	168-16523	<i>cis</i> -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

*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.

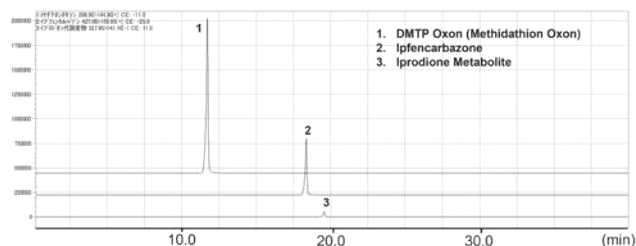
*3 The concentration of the mixture standard solution is converted to 20 µg/mL as the salt-free form.

*4 Oryzastobin contains 10 µg/mL each of oryzastobin (Peak No. 11) and (5Z)- oryzastobin (Peak No. 13), 20 µg/mL in total.

*5 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 CH₃COONH₄ in H₂O,

B) 5 mmol/L CH₃COONH₄ in CH₃OH

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	Ipifencarbazone	427	156	+	099-07051	Ipifencarbazone 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.

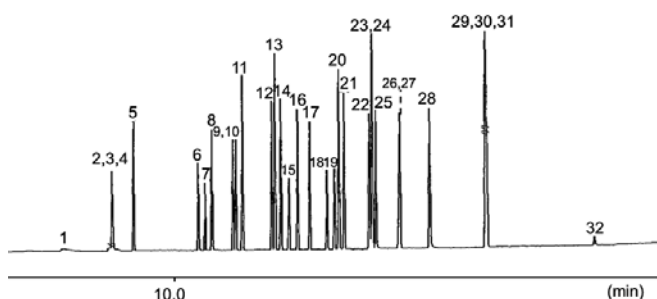
Other Pesticide Mixture Standard Solutions

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

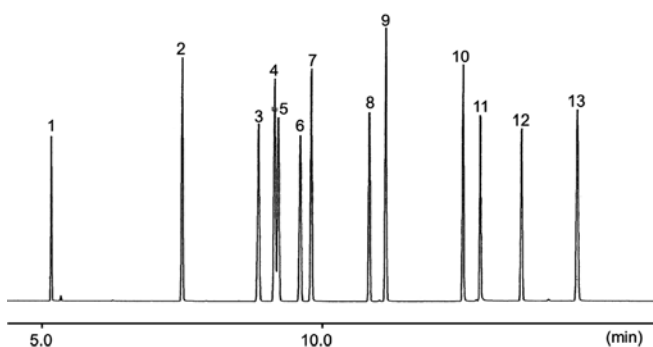
List of 32 components (each 10 µg/mL acetone solution)

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 (Echloomezol)	211	051-03494	Echloomezol 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	Isoxathion	105	098-02244	Isoxathion 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

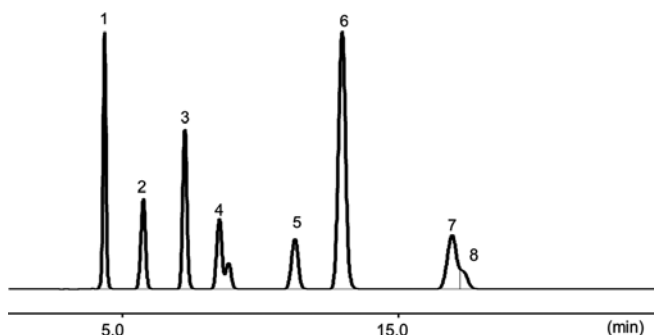
List of 13 components (each 10 µg/mL acetone solution)

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 (MCP)	132-10423	MCP 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 γ -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 μ 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

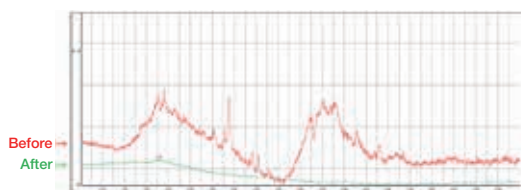
- Guaranteed low background noise in the mass spectrometer (suitability for LC/MS analysis).
- Uses special glass bottles that suppress elution of sodium and other substances (Patent No. 4586729).
- Guaranteed particle size to prevent capillary clogging.
- Guaranteed specification items of HPLC solvent 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
for Pesticide Residue Analysis PCB 300 Series		
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	Cyclohexane	1 L
034-16753		3 L
133-08841	Dichloromethane	1 L
139-08843		3 L
050-04461	Diethyl Ether	1 L
056-04441	Ethanol	1 L
052-04443		3 L
052-04421	Ethyl Acetate	1 L
058-04423		3 L
084-04761	Hexane	1 L
080-04763		3 L
139-08821	Methanol	1 L
135-08823		3 L
165-12971	Petroleum Ether	1 L
203-11601	Toluene	1 L
209-11603		3 L
for Pesticide Residue Analysis PCB 5,000 Series		
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	Dichloromethane	1 L
049-28453		3 L
040-28461	Diethyl Ether	1 L
053-07011	Ethanol	1 L
052-06981	Ethyl Acetate	1 L
058-06983		3 L
083-07911	Hexane	1 L
089-07913		3 L
132-14161	Methanol	1 L
138-14163		3 L
162-20671	Petroleum Ether	1 L
209-15581	Toluene	1 L
205-15583		3 L
Solvents for HPLC		
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	Chloroform	1 L
039-08633		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	1,1,1,3,3,3-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 - Acetonitrile	1 L
202-16453		3 L
207-06731	2,2,4-Trimethylpentane	1 L
200-19391	Tetrahydrofuran, with Stabilizer	1 L
206-19393		3 L
Solvents for LC/MS		
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

TOP > Analytical Chemistry > Pesticide & Veterinary Drug Analysis > Solvent

https://labchem-wako.fujifilm.com/us/category/analysis/residual_pesticide/solvent/index.html



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.



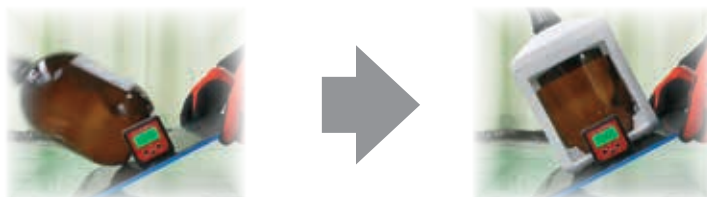
GalloTect™ is made from biomass plastic. Biomass plastic is a “renewable organic resource” made from plant-derived raw materials. Fujifilm Wako aims to reduce CO₂ emissions by 15 t/year by 2030. (as of December 2023)

Our Approach

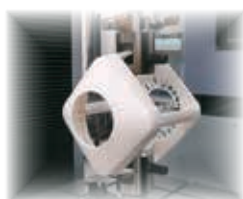


Features

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



- High durability!

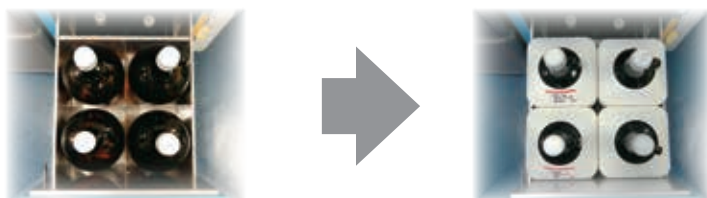


Pulled by a force of 350 N
(about 35 kg)

- 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 Na₂SO₄

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)



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 Na₂SO₄ (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 N₂ (→ about 0.8 mL)



GC/MS

Presep®-C Na₂SO₄ (×2)

Conditioning

- 1) Dichloromethane (10 mL)



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	Metalaxyl	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 ₂ SO ₄)	296-32151	Presep®-C Na ₂ SO ₄	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®	• Standard ODS columns for HPLC. • 3 types of end capping (high end capping, end capping, and non-end capping). • Two carbon content types.
		Wakosil®- II HG	• 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).
		Wakosil®- II RS	• High retention capacity due to large specific surface area. • High end capping ensures high separation and retention capacity even with aqueous eluents and is useful for the separation of highly polar analytes.
		Wakosil®- II AR	• High stereoselectivity due to polymer-type chemical modification. • Highly durable, allowing the use of mobile phases over a wide pH range (pH 1.4-9.4).
		Wakosil® Navi	• Analysis with different alkyl chain lengths of C18, C22 and C30 is possible. • C22 and C30 may show excellent structural recognition ability for analytes of homologues, etc.
		Ultra	• Highly durable, allowing the use of mobile phases over a wide pH range (pH 1.6-10). • Available in three particle sizes (5, 2 and 3 µm) for use in HPLC and UHPLC.
		Wakosil® Agri-9	• Guaranteed separation in simultaneous analysis of the 9 pesticides using dedicated eluent.
	Ph	Wakosil® Ph	• Compared to general ODS columns, the lower carbon content and lower hydrophobicity of ODS columns enable shorter elution times. • May show specific separation for aromatic analytes.
Normal / Reverse Phase	NH ₂	Wakosil® 5NH ₂	• Available in both normal and reverse phase. • Useful for the analysis of monosaccharides and disaccharides due to the ion exchange capacity derived from the NH₂ groups.
	CN	Wakosil® CN Wakosil®- II CN	• Available in both normal and reverse phase. • Compared to general ODS columns, the lower carbon content and lower hydrophobicity of ODS columns enable shorter elution times. • Useful for the analysis of mixture samples with strong hydrophilic interactions and large polarity differences. • 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.
Normal Phase	OH (Unmodified)	Wakosil® SIL Wakosil® SIL-120	• 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. • Two pore sizes (SIL: 6 nm, SIL-120: 12 nm).
HILIC	OH (Unmodified)	Wakosil®- II 5SIL-AQ	• In reverse phase, available in analysis of polar analytes under the same mobile phase conditions. • Analysis conditions can be set up without ion-pair reagents (easy transfer to LC/MS analysis).

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

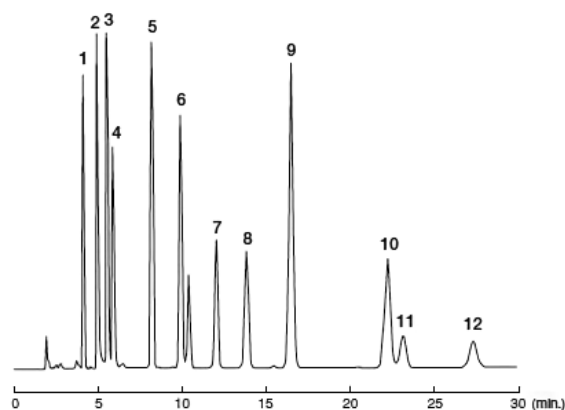
Wakopak® Wakosil® Agri-9

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*1



Analysis conditions

[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: 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 (MCP)	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	I. D. : 1-20 mm Length: 10-300 mm
		Wakosil®- II HG	3 µm, 5 µm	
		Wakosil®- II RS	3 µm, 5 µm	
		Wakosil®- II AR	3 µm, 5 µm	I. D. : 2-20 mm Length: 10-250 mm
		Wakosil® Navi	5 µm	
		Ultra	2 µm, 3 µm, 5 µm	
		Wakosil® Agri-9	5 µm	I. D. : 4.6 mm Length: 30 mm, 150 mm, 250 mm
	Ph	Wakosil® 5Ph	5 µm	I. D. : 4.0 mm, 4.6 mm Length: 10-250 mm
Normal / Reverse Phase	NH ₂	Wakosil® 5NH ₂	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

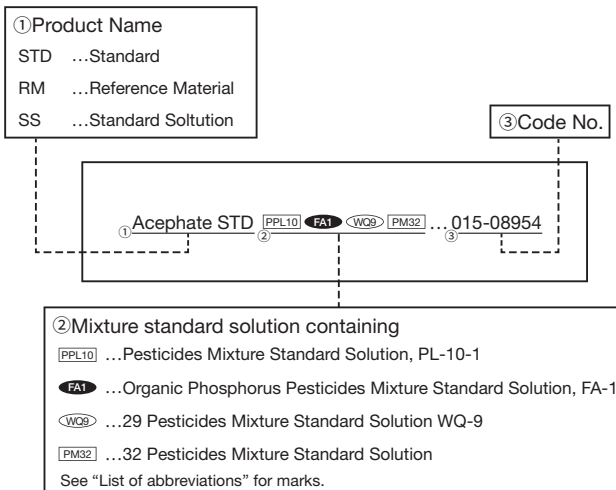
<https://labchem-wako.fujifilm.com/us/category/analysis/hplc/index.html>



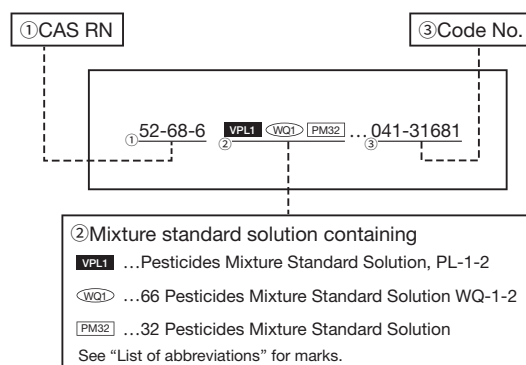
List of Pesticides and Veterinary Drugs Analytical Standards (Index)

How to read the index

Index - Arranged Alphabetically



Index - Arranged CAS RN



List of abbreviations

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		

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

VDQ ... Quinolone	VDS ... Sulfonamide + Antifolate	VDM ... Macrolide	VDH ... Hormone
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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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Neonicotinoid pesticides mixture standard solution: P. 40-41

NP ... Neonicotinoid Pesticides Mixture Standard Solution

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		

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 WQ9 PM32	015-08954
Acequinocyl STD		018-18591
Acequinocyl-hydroxy STD		011-18601
Acetaminophen STD		015-22651
Acetamidrid STD	[PPL3] NP WQ4 WQ5	010-16493
Acetamidrid Metabolite IM-2-1 STD		019-25851
Acetochlor STD	[PPL5]	013-20511
2-Acetyl-amino-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
Afidopropen STD		016-27941
Aklomide STD		011-21411
Alachlor STD	[PPL2] WQ1	012-16333
Alanycarb STD		017-15521
Aldicarb STD	[PPL10] [PPL13]	012-14111
Allethrin STD	[PPL3] [VPL1]	018-17011
Allidochlor STD		019-20611
Alloxydim-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	WQ9	011-14941
Amitrole STD		016-14011
Amoxicillin Trihydrate STD		018-20441
AMOZ STD		014-25541
Ampicillin STD		017-20531
Amprolium Hydrochloride STD		017-20651
Anilofos STD	[PPL4] [PPL7] WQ1	012-20243
Anthracene-d ₁₀		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
Azinphos-ethyl STD	FA3	016-22061
Azinphos-methyl STD	[PPL1] [PPL7] FA3	012-16051
Azocyclotin STD		019-15601
Azoxystrobin STD	[PPL10] [PPL14] WQ5	015-19003
B		
Barban STD	[PPL17]	026-17231
Benalaxyl STD	[PPL5] [PPL17]	028-12791
Bendiocarb STD	[PPL10] [PPL14] WQ4	028-11691
Benfuracarb STD	[PPL17]	023-09551
Benfuresate STD	[PPL5] WQ5 WQ9	023-12883
Benomyl STD		028-18411
Benoxacor STD	[PPL6]	028-16831
Bensulfuron-methyl STD	[PPL16] WQ5	029-12623
Bensulide STD	WQ3 PM32 PM8	021-07673
Bensultap STD		024-09363
Bentazone STD	WQ3	027-07594
Benthiavalicarb-isopropyl STD		021-15961
(R,R)-Benthiavalicarb-isopropyl STD		025-19141
(S,S)-Benthiavalicarb-isopropyl STD		021-19121

(R,S)-Benthiavalicarb-isopropyl STD		028-19131
Benthiocarb STD	[PPL1] WQ1 PM13	029-06954
Benzobicyclon STD	WQ4	023-15781
Benzocaine STD		020-15791
Benzoepin Sulfate STD	[PPL9] WQ2	026-06763
Benzofenap STD	[PPL7] WQ4	021-16223
Benzomate STD		021-07313
Benzpyrimoxan STD		026-19431
Benzpyrimoxan 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
Binapacryl STD		023-12861
Biphenyl STD		026-12731
Bispyribac-sodium STD		024-14111
Bitteral STD	[PPL3]	024-10233
Bithional 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
Bromofenofos 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		021-15341
BRP STD		028-06963
Bupirimate STD	[PPL4]	021-16821
Buprofen STD	[PPL2] WQ1	022-08264
Buquinolate STD		021-18761
Butachlor STD	[PPL4] WQ5 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
Captan 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] [PPL13] WQ3	039-16323
Carbon Disulfide		034-01243
Carbosulfan STD	[PPL17]	031-16361
Carboxin STD	[PPL12]	030-19773
Carboxin Sulfoxide STD		037-25011
Carfentrazone-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
Cefoperazone Sodium Salt STD		035-19941
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
Chlorbenseide 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
Chlormadinone 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
Chloropirrin SS (1 mg/mL in Hexane)		032-13851
Chlorpropylate STD		037-09653
Chlorothalonil 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
Chlorpyrifosmethyl STD	[PPL1] FA1 WQ5 WQ9	031-09673
Chlorsulfuron STD		039-17141
Chlortetracycline Hydrochloride STD		037-18041
Chlzolinate STD		037-24911
Chromafenozide STD	[PPL7] WQ4	033-18141
Chrysene-d ₁₂		037-16081
CIA STD		031-20771
Cinidon-ethyl STD	[PPL12]	034-24041
Cinmethylin STD	WQ5 WQ9	035-16521
Cinosulfuron STD	[PPL16] WQ4	033-16441
Ciprofloxacin Hydrochloride Monohydrate STD	WQ9	033-19621
Clenbuterol Hydrochloride STD	VPL1	032-20441
Clethodim STD		030-18651
Clodinafop STD	[PPL16]	032-22021
Clodinafop-propargyl STD	[PPL17]	032-21661
Clofencet STD		035-24451
Clofentezine STD	[PPL15]	031-14541
Clomazone STD	[PPL12]	037-20371
Cloomeprop STD	WQ4	030-20731
Cloomeprop Metabolite B STD		037-23051
Clopidol STD		038-19931
Cloprop STD	[PPL8]	033-19861
(±)-Cloprostenol Sodium Salt STD		032-21801
Clopyralid STD		038-24941
Cloquintocet-mexyl STD	[PPL7]	039-21671
Cloransulam methyl (100 µg/mL in Acetonitrile)	[PPL8]	551-03221
Clorisulfon 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
Coumaphos 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

Cumyluron STD	[PPL14] WQ4 WQ5	034-17353
CVMP STD	[PPL2] [PPL14] WQ4 WQ5	033-15081
α-CVP STD	[PPL2] FA1	033-21691
β-CVP STD	[PPL2] FA1	033-22791
Cyanamide STD		032-19711
Cyanazine STD	[PPL6] WQ4 WQ5	037-22951
Cyantraniliprole STD		031-24671
CYAP STD	[PPL6] FA1 WQ5 WQ9	039-08493
Cyazofamid STD	[PPL7]	033-18881
Cyclanilide STD		035-23471
Cyclaniliprole STD		034-25761
Cycoate STD	[PPL14]	037-21351
Cycloprothrin STD	[PPL14]	035-14701
Cyclopyrimorate STD		032-26041
Cyclosulfamuron STD	[PPL16]	033-18901
Cycloxydim STD		038-17591
Cyfenoprafen STD		030-22681
Cymoxanil STD	[PPL7]	036-19231
Cyflumetofen STD		037-20631
Cyfluthrin STD	[PPL1]	033-14361
Cyhalofop-butyl STD	[PPL6] WQ5	035-22511
Cyhalothrin STD	[PPL3]	030-22941
Cymoxanil STD	[PPL17]	032-16793
CYP STD	FA1	037-08411
Cypermethrin STD	[PPL3] WQ9	039-15441
Cyproconazole STD	[PPL2] WQ4 WQ5	039-23251
Cyprodinil STD	[PPL15] WQ4 WQ5	037-17723
Cyromazine STD		035-16261
D		
Daminozide STD		042-22843
Danofloxacin Mesylate STD	VPL1 VQ9	043-29551
Dazomet STD		045-29631
2,4-DB STD		048-29741
DBCP STD		041-26551
2,4-DB-isooctyl STD		049-34301
DBN STD	WQ1	048-25461
DCIP STD		040-17013
DCMU RM	[PPL15] WQ3	049-31861
DCPA STD	[PPL3] WQ4 WQ5	046-16471
p,p'-DDD STD		046-27101
p,p'-DDE STD		043-27111
DDVP STD	FA1 WQ1 PM13	046-16633
Decoquinolate STD		048-30351
Deltamethrin STD	[PPL3]	043-23473
Demeton-S STD		046-30391
DEP RM	VPL1 WQ1 PM32	041-31681
Desmedipham STD		047-28111
Dexamethasone STD	VPL1	045-29491
Diafenthion STD		042-26461
Diafenthion-urea STD		044-30451
Diaveridine STD	WQ5	048-29621
Diazinon RM	[PPL3] FA1 WQ1 PM32 PM13	040-31891
Diazinon Oxon STD	WQ2	042-24021
1,2-Dibromoethane SS (1 mg/mL in Hexane)		054-04121
Dibutylhydroxytoluene STD		047-29451
Dicamba STD		040-26261
Dicamba Metabolite B STD		044-33991
Dichlobenil Metabolite E STD		045-34401
Dichlobenzox STD		044-34731
Dichlofluanid STD		041-21193
Dichlormid STD		042-33791
2,4-Dichloroaniline STD		045-25591
o-Dichlorobenzene		046-18671
1,1-Dichloro-2,2-bis(4-ethylphenyl)ethane STD	[PPL12]	044-29601
1,2-Dichloroethane STD		045-18381
Dichloroisoseverninic Acid STD		048-33771
2,4-Dichlorophenol STD		049-26611
1,2-Dichloropropane		043-28152
Dichloroprop STD	[PPL8] WQ4	049-29411
Diclazuril STD		048-28021
Diclocymet STD	[PPL5]	040-28101
Diclofop-methyl STD	[PPL6]	040-29681
Diclorazine STD	WQ4	044-25201
Diclosulam STD	[PPL8]	043-31401
Dicloxacillin Sodium Salt Monohydrate STD		045-30481
Dicyclanil STD		040-32371

Diethofencarb STD [PPL4]	045-24131	Ethoxysulfuron STD [PPL16] (WQ4) ...	054-06821	Fluoxastrobin STD	067-06971	Iminocytidine Albesilate STD (WQ7)	097-04051
Diethylstilbestrol STD	048-30111	Ethychlozate STD	057-06431	Fuoxastrobin Metabolite M55 STD ...	062-07021	Iminocytidine Triacetate STD (WQ7)	092-03901
N,N-Diethyl-m-toluidide	045-26211	Ethyl Carbamate STD	052-08201	Fuoxastrobin Metabolite Z STD ...	065-07011	Inabenfide STD (WQ4)	092-06821
Difenoconazole STD [PPL2] (WQ4) (WQ5)	042-25241	Ethylene thiourea STD	053-06151	Flupoxam STD	062-05561	Indanofan RM [PPL14] (WQ4) (WQ5)	094-06521
Difenoconazole Metabolite D STD ...	045-33661	Ethylthiomethon STD [PPL12] (FA3) (WQ1)	055-03154	Flupropanate STD	063-05731	Indoxacarb-MP STD [PPL7]	095-04993
Difenoquat Methyl Sulfate STD ...	045-25851	Etiproston Tromethamine STD ...	050-08501	Flupyrimint STD	069-06931	Inpyrflumax STD	097-07351
Difloxacin STD [VDQ]	049-30021	Etobenzanil STD (WQ4) (WQ5) ...	055-06351	Fluridone STD [PPL2] [PPL15]	062-04601	Iodomethane	137-02663
Diflubenzuron RM [PPL15] (WQ4)	043-31901	Etofenprox STD [PPL5] (WQ1)	051-05194	Fluroxypry STD [PPL8]	069-05071	Iodosulfuron-methyl STD [PPL16] ...	096-07061
Diflufenican STD [PPL1]	044-28121	Etoxadole STD [PPL4] [PPL17]	050-06683	Flusilazole STD [PPL9]	065-03591	Ioxynil STD [PPL8]	098-05561
Diflumetorim STD	046-27461	Etoxadole-amino Hydrochloride STD	051-06691	Flusilazole Metabolite D STD	067-06611	Ioxynil Octanoate STD	098-03861
Difolatan STD	042-16211	Etrinfos SS (1 mg/mL in Hexane) (FA2)	058-06081	Flusulfamide STD (WQ4)	068-03363	Ipconazole STD	098-04221
Dimepiperate STD [PPL4] (WQ1)	043-25173	Eugenol STD	059-07351	Fluthiacet-methyl STD [PPL5]	062-04461	Ipencarbazone STD (WQ10)	099-07051
Dimethachlon STD	041-32421	F		Flutianil STD	063-06211	Ipflufenquin STD	095-07411
Dimethametryn STD [PPL5] (WQ1)	048-28261	Famoxadone STD [PPL13]	064-04203	Flutolanil RM [PPL3] (WQ1) [PM32]	065-05811	Iprodione STD [PPL9] (WQ1) (WQ3) [PM32] [PM8]	092-02384
Dimethenamid STD [PPL4]	043-26751	Famphur STD [PPL9] [VPL1]	069-06431	Flutolanil Metabolite M4 STD	064-06481	Iprodione Metabolite STD [PPL9] (WQ10)	099-02394
Dimethipin STD	046-25521	Febantel STD	066-05081	Flutriafol STD [PPL12]	065-05671	Ipronidazole STD	098-07261
Dimethirimol STD [PPL7]	040-26901	Fenamiphos STD [PPL1] (FA3) ...	066-03521	Fluxapyroxad STD	068-06881	Ipronidazole Metabolite B STD ...	095-07271
Dimethoate STD [PPL1] (FA2) (WQ1)	041-15843	Fenarimol STD [PPL1]	069-05191	Folpet STD	068-03461	Iprovalicarb STD [PPL7]	095-06551
Dimethomorph STD [PPL15]	049-28671	Fenazaquin STD	064-06981	Fomesafen STD [PPL8]	060-04761	Isazofos STD [PPL12]	095-05451
Dimethyl Ethylenebisdithiocarbamate STD	043-33601	Fenbendazole STD	064-04661	Fonofos STD	067-03431	Isocarboxophos STD	097-06631
Dimethyl 1-Methylethylenebisdithio carbamate STD	040-33611	Fenbuconazole STD [PPL2]	068-05041	Foramsulfuron	510-22151	Isocyanuric Acid STD	091-05311
N,N-Dimethylhydrazine STD	048-25221	Fenbutatin Oxide STD	067-02951	Forchlorfenuron STD [PPL8]	066-04621	Isoeugenol	059-01952
1,4-Dimethylnaphthalene STD	040-35051	Fenchlorphos STD [PPL12]	068-03581	Formetanate Hydrochloride STD ...	060-03541	Isofenphos STD [PPL2] (FA2) (WQ1) [PM32]	090-03463
4,4-Dimethyl-2-oxazolidinone STD ...	046-28441	Fenhexamid STD [PPL16]	069-04111	Formothion STD [PPL12] (FA2)	068-01303	Isofenphos-methyl STD	097-06871
(E)-Dimethylvinphos STD (FA1) (WQ5) (WQ6)	044-26063	Fenoprop STD	066-04861	Fosetyl STD	065-01813	Isofenphos Oxon STD [PPL2] (WQ2)	098-03981
(Z)-Dimethylvinphos STD [PPL5] (FA1) (WQ5) (WQ6)	045-25231	Fenothiocarb STD [PPL5]	066-05961	Fosfomycin Sodium STD	063-06331	Isofetamid STD	091-07371
Dimetridazole STD	047-30181	Fenoxanil STD [PPL6] (WQ5)	064-04301	Fosthiatze RM [PPL4] (FA1) (WQ5) (WQ6)	062-05941	Isofetamid Metabolite C STD	098-07381
Dimetridazole Metabolite A STD ...	045-34141	Fenoxaprop-ethyl STD [PPL9] [PPL14]	062-03621	Fthalide STD [PPL4] (WQ1)	061-01594	Isometamidium Chloride STD	094-05301
Diminazene Diaceturate STD	048-29501	Fenoxasulfone STD	068-06901	Furametpyr STD [PPL14] (WQ4) (WQ5)	062-03741	N-Isopropylaniline STD	094-07241
Diniconazol STD	044-32411	Fenoxycarb STD [PPL7]	068-02981	Furametpyr-hydroxy STD	069-03871	Isothiolane RM [PPL2] (WQ1) [PM32] [PM13]	098-06281
Dintolmide STD	049-29531	Fenpropathrin STD [PPL3]	068-03503	Furathiocarb STD [PPL7] [PPL13]	062-03981	Isothianil STD	097-06991
Dinotefuran STD (NP) (WQ4) ...	041-29731	Fenpropimorph STD [PPL1] [PPL17]	066-04981	Furilazole STD	062-06301	Isouron STD	099-06831
Dinoterb STD	042-34031	Fenpyrazamine STD	069-06171	G		Isoxaben STD	092-03923
Diofenolan STD	047-32521	Fenpyroximate STD [PPL15]	063-03293	Gamithromycin STD	072-06841	Isoxadifen-ethyl STD	097-07231
Dioxathion STD	049-34041	(Z)-Fenpyroximate STD [PPL15]	067-05011	Gentamicin C1 STD	079-06591	Isoxaflutole STD [PPL7]	090-07101
Diphacinone STD	045-33781	Fenpyroximate Metabolite M-3 STD	066-06941	Gibberellin A ₃ STD [PPL8]	078-05081	Isoxaflutole Metabolite B STD ...	097-07111
Diphenamid STD [PPL6]	041-17021	Fenquinotrione STD	061-06871	Glufosinate Ammonium STD (WQ6)	079-05371	Isoxathion STD [PPL5] (FA3) (WQ1) [PM32] [PM13]	098-02244
Diphenylamine STD [PPL9]	041-25211	Fenquinotrione Metabolite C STD ...	060-06841	Glufosinate Metabolite Z STD	076-06861	Isoxathion Oxon STD (WQ2)	093-03931
Dipropyl Isocinchomerate STD ...	046-33951	Fensulfothion STD [PPL5] (FA2)	064-02961	Glycyrrhizic Acid STD	070-06021	Ivermectin STD	090-05521
Diquat Dibromide Monohydrate STD (WQ7)	047-30441	Fentrazamide STD (WQ4)	062-05201	Glyphosate RM (WQ8)	071-05951		
Ditalimfos STD	045-32701	Fenvalerate STD [PPL3]	060-03281	H			
Dithianon STD	044-18373	(E)-Ferimzone STD [PPL7] (WQ6) ...	063-04131	Halfenprox STD [PPL4]	088-07101		
Dithiopyr STD (WQ1) [PM32]	048-25123	(Z)-Ferimzone STD [PPL7] (WQ6) ...	066-04121	Halofuginone STD	089-10681		
DMTP STD [PPL1] (FA2) (WQ1)	043-17081	Fipronil STD [PPL3] (WQ3)	068-04103	Halosulfuron-methyl STD [PPL16] (WQ3)	089-07251		
DMTP Oxon STD (WQ10)	049-30381	Fipronil Sulfone STD	062-04961	Haloxon STD	084-10011		
DNBP STD	043-25151	Flamprop-methyl STD [PPL6] [PPL17]	063-04991	Haloxyfop STD [PPL8]	089-09191		
Dodine STD	047-25291	Flazasulfuron STD [PPL16] (WQ3) ...	060-03323	Haloxyfop-methyl STD	088-10271		
Doxycycline Hyclate STD	049-31481	Flometoquin STD	060-06961	Heptenophos STD	082-09821		
DPA Sodium STD	046-25141	Flonicamid STD	060-04881	Hexaconazole RM [PPL6]	083-09731		
DPC STD	042-26601	Florusulam STD [PPL8]	064-05021	Hexaflumuron STD [PPL14]	084-09141		
Dymron STD [PPL14] (WQ3)	043-26251	Florfenicol STD [VPL1]	060-05001	Hexazinone STD [PPL2]	081-08311		
E		Fluacrypyrim STD [PPL4]	066-04481	Hexazinone Metabolite B STD ...	082-10171		
Echlomezol STD [PPL9] (WQ1) [PM32]	051-03494	Fluazifop STD [PPL16] (WQ4)	067-03453	Hexazinone Metabolite C STD ...	086-10211		
ECP STD [PPL6] (FA2) (WQ5) (WQ6)	056-03503	Fluazifop-butyl STD	064-03441	Hexazinone Metabolite F STD ...	089-10181		
EDDP STD [PPL6] (FA1) (WQ1)	053-03133	Fluazinam STD (WQ4)	068-02861	Hexythiazox STD [PPL15]	087-05351		
Endothal Monohydrate STD	053-06411	Fluazinam Metabolite D STD	069-07031	Hexythiazox Metabolite PT-1-3 STD	081-10521		
Enrofloxacin STD [VDQ]	059-07471	Fluazinam Metabolite E STD	066-07041	Hydamethylon STD	081-08551		
EPN STD [PPL5] (FA2) (OP) (WQ1) [PM13]	058-02843	Fluazuron STD [PPL17]	063-04871	Hydrocortisone STD [VPL1]	086-08241		
EPN Oxon STD (WQ2)	059-06011	Flubendazole STD	065-06411	4-Hydroxybiphenyl STD	086-08501		
Epoxiconazole STD [PPL12] [PPL15] ...	054-07661	Flubendazole Metabolite R35475 STD	069-06671	3-Hydroxycarbofuran STD [PPL17] ...	085-08571		
EPTC STD [PPL9]	058-06221	Flubendiamide STD	061-05031	Hydroxylisoxazole STD	084-06863		
Erythromycin A STD [VDM]	056-07361	Flucarbazone STD	060-06581	5-Hydroxythiabendazole STD	080-08521		
Esfenvalerate STD	052-08061	Flucetosulfuron STD	063-05471				
Esprocarb STD [PPL5] (WQ1)	055-05893	Flucythrinat STD [PPL1]	069-02911	I			
Ethaboxam STD	053-08471	Fludioxonil STD	060-03683	IBP STD [PPL5] (FA1) (WQ1) [PM13]	093-02233		
Ethalfuralin STD [PPL4]	052-07461	Flufenacet STD [PPL13] [PPL15]	063-06831	Imazail STD [PPL9] [PPL14]	092-03504		
Ethametsulfuron-methyl STD [PPL16]	059-07591	Flufenacet Metabolite P1 STD ...	064-06861	Imazamethabenz-methyl STD [PPL4]	096-05501		
Ethephon STD	050-04961	Flufenacet Metabolite W STD ...	067-06851	Imazamox STD	095-04591		
Ethiofencarb STD	051-04033	Flufenoxuron STD [PPL14]	063-03553	Imazapic STD	093-05491		
Ethion STD [PPL2] (FA1)	051-03173	Flufenpyr-ethyl STD [PPL12]	068-04681	Imazapyr STD	099-04011		
Ethiozin STD	057-06551	Flumequine STD [VDQ]	069-04971	Imazethapyr STD	092-04001		
Ethiprole STD (WQ3)	055-07571	Flumetsulam STD [PPL8]	063-04751	Imazosulfuron RM [PPL16]	093-05511		
Ethofumesate STD [PPL12]	055-07451	Flumiclorac-pentyl STD [PPL5] ...	067-04771	Imazosulfuron STD	094-07481		
Ethofumesate Metabolite M2 STD ...	053-09211	Flumioxazin STD [PPL6]	060-04141	Imibenconazole STD [PPL4]	095-04091		
Ethopabate STD [VPL2]	055-06231	Flunixin Meglumine STD	063-05091	Imibenconazole-debenzyl STD [PPL5]	098-04081		
Ethoprophos STD [PPL3] (FA2)	051-05611	Fluometuron STD	063-06571	Imicyafos STD	091-06911		
		Flupicolide STD	064-06361	Imidacloprid STD [PPL14] (NP) (WQ4)	099-03771		
		Flupyrasim STD	060-06721				
		Fluopyram Metabolite M21 STD ...	067-06731				
		Fluorimidate STD	063-03531				

Mandipropamid STD	135-17831
Manzeb STD	133-06803
Marbofloxacin STD	133-15291
MBPMC STD	WQ1 PM32 132-10901
MCC STD	133-06761
MCP RM	PPL16 WQ4 135-16971
MCP Ethyl Ester STD	138-07573
MCPB STD	PPL8 133-12491
MCPB-ethyl STD	138-17821
MCPP STD	PPL8 WQ3 PM8 132-10423
MCPP-P STD	130-15441
Mebendazole STD	130-15201
Mecarbam STD	PPL12 136-16881
Mecillinam STD	133-18471
Mefenacet STD	PPL4 WQ1 133-11671
Mefenpyr-diethyl STD	PPL4 PPL17 137-16551
Mefentrifluconazole STD	132-19041
Melengestrol Acetate STD	VL2 132-15401
Meloxicam STD	135-15131
Menbutone STD	135-15011
MEP STD	PPL2 FA2 WQ1 PM32 PM13 130-05534
MEP Oxon STD	WQ2 131-11691
Mepanipyrin STD	PPL14 137-12651
Mepanipyrin Propanol STD	138-18421
Mepiquat Chloride STD	130-14841
Mepronil STD	PPL5 WQ1 PM32 131-07904
Mesotrine STD	136-17501
(E)-Metaflumizone STD	139-18191
(Z)-Metaflumizone STD	132-18201
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Methiozolin STD	137-19091
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Methoprene STD	PPL12 136-17621
Methoxychlor STD	PPL2 139-12231
Methoxyfenozide STD	PPL7 135-15491
Methyl Demeton STD	OP 134-15601
Methyl Dimethyldithiocarbamate STD	137-14373
Methyldymron STD	WQ1 PM32 133-10791
Methylene Blue Trihydrate STD	135-17571
Methyl Isothiocyanate STD	139-14791
Methylparathion STD	PPL3 OP 131-06061
3-(Methylphosphinico)propionic Acid STD	134-11941
Methylprednisolone STD	VDH 137-15451
4-Methyl-1,2,3-thiadiazole-5-carboxylic Acid STD	131-15731
Methyl Thiocacethydroxamate STD	138-06853
Metiram STD	131-13151
Metobromuron STD	138-19401
Metoclopramide STD	132-14921
Methylfuthrin STD	130-18981
Metolachlor STD	PPL2 WQ5 WQ9 131-17431
(E)-Metominostrobin STD	WQ4 WQ5 139-15891
(Z)-Metominostrobin STD	139-15911
Metosulam STD	PPL16 134-18881
Metrifenone STD	139-19311
Metribuzin STD	PPL10 WQ4 WQ5 134-17421
Metribuzin DA STD	137-11791
Metribuzin DADK STD	130-11781
Metribuzin DK STD	130-11801
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Methyltetraprole STD	131-19131
(E)-Mevinphos STD	PPL4 132-15521

[Z]-Mevinphos STD	[PPL4]	139-15531
Milbemectin STD		133-18231
Miloxacin STD		136-18461
MIPC STD	[PPL5] [WQ1]	130-06813
Mirosamicin STD		133-17631
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Molinate STD	[WQ1]	130-12163
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Monolinuron STD	[PPL15]	136-17001
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Morantel Metabolite A STD		131-19251
Mosapride STD		135-19411
Moxidectin STD		139-18951
MPID STD		135-1531
MPMC STD		138-06831
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MPP Oxon STD	[WQ2] [WQ3]	137-14971
MPP Oxon Sulfone STD	[WQ2] [WQ3]	139-15151
MPP Oxon Sulfoxide STD	[WQ2] [WQ3]	136-15161
MPP Sulfone STD	[WQ2] [WQ3]	138-06691
MPP Sulfoxide STD	[WQ2] [WQ3]	131-06701
MTMC STD		131-06821
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Myclobutanil Hydroxide STD		132-11121
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NAC STD	[PPL10] [PPL15] [WQ6]	144-03833
Nalidixic Acid STD	[VDQ]	144-06611
Naphthalophos STD		142-09451
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1-Naphthylacetic Acid STD	[PPL8]	148-06511
Naproanilide STD	[PPL7] [WQ4]	148-08211
Naropamide STD	[PPL6] [WQ1] [PM32]	144-05893
Naptalam STD	[PPL16]	140-08271
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Neospiramycin I STD	[VDM]	147-07061
Nequinatone STD		147-09141
Nereistoxin Oxalate STD	[WQ6]	141-04161
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Nicosulfuron STD		143-08401
Nicotine SS (0.1 g/mL in Sulfuric Acid)		
		147-03921
NIP STD		144-03931
Nitarosone STD		146-10081
Nitenpyram STD	[NP] [WQ4]	142-06771
Nitralin STD		145-09201
Nitrapyrin STD	[PPL13]	141-08201
Nitrofurazone STD		146-08511
Nitrothai-isopropyl STD	[PPL6]	146-08491
Nitroxinyl STD		142-08231
Norfloracin STD	[VDQ]	149-08241
Norflurazon STD	[PPL1]	144-08931
Novaluron STD	[PPL15]	143-09361
Novobioicin Sodium Salt STD		148-09171
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Orbifloxacin STD	[VDQ]	154-03351
Ormetoprim STD	[PPL2] [VDS] [VDS]	152-02551
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(5Z)-Oryzastrobin STD	[WQ6]	159-02681
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Oxabetrinil STD	[PPL13] [PPL17]	155-03021
Oxacillin Sodium Monohydrate STD		158-02531
Oxadiargyl STD	[WQ4]	155-02661
Oxadiazon STD	[PPL1]	151-01203
Oxadixyl STD	[PPL6]	157-01521
Oxamyl STD	[PPL15] [WQ4]	151-01781
Oxathiapiprolin STD		153-03561
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Oxazosulfiyl STD		151-03621
Oxfendazole STD		155-02541
Oxfendazole Sulfone STD		157-02861
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Oxine-copper STD		156-01214
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Oxpoconazole Fumarate STD		157-02363

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Oxyclozanine STD	159-02561
Oxyfluorfen STD	PPL3 150-02591
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2593-15-9	PPL9	WQ1	PM32			20721-48-6		043-33601	30614-22-3				165-14791
.....		051-03494	7681-76-7			180-02011			31120-85-1	PPL2	WQ2		098-03981
2595-54-2	PPL12	.....	136-16881	7696-12-0	.....	203-19021	.....	134-17421	31218-83-4	PPL9	.....	.....	164-23171
2597-03-7	PPL4	FA2	WQ1	7758-02-3	.....	024-15331	21466-07-9	027-15681	31430-15-6	.....	.....	.....	065-06411
.....	.....	161-27081	8003-34-7	PPL1	.....	161-29161	.....	(Hydrate)	31431-39-7	.....	.....	.....	130-15201
2631-40-5	PPL5	WQ1	.....	8018-01-7	.....	133-06803	21564-17-0	202-19591	31895-21-3	.....	.....	.....	207-20891
2635-10-1	.....	131-15611	9002-91-9	.....	.....	130-18741	21725-46-2	.....	.....	.....	.....	(Hydrogen Oxalate)	.....
2636-26-2	PPL6	FA1	WQ5	WQ9	.....	(Tetramer)	.....	037-22951	31895-22-4	.....	.....	.....	207-20891
.....	.....	039-08493	9006-42-2	.....	.....	131-13151	21898-19-1	032-20441	32306-29-9	WQ2	.....	.....	093-03931
2642-71-9	FA3	.....	016-22061	10004-44-1	.....	084-06863	22042-59-7	033-22431	32809-16-8	PPL1	WQ1	.....	161-11214
2655-14-3	PPL6	.....	244-00503	10161-33-8	VPL2	VDH	205-16281	111-00741	32861-85-1	.....	.....	.....	038-10293
2675-77-6	PPL9	WQ1	PM32	10236-81-4	.....	168-27471	22189-32-8	191-11533	32887-01-7	.....	.....	.....	133-18471
.....	.....	036-14493	.....	.....	.....	(Bromide)	22204-24-6	167-18391	33089-61-1	PPL17	.....	.....	015-09593
2698-38-6	.....	138-07573	10265-92-6	FA1	WQ9	PM32	.....	066-03521	33089-74-6	WQ9	.....	.....	011-14941
2797-51-5	PPL6	WQ5	WQ9	.....	.....	139-11631	22248-79-9	PPL2	PPL14	WQ4	WQ5	.....	203-17941
.....	.....	013-15741	10380-28-6	.....	.....	156-01214	.....	033-15081	34256-82-1	PPL13	PPL15	.....	013-20511
2804-05-9	.....	015-26791	10443-70-6	.....	.....	138-17821	22662-39-1	185-01961	34301-55-8	PPL5	.....	.....	094-05301
2827-56-7	.....	015-21171	10453-86-8	PPL13	.....	182-02071	22781-23-3	PPL10	PPL14	WQ4	.....	.....	163-26201
2919-66-6	VPL2	.....	132-15401	PPL6	.....	146-08491	.....	028-11691	35045-02-4	PPL5	FA2	.....	137-11791
2921-88-2	PPL3	FA2	WQ1	PM32	.....	032-23361	22936-75-0	PPL5	WQ1	.....	.....	.....	095-07271
.....	.....	032-22881	11006-76-1	.....	.....	221-02451	23015-40-9	027-15681	35272-27-6	.....	.....	.....	018-19451
2971-90-6	.....	038-19931	11015-37-5	.....	.....	131-18911	23076-35-9	VPL1	.....	PPL15	WQ4	.....	043-31901
3011-89-0	.....	011-21411	11051-71-1	.....	.....	048-33771	23103-98-2	PPL9	PPL14	.....	FA2	.....	193-16951
3060-89-7	.....	138-19401	.....	(Dichloroisoevnerinic Acid)	.....	.....	23112-90-5	063-06331	35554-44-0	PPL9	PPL14	.....	092-03504
3116-76-5	.....	045-30481	12071-83-9	.....	.....	160-26331	.....	(Sodium Salt)	35575-96-3	PPL7	PPL13	.....	013-23311
.....	.....	(Sodium Salt)	12122-67-7	.....	.....	266-00783	23135-22-0	PPL15	WQ4	.....	.....	.....	026-15411
3337-71-1	WQ3	PM8	015-13523	13067-93-1	FA1	.....	037-08411	PPL4	WQ5	WQ9	.....	.....	(Sodium Salt)
3347-22-6	.....	044-18373	13071-79-9	PPL1	FA2	.....	200-12691	021-12161	36335-67-8	PPL6	FA2	WQ1	PM32
3401-80-7	.....	044-33991	13121-70-5	.....	.....	203-06571	23256-23-7	VDS	.....	.....	.....	.....	026-10933
3562-99-0	.....	135-15011	13171-21-6	PPL4	.....	167-18031	23282-55-5	VPL2	VDS	.....	.....	.....	.....
3690-28-6	.....	164-29271	13194-48-4	PPL3	FA2	.....	051-05611	194-14661	36734-19-7	PPL9	WQ1	WQ3	PM32
3735-92-0	.....	137-14373	13356-08-6	.....	.....	067-02951	23560-59-0	060-03541	.....	PM8	.....	.....	092-02384
3761-41-9	WQ2	WQ3	131-06701	13412-64-1	.....	045-30481	23564-05-8	082-09821	37065-29-5	.....	.....	.....	136-18461
3761-42-0	WQ2	WQ3	138-06691	13457-18-6	PPL6	PPL17	168-25031	200-19411	37148-27-9	VPL1	.....	.....	032-20441
3766-81-2	PPL9	VPL1	WQ1	PM13	PPL6	FA1	175-00441	204-13613	.....	(Hydrochloride)	.....	.....	.....
.....	.....	021-06774	13598-36-2	.....	.....	163-26321	23950-58-5	150-01991	37248-47-8	.....	.....	.....	221-02211
3773-49-7	.....	205-19581	13684-56-5	.....	.....	047-28111	.....	PPL2	WQ1	PM32	PM13	.....	552-76901
3810-74-0	.....	192-14341	13684-63-4	.....	.....	160-27431	24017-47-8	169-25061	37321-09-8	.....	.....	.....	.....
3811-49-2	FA1	.....	13710-19-5	.....	.....	208-16911	24096-53-5	37514-39-9	37514-39-9	VDS	.....	.....	195-14071
3861-47-0	.....	098-03861	13749-94-5	.....	.....	138-06853	24151-93-7	203-13161	37764-25-3	.....	.....	.....	042-33791
4101-80-8	.....	048-33771	13952-84-6	.....	.....	028-03423	24157-81-1	041-32421	38260-54-7	FA2	.....	.....	058-06081
4630-95-9	.....	168-27471	13997-19-8	.....	.....	147-09141	24307-26-4	160-11223	38527-90-1	.....	.....	.....	193-13651
4684-94-0	.....	032-20561	14086-35-2	WQ2	WQ3	139-15151	24353-61-5	043-29811	38527-91-2	.....	.....	.....	165-11913
4726-14-1	.....	145-09201	14698-29-4	VDQ	.....	156-01851	24356-60-3	130-14841	38677-85-9	.....	.....	.....	063-05091
4824-78-6	PPL12	FA3	025-12821	14769-73-4	VPL2	.....	126-04991	097-06631	.....	(Meglumine Salt)	.....	.....	.....
5131-24-8	.....	045-32701	.....	.....	.....	(Hydrochloride)	24579-73-5	030-20481	39148-24-8	.....	.....	.....	065-01813
5211-53-4	PPL7	.....	040-26901	14816-18-3	PPL17	WQ4	163-16811	049-31481	39300-45-3	.....	.....	.....	042-26601
5234-68-4	PPL12	.....	030-19773	14885-29-1	.....	098-07261	24928-89-0	161-16731	39515-41-8	PPL3	.....	.....	068-03503
5259-88-1	PPL14	.....	158-03011	15090-23-0	.....	134-11941	25013-16-5	197-11971	39807-15-3	WQ4	.....	.....	155-02661
5326-23-8	.....	039-23491	15263-53-3	.....	.....	033-22431	25057-89-0	116-01031	39856-16-1	WQ10	.....	.....	049-30381
5355-16-8	VDS	.....	048-29621	.....	.....	(Hydrochloride)	25311-71-1	020-15311	40020-01-7	.....	.....	.....	166-17761
5486-03-3	.....	021-18761	15299-99-7	PPL6	WQ1	PM32	.....	027-07594	40487-42-1	PPL1	WQ1	PM32	.....
5575-21-3	.....	032-19691	.....	.....	.....	144-05893	25319-90-8	090-03463	40596-69-8	PPL12	.....	.....	168-11903
5598-13-0	PPL1	FA1	WQ5	WQ9	15318-45-3	VPL2	.....	168-18441	40665-92-7	.....	.....	.....	136-17621
.....	.....	031-09673	15545-48-9	.....	.....	203-13921	25389-94-0	113-00941	.....	.....	.....	.....	032-21801
5598-15-2	WQ2	.....	037-20131	15686-71-2	.....	037-25251	25875-50-7	186-01991	41083-11-8	.....	.....	.....	019-15601
5836-10-2	.....	037-09653	15686-83-6	.....	.....	035-22371	25875-51-8	186-01991	41198-08-7	PPL3	FA1	.....	169-17653
5836-29-3	.....	030-22821	.....	.....	.....	167-18391	.....	(Hydrochloride)	41205-21-4	.....	.....	.....	063-03531
5902-51-2	PPL5	.....	209-15341	15972-60-8	PPL2	WQ1	.....	079-06591	41394-05-2	.....	.....	.....	137-17411
5915-41-3	.....	206-20361	16118-49-3	.....	.....	012-16333	26002-80-2	163-22661	41483-43-6	PPL4	.....	.....	021-16821
6101-20-8	VDS	.....	192-16921	16484-77-8	PPL17	.....	26016-99-9	063-06331	41814-78-2	PPL5	WQ3	.....	202-19111
.....	.....	(Free Acid)	16595-80-5	.....	VPL2	.....	130-15441	42461-84-7	42509-80-8	.....	.....	.....	063-05091
6164-98-3	.....	038-22861	16655-82-6	.....	PPL17	.....	085-08571	093-02233	42576-02-3	PPL12	.....	.....	095-05451
6190-55-2	.....	192-15561	16672-87-0	.....	.....	050-04961	26225-79-6	055-07451	42576-02-3	PPL5	WQ1	.....	027-08253
6291-84-5	.....	131-19251	16752-77-5	.....	PPL14	WQ3	132-17461	053-09211	42609-52-9	PPL14	WQ3	.....	043-26251
6385-62-2	.....	047-30441	16846-24-5	.....	.....	101-00181	26491-30-5	036-22541	42609-73-4	WQ1	PM32	.....	133-10791
6552-12-1	WQ2	WQ3	137-14971	17109-49-8	PPL6	FA1	WQ1	202-13491	42835-25-6	VDQ	.....	.....	069-04971
6552-13-2	WQ2	WQ3	136-15161	.....	.....	053-03133	26538-44-3	262-01461	42874-03-3	PPL3	.....	.....	150-02591
6804-07-5	.....	033-16681	17606-31-4	.....	.....	024-09363	26644-46-2	202-08861	43056-63-9	.....	.....	.....	014-25541
6843-49-8	.....	135-15371	17615-73-5	.....	.....	199-17771	26787-78-0	046-28441	43121-43-3	PPL3	.....	.....	203-08494
6923-22-4	PPL4	FA3	WQ4	.....	.....	037-25011	.....	018-20441	43210-67-9	.....	.....	.....	064-04661
.....	.....	138-11101	17804-35-2	.....	.....	028-18411	27164-46-1	(Hydrate)	43222-48-6	.....	.....	.....	045-25851
6980-18-3	.....	115-00761	18181-80-1	PPL3	.....	168-10923	27314-13-2	034-22841	499231-24-2	PPL2	WQ1	.....	032-26041
.....	(Hydrochloride)	18212-21-0	.....	.....	.....	131-15731	27328-68-3	144-08931	50471-44-8	.....	.....	.....	228-00744
6981-18-6	VPL2	VDS	152-02551	18361-45-0	VDM	.....	125-06301	031-20771	50512-35-1	PPL2	WQ1	PM32	PM13
7081-44-9	.....	038-20281	18507-89-6	.....	.....	048-30351	27355-22-2	PPL4	WQ1	.....	.....	.....	098-06281
7085-19-0	PPL8	WQ3	PM8	18691-97-9	PPL14	.....	131-12311	061-01594	50594-66-6	PPL8	.....	.....	010-20521
.....	.....	132-10423	18708-86-6	.....	PPL2	FA1	.....	057-06431	51218-45-2	PPL2	WQ5	WQ9	.....
7179-49-9	VPL1	.....	18708-87-7	.....	PPL2	FA1	.....	168-17483	51218-49-6	PPL1	WQ1	PM13	131-17431
72													

51997-43-4	.....	030-17291	66332-96-5	PPL3	WQ1	PM32	80844-07-1	PPL5	WQ1	051-05194	101205-02-1	.....	038-17591
52236-30-3	.....	130-11781	.....	.....	.....	.....	80983-34-2	VPL2	.....	161-25381	101312-92-9	.....	228-02461
52315-07-8	PPL3	WQ8	039-15441	PPL9	PPL14	.....	81261-84-9	.....	.....	166-27391	.....	(Hydrochloride)	063-03553
52570-16-8	PPL7	WQ4	148-08211	VPL2	VDS	.....	81334-34-1	.....	.....	099-04011	101463-69-8	PPL14	048-28021
52756-25-9	PPL6	PPL17	063-04991	PPL4	.....	209-12661	81335-37-7	.....	.....	092-04001	101831-37-2	.....	128-23071
52888-80-9	.....	165-25921	67485-29-4	.....	081-08551	066-04981	81335-77-5	.....	.....	093-05511	101903-30-4	.....	162-06711
52918-63-5	PPL3	.....	043-23473	PPL1	PPL17	.....	81405-85-8	PPL4	.....	096-05501	103055-07-8	PPL15	122-01671
53112-28-0	PPL5	PPL17	160-29491	PPL5	FA1	WQ5	81777-89-1	PPL12	.....	037-20371	103361-09-7	PPL6	060-04141
53716-49-7	.....	037-19761	.....	.....	.....	.....	82050-13-3	.....	.....	069-06671	103980-44-5	.....	030-21101
53716-50-0	.....	155-02541	67747-09-5	PPL9	.....	162-17903	82097-50-5	PPL16	.....	206-17931	104030-54-8	PPL14	034-22721
54029-20-8	.....	157-02861	68085-85-8	PPL3	.....	030-22941	82211-24-3	WQ4	.....	092-06821	104040-78-0	PPL16	060-03323
54992-23-3	.....	146-08251	68157-60-8	PPL8	.....	066-04621	82419-36-1	VQ4	.....	150-02611	104098-48-8	.....	093-05491
55028-72-3	.....	032-21801	68359-37-5	PPL1	.....	033-14361	82558-50-7	.....	.....	092-03923	104206-82-8	.....	136-17501
55179-31-2	PPL3	.....	024-10233	PPL5	WQ5	WQ6	82560-54-1	PPL17	.....	023-09551	105024-66-6	PPL14	199-11193
55219-65-3	PPL2	.....	208-08503	.....	.....	.....	82657-04-3	PPL1	.....	028-19871	105512-06-9	PPL17	032-21661
55268-74-1	.....	160-22931	68694-11-1	PPL13	PPL17	WQ4	82692-44-2	PPL7	WQ4	021-16223	105779-78-0	.....	168-18701
55283-68-6	PPL4	.....	052-07461	.....	.....	.....	83055-99-6	PPL16	WQ3	029-12623	105827-78-9	PPL14	099-03771
55285-14-8	PPL17	.....	031-16361	.....	.....	.....	83121-18-0	PPL15	.....	204-12373	.....	.....	190-15121
55290-64-7	.....	046-25521	69004-03-1	.....	.....	.....	83130-01-2	.....	.....	017-15521	106613-06-3	.....	202-17411
55297-95-5	VPL1	VDM	201-16881				83164-33-4	PPL1		044-28121	106791-37-1		068-03363
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55297-96-6	VPL1	VDM	201-16881	PPL2	WQ1		83227-23-0	PPL6		160-16701	107534-96-3	PPL3	203-13801
55335-06-3	PPL8	WQ3	202-12911	PPL16	WQ4	.....	83657-16-3	.....	.....	215-01331	.....	.....	200-19151
55512-33-9	.....	163-17771	69377-81-7	PPL8	.....	069-05071	83657-17-4	PPL4	WQ5	212-00981	108050-54-0	VPL1	205-10181
55634-91-8	.....	015-09733	69392-32-1	.....	.....	064-06481	.....	.....	.....	044-32411	109849-99-2	.....	137-12651
.....	.....	.....	69409-94-5	PPL1	.....	061-02471	83657-24-3	.....	.....	172-00451	110235-47-7	PPL14	049-28671
55635-13-7	.....	015-09733	69525-81-1	.....	.....	135-12691	84087-01-4	.....	.....	174-00771	110488-70-5	PPL15	169-19691
55814-41-0	PPL5	WQ1	PM32	PPL8	.....	089-09191	84087-33-2	.....	.....	037-24911	110956-75-7	PPL14	165-25041
.....	.....	.....	69806-34-4	.....	.....	.....	84332-86-5	.....	.....	033-20731	111479-05-1	PPL13	088-07101
55861-78-4	.....	099-06831	69806-50-4	.....	.....	064-03441	84496-56-0	WQ4	.....	037-23051	111872-58-3	PPL4	.....
56238-63-2	.....	037-20491	70124-77-5	PPL1	.....	069-02911	84496-85-5	.....	.....	137-16811	111988-49-9	PPL7	205-19081
56362-05-1	WQ2	.....	024-15571	.....	.....	204-09301	84878-61-5	.....	.....	065-03591	.....	.....	143-08401
56507-37-0	.....	130-11801	70253-62-2	VDM	.....	147-07061	85509-19-9	PPL9	.....	033-19621	111991-09-4	PPL5	205-19101
56611-54-2	.....	082-10171	70288-86-7	.....	.....	090-05521	85721-33-1	VQ4	.....	.....	112281-77-3	PPL5	043-29551
56611-55-3	.....	089-10181	70458-96-7	VQ4	.....	149-08241	.....	.....	.....	.....	.....	.....	(Mesylate)
57018-04-9	PPL4	FA2	WQ1	PM32	PPL6	.....	134-15623	PPL5	WQ1	055-05893	112398-08-0	VPL1	207-19041
.....	.....	.....	70630-17-0	.....	.....	026-15411	85785-20-2	PPL16	.....	165-24561	112410-23-8	PPL15	040-32371
57369-32-1	PPL4	WQ1	164-18041	.....	.....	227-02291	86209-51-0	VQ4	.....	033-19621	112636-83-6	.....	135-19411
57520-17-9	WQ7	.....	092-03901	.....	.....	135-15131	86393-32-0	PPL14	.....	084-09141	112885-41-3	.....	035-23471
57775-29-8	.....	030-17291	71363-52-5	FA1	WQ5	WQ6	86479-06-3	PPL4	.....	095-04091	113136-77-9	.....	139-18951
.....	.....	.....	.....	.....	.....	.....	86598-92-7	PPL17	.....	063-04871	113507-06-5	VQ4	154-03351
57801-81-7	.....	021-15341	71422-67-8	PPL17	.....	044-26063	86811-58-7	.....	.....	045-24131	113617-63-3	VQ4	018-24961
57808-65-8	.....	032-16531	71561-11-0	WQ5	WQ6	.....	87130-20-9	PPL5	.....	035-16521	114311-32-9	.....	095-04591
57837-19-1	PPL10	WQ1	PM32	PPL5	PPL17	.....	87546-18-7	PPL4	.....	067-04771	114369-46-6	PPL2	068-05041
.....	.....	.....	71626-11-4	.....	.....	028-12791	87674-68-8	.....	.....	207-20391	114420-56-3	PPL16	032-22021
57960-19-7	.....	130-11683	71751-41-2	PPL7	.....	016-20361	87818-31-3	WQ5	WQ6	035-16521	115550-35-1	VQ4	133-15291
57960-31-3	.....	018-18591	72140-17-1	.....	.....	194-09651	87820-88-0	.....	.....	037-20391	115850-27-6	.....	138-17701
57966-95-7	PPL17	.....	72178-02-0	PPL8	.....	060-04761	88671-89-0	PPL2	.....	135-11133	115850-28-7	.....	135-17691
58001-44-8	.....	032-16793	72585-88-7	.....	.....	086-10211	88678-67-5	PPL6	WQ1	PM32	115852-48-7	PPL6	064-04301
.....	.....	166-21791	73231-34-2	VPL1	.....	060-05001	.....	.....	.....	163-16213	115852-48-7	.....	190-18781
.....	.....	.....	73247-57-1	VDS	.....	195-14071	88805-35-0	.....	.....	066-04121	116255-48-2	PPL15	020-17991
58011-68-0	PPL7	WQ4	165-17091	.....	.....	.....	89269-64-7	PPL7	WQ5	.....	116714-46-6	.....	143-09361
58306-30-2	.....	066-05081	73250-68-7	PPL4	WQ1	.....	90274-24-1	.....	.....	182-01971	116928-93-9	.....	132-11121
59669-26-0	PPL14	WQ3	207-11361	.....	.....	076-06861	90982-32-4	PPL16	.....	036-16671	117018-19-6	.....	045-33661
59756-60-4	PPL2	PPL15	062-04601	.....	.....	133-17631	91296-87-6	VQ4	.....	195-14211	117337-19-6	PPL5	062-04461
60168-88-9	PPL1	.....	74003-63-7	.....	.....	137-18251	93106-60-6	VQ4	.....	059-07471	117428-22-5	.....	162-28611
60200-06-8	VPL1	.....	74051-80-2	.....	.....	191-10651	93697-74-6	PPL16	WQ4	168-17841	117718-60-2	.....	204-16991
60207-31-0	PPL4	.....	74115-24-5	PPL15	.....	031-14541	94125-34-5	PPL16	.....	160-27291	118134-30-8	PPL1	198-16401
60207-90-0	PPL2	WQ1	74223-64-6	PPL16	.....	131-12671	94361-06-5	PPL2	WQ4	WQ5	118443-89-3	.....	031-21751
60397-77-5	.....	048-34491	74712-19-9	PPL6	WQ1	.....	.....	.....	.....	039-23251	119126-15-7	.....	062-05561
61177-45-5	.....	166-21791	74782-23-3	PPL13	PPL17	.....	155-03021	PPL16	WQ4	033-16441	119168-77-3	PPL6	206-13293
61336-70-7	.....	018-20441	75463-73-9	.....	.....	028-12671	95266-40-3	WQ4	.....	207-15401	119478-55-6	VPL1	043-29551
61432-55-1	PPL4	WQ1	043-25173	.....	.....	131-18911	95465-99-9	PPL5	FA1	WQ5	119446-68-3	PPL2	171-00661
61949-76-6	PPL1	WQ9	168-16523	.....	.....	205-13481	.....	.....	.....	036-18871	.....	.....	137-16811
61949-77-7	PPL1	WQ9	168-21033	.....	.....	178-00791	95737-68-1	PPL2	WQ1	163-18751	.....	.....	.....
62059-43-2	.....	053-06411	76578-12-6	.....	.....	179-00721	96489-71-3	PPL3	.....	162-16381	119478-55-6	VPL1	042-25241
62610-77-9	PPL13	.....	76578-14-8	PPL15	WQ4	.....	96491-05-3	PPL5	WQ1	203-13421	119738-06-6	.....	171-00661
62850-32-2	PPL5	.....	76674-21-0	PPL2	.....	065-05671	97483-08-4	WQ2	.....	202-16551	119758-39-3	.....	.....
62865-36-5	WQ4	.....	76738-62-0	PPL6	WQ5	WQ6	.....	PPL16	.....	059-07591	.....	.....	.....
62893-20-3	.....	035-19941	77182-82-2	WQ8	.....	079-05371	97780-06-8	.....	.....	048-25123	.....	.....	(Ammonium Salt)
63409-12-1		204-21521	77359-18-3	PPL7	WQ6		97886-45-8	WQ1	PM32	122-06671	120068-36-2		062-04961
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63837-33-2		047-32521	77698-96-5			050-08501				031-19281	120928-09-8		064-06981
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64544-01-0		089-10681	79277-67-1			203-20371	98967-40-9	PPL8		089-07251	122548-33-8	PPL16	095-03893
64628-44-0	PPL15		79538-32-2	PPL1		204-13191	99129-21-2			097-06871	122836-35-5	PPL16	193-14751
64700-56-7													

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127277-53-6	168-18061	162650-77-3	053-08471	887973-21-9	881685-58-1	097-07471
	(Free Acid)	163520-33-0	097-07231	907204-31-3	887973-21-9	065-07011
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	(Spinosad)	181587-01-9	WQ5	055-07571	1101132-67-5	034-25761
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	(Spinosad)	183675-82-3	164-28811	1201920-88-8	1201920-88-8	060-06841
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158237-07-1	WQ4					
158353-15-2	WQ5					

Please refer to our website for more information on the analytical standards,
TOP > Analytical Chemistry > Banner of the "Search System for Mixture Standard Solutions"
<https://labchem-wako.fujifilm.com/us/product/search/pesticides.html>

