



## RESUMEN

El programa de vigilancia y control de residuos de plaguicidas en alimentos se ha ejecutado, en 2018, cumpliendo todos los requisitos marcados por la legislación en cuanto a tipo de alimentos y sustancias analizadas.

En concreto, en el marco de este de programa, se analizaron en el año 2018 un total de 2711 muestras entre el Programa Coordinado Europeo y el Nacional.

En la tabla incluida a continuación se indica el número de muestras analizadas para las diferentes categorías así como el número de aquellas que han presentado resultados con cantidades superiores a los límites máximos de residuos correspondientes.

Por la naturaleza de este programa, la categoría de alimentos en la que se han analizado más muestras es la de frutas y hortalizas (70,93 % del total de muestras), siendo los alimentos infantiles la categoría de la cual se analizaron menos muestras (2,34 % del total de muestras).

	Número total de muestras analizadas	Porcentaje respecto del total de muestras	Muestras con residuos > al LMR	Porcentaje del total analizado
Frutas y otros vegetales	2086	<b>76,95%</b>	42	2,01%
Productos de origen animal	468	<b>17,26%</b>	14	2,99%
Cereales	97	<b>3,58%</b>	1	1,03%
Alimentos infantiles	60	<b>2,21%</b>	0	0,00%
Total:	<b>2711</b>	<b>100%</b>	<b>57</b>	<b>2,10%</b>

Los resultados obtenidos indican que el número de muestras en las que se ha observado incumplimientos es muy bajo. En general, solo el 2.1% de las muestras analizadas (57 muestras), incumplían la legislación vigente en materia de límites máximos de residuos (LMR). Cabe destacar, que ninguna muestra de alimentos infantiles ha resultado no conforme y que en el grupo de cereales, solo se detectó una no conformidad.

En relación a no conformidades por categorías, la que ha presentado un número superior en relación a su total es la de productos de origen animal, aunque como se observa en la tabla la cifra es de sólo 14 muestras no conformes.

A continuación se presenta el informe Nacional enviado a EFSA para su análisis, con todos los datos obtenidos.



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**PESTICIDE RESIDUE CONTROL RESULTS  
NATIONAL SUMMARY REPORT**

**Year: 2018  
Country: SPAIN**



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Spain

## Name of the national competent authority/organisation

Spanish Agency for Food Safety and Nutrition - AESAN

e-mail: [recopilaciondatos@mscbs.es](mailto:recopilaciondatos@mscbs.es)

Web address where the national annual report is published:

[http://www.aecosan.mssi.gob.es/AECOSAN/web/seguridad\\_alimentaria/subseccion/programa\\_control\\_residuos.htm](http://www.aecosan.mssi.gob.es/AECOSAN/web/seguridad_alimentaria/subseccion/programa_control_residuos.htm)

## Objective and design of the national control programme

- Responsibilities:

The elaboration and implementation of the National Control Programme involves the following units:

1 - The Directorate-General of Public Health, Quality and Innovation of the Ministry of Health, Consumer Affairs and Social Welfare (in Spanish MSCBS).

2 - The Sub-directorate General for Coordination of Alerts and Programming Official Control of Spanish Agency for Food Safety and Nutrition (in Spanish AESAN).

Each unit has assigned its duties about coordination or execution within its scope.

AESAN is an autonomous body under the Ministry of Health, Consumer Affairs and Social Welfare, and acts as liaison between the Commission and the European Food Safety Authority (EFSA), and the Autonomous Communities, which are the Competent Authorities for the execution of programmes at regional level.

A Guidance document to support Control Units in its duties regarding programming have been developed and approved in Spain. It is used by the Autonomous Communities Control Units in its duties regarding programming.

The National Programme is made up of two sub-programmes based on the point where the samples are collected:

- Market Sub-program, coordinated by AESAN.
- Imports Sub-program, coordinated by MSCBS.

- Official Controls on residues:

The National Pesticide Residues Control Programme integrates controls performed by the AA CC. AESAN is responsible for the co-ordination of control programme. The annual plans developed by AA CC and coordinated by AESAN include monitoring of unauthorised products.

## Objective

To ensure that official controls are carried out in order not to place on the market food products treated by unauthorized pesticides.



To ensure that official controls are carried out in order not to place on the market food products with pesticide residues levels above those established in regulations in force, so they can pose a health risk for consumers.

## Design

Staffs responsible for sampling are inspectors from the Autonomous Communities.

Those samples taken at the border inspection posts/points of entry are taken by staff from the General Directorate of Public Health.

### Samples selection

- Data from consumer
- The Spanish diet model for determining exposure to consumer chemicals.
- Food intended for populations at risk (baby food).
- Data from production
- Products with a high consumption in each region.
- Information from import Program.

### Pesticide residues selection

- Information from Plant Health of the Ministry of Agriculture services on recent inspections, prohibited use of pesticide, etc.
- The pattern of use of plant protection products (commonly used, time of application).
- Toxicity of the active substances.
- Recent changes in MRL or withdrawal of authorizations for use / approval of active substances.
- Scope of accreditation of the laboratory / analytical capacity / resources.
- Non-compliant results obtained in previous years.

### Sample-Pesticide residues combination

- Frequency of findings of residues of active substances in food products in reporting plans (national and EU) official control from prior years.
- RASFF notifications.
- The products listed in the Regulation concerning a Coordinated Multiannual Control Programme of the European Union for 2018, 2019 and 2020, aimed at ensuring the enforcement of maximum residue limits pesticides in food of animal or plant origin and on them, and to assess the degree of consumer exposure to these residues.



### 3. Key findings, interpretation of the results and comparability with the previous year results

**In order to improve the quality of the EU Annual Report on Pesticide Residues and a better understanding of the information regarding the number of samples taken in Spain by number of inhabitants, it should be taken into account that the results sent to EFSA from Spain do not include those samples taken in primary production. Due to the Spanish administrative organization, samples taken in primary production are considered to be excluded from the scope of Regulation (EC) N°396/2005.**

#### 3.1. Key findings

All of the samples programmed in the Pesticide Residues Monitoring and Control Program in products of plant and animal origin and baby food in Spain 2018 have been collected.

In 2018 a total of 2711 samples were analysed for pesticide residues. Out of the 2711 samples, 2385 were surveillance samples, 100 were selective, risk-based samples and 226 were suspect samples.

Regarding results, the analysis of the 2711 samples lead to 467443 results.

The 2,1% of the analysed samples shown pesticide residues levels exceeding the EC-MRL In particular, there have been 57 non-compliant samples that correspond to 68 non-compliant results, since there are samples that have tested positive for more than one substance. (e.g.: a Zucchini sample was positive to dimethoate and omethoate).

None of the baby food samples were non compliant.

In the cereal group, only one pesticide has been detected, namely Tricyclazole in rice.

The group of "Products of animal origin" shows the higher number of non compliant results althought the number of confirmed substances is relatively low: only four pesticides Chlorpyrifos , Piperonyl Butoxide , Difenoconazole and Chlорfenapyr were detected.

The greatest number of samples and analized substances belong to the group of "fruits and other vegetables. It is remarkable that there has been any non-compliant result within the group.

The parameter confirmed in more samples was Clorpyrifos, with 18 positive results, followed by Dimethoate, with 5 positive results. Most of the 18 positive results, were got from imported products (from Third countries), 16 positive results in comparison with 2 positive results in national products.

The main results are detailed in the tables below:

**Table 1:** General summary

Matrix	Total number of samples	Total number of results	Compliant samples	Samples with residues >MRL	%
Animal products	468	27632	454	14	2,9
Baby foods	60	12466	60	0	0
Cereals	97	16214	96	1	1
Fruits and other vegetables	2086	411131	2044	42	2
<b>Total</b>	<b>2711</b>	<b>467443</b>	<b>2654</b>	<b>57</b>	<b>2,1</b>

**Table 2:** Summary results by program

	Number of samples	Total number of results	Number of results > LOQ	Number of results of non-compliance to MRL
Surveillance	2385	398842	1715	39
Selective, risk-based	100	14153	112	4
Suspect	226	54448	319	25
<b>Total</b>	<b>2711</b>	<b>467443</b>	<b>2146</b>	<b>68</b>

**Table 3:** Control program 2018. Main results

Matrix	Total number of samples	Samples with residues >MRL	%	Total number of results	Results with residues >MRL	%
Animal products	468	14	2,9	27632	18	0,06
Baby foods	60	0	0	12466	0	0
Cereals	97	1	1	16214	1	0,006
Fruits and other vegetables	2086	42	2	411131	49	0,01
<b>Total</b>	<b>2711</b>	<b>57</b>	<b>2,1</b>	<b>467443</b>	<b>68</b>	<b>0,01</b>

### 3.2 Interpretation of the results

The results gathered in 2018 are highly satisfactory, on the one hand the sample program has been carried out according to the plan, and on the other hand the analyzed results shows an accurate and responsible management of pesticides and complies the current legislation as shown on the Table 3.

It is especially remarkable that there has been none non-compliant sample in the infant food group. Besides, out of the 68 non-compliant 40 (60%) are from Third Countries which shows the differences between agricultural practices at European level in comparison with other countries.

All the laboratories have procedures to estimate analytical uncertainty, which is taken into account to decide any enforcement action. Document SANTE/11945/2015 is also considered.

Some new confirmation methods were implemented in Spanish laboratories in order to increase the number of pesticide residues measured and to bring down detection limits of some of them.

The results are detailed in the table below:

**Table 4:** NC results. Summary

Matrix	Samples	Results	Pesticide	Frequency
Animal products	14	18	Chlorpyrifos Piperonyl Butoxide Difenoconazole Chlorfenapyr	13 1 3 1
Baby foods	0	0	-	0
Cereals	1	1	Tricyclazole	1
Fruits and other vegetables	42	49	Acephate	2
			Acetamiprid	1
			Acrinathrin and its enantiomer	2
			Benalaxyl including other mixtures of constituent isomers including benalaxyl-M (sum of isomers)	2
			Boscalid	1
			Chlorates	3
			Chlorfenapyr	2
			Chlorpyrifos	5
			Clothianidin	1
			Cypermethrin (cypermethrin including other mixtures of constituent isomers (sum of isomers))	1
			Cyprodinil	2
			Dimethoate	5
			Dithiocarbamates (dithiocarbamates expressed as CS2, including maneb, mancozeb, metiram, propineb, thiram and ziram)	3
			Dodine	1
			Fenthion (fenthion and its oxygen analogue, their sulfoxides and sulfone expressed as parent)	1
			Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)	2
			Flonicamid (sum of flonicamid, TNFG and TNFA expressed as flonicamid)	1
			Fluopyram	1
			Imazalil	1
			Isocarbophos	1
			Meptyldinocap (sum of 2,4 DNOPC and 2,4 DNOP expressed as meptyldinocap)	1
			Omethoate	3
			Procymidone	2
			Prosulfocarb	3
			Thiophanate-methyl	1
			TNFG (4-(Trifluoromethyl)nicotinoyl glycine)	1
<b>Total</b>	<b>57</b>	<b>68</b>		<b>68</b>

### 3.3 Comparability with the previous year results



In 2018 a total of 2711 samples were analysed for pesticide residues compared to a total of 2273 samples analysed in 2017, and 2299 samples analysed in 2016.

The number of samples and analysis has been increasing progressively since 2016 until 2018.

**Table 5:** Comparability samples/results by year

Year	Total number of samples	Total number of results
2016	2299	307689
2017	2773	419596
2018	2711	467443

**Table 6:** Frequency of residue Chlorpyrifos by year

Year	Residue non-compliant more common	Number of samples analysed	Number of non-compliant	%	Product more common
2016	Chlorpyrifos	2299	9	0,39	Fruits and other vegetables (4 in Leek)
2017	Chlorpyrifos	2773	7	0,25	Fruits and other vegetables (3 Beets / beet leaves)
2018	Chlorpyrifos	2346	18	0,77	Animal products

## 4. Non-compliant samples: possible reasons, ARfD exceedances and actions taken

### 4.1. Possible reasons for non-compliant samples

**Table 7:** Possible reasons for MRL non compliance

Reasons for MRL non-compliance	Pesticide/food product <sup>(a)</sup>	Frequency <sup>(b)</sup>	Comments
Bad Practices.	<ul style="list-style-type: none"> <li>- Benalaxyl including other mixtures of constituent isomers including benalaxyl-M (sum of isomers)/Chard / Beet leaves</li> <li>- Chlorpyrifos/Invertebrate terrestrial animals</li> <li>- Cyprodinil/Table and wine grapes</li> </ul>	5	
Pesticide misuses	<ul style="list-style-type: none"> <li>- Acephate/Table grapes</li> <li>- Acetamiprid/Pomegranate</li> <li>- Chlufenapyr/Peppers</li> <li>- Chlufenapyr/Chilli Peppers</li> <li>- Chlorpyrifos/Table olives</li> <li>- Chlorpyrifos/Invertebrate terrestrial animals</li> <li>- Chlorpyrifos/Tomatoes</li> <li>- Clothianidin/ Peppers</li> <li>- Difenoconazole/Invertebrate terrestrial animals</li> </ul>	35	



	<ul style="list-style-type: none"><li>-Dimethoate/ Apricots</li><li>-Dimethoate/ Tangerines</li><li>-Dimethoate/ Zucchini</li><li>-Dimethoate/ Artichokes</li><li>-Dithiocarbamates (dithiocarbamates expressed as CS2, including maneb, mancozeb, metiram, propineb, thiram and ziram)/ Artichokes</li><li>- Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)/ Peppers</li><li>- Flonicamid (sum of flonicamid, TNFG and TNFA expressed as flonicamid)/ Pomegranate</li><li>- Meptyldinocap (sum of 2,4 DNOPC and 2,4 DNOP expressed as meptyldinocap)/ Zucchini</li><li>- Omethoate/ Apricots</li><li>- Omethoate/ Zucchini</li><li>- Piperonyl Butoxide/ Swine fat</li><li>- Procymidone/ Other small fruits with inedible skin</li><li>- Thiophanate-methyl/ Table grapes</li><li>- TNFG (4-(Trifluoromethyl)nicotinoyl glycine)/ Pomegranate</li></ul>		
Cross contamination: spray drift or other accidental contamination	<ul style="list-style-type: none"><li>- Boscalid/Olives for oil</li><li>- Chlорfenапyr/Invertebrate terrestrial animals</li><li>- Chlорpyrifos/Olives for oil</li><li>- Chlорpyrifos/Invertebrate terrestrial animals</li><li>- Difenoconazole/Invertebrate terrestrial animals</li><li>- Fluopyram/Olives for oil</li><li>- Isocarbophos/olives for oil</li><li>- Prosulfocarb/Olives for oil</li></ul>	15	
Changes of the MRL	<ul style="list-style-type: none"><li>- Chlorpyrifos/Tomatoes</li></ul>	1	
Other(please specify)	<ul style="list-style-type: none"><li>- Acrinathrin and its enantiomer/Broccoli (a)</li><li>- Chlorates/Apples (a)</li><li>- Chlorates/Potatoes(b)</li><li>- Chlorates/Pears (a)</li><li>- Cypermethrin (cypermethrin including other mixtures of constituent isomers (sum of isomers))/Other types of roots and tubers except sugar beet (c)</li><li>- Dithiocarbamates (dithiocarbamates expressed as CS2, including maneb, mancozeb, metiram, propineb, thiram and ziram)/Spinach (d)</li><li>- Dodine/Onions (a)</li><li>- Fenthion (fenthion and its oxygen analogue, their sulfoxides and sulfone expressed as parent)/Tangerines (e)</li><li>- Imazalil/Strawberries (d)</li><li>- Procymidone/Beans (dried) (f)</li><li>- Tricyclazole/Rice (c)</li></ul>	<p>(a)Unknown. It comes from another autonomous community.</p> <p>(b) Risk assessment is performed. There is no acute risk for the adult population or children</p> <p>(c) Regulatory sampling with compliant result</p> <p>(d) The information is transferred to the authority responsible for primary production. Risk assessment is performed (PRIMO ver3),</p>	



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- (a): Report name as specified in the MatrixTool
- (b): Number of cases
- (c): Applicable only for food products produced in the EU
- (d): For imported food only

there is no acute risk  
(e) Product returns to origin. The information is transferred to the authority responsible for primary production.  
No risk assessment is performed, no toxicological information is available  
(f) Follow-up action



## 4.2 Actions taken

**Table 8:** Actions taken

	Action taken <sup>(a)</sup>	Number of non-compliant samples concerned <sup>(b)</sup>	Comments	Residue/Product
Rapid Alert Notification		19		<ul style="list-style-type: none"><li>- Chlorfenapyr /Chilli Peppers</li><li>- Chlorfenapyr/Peppers</li><li>-Chlorfenapyr/Invertebrate terrestrial animals</li><li>- Chlorpyrifos/Tomatoes</li><li>- Chlorpyrifos/Invertebrate terrestrial animals (4)</li><li>-Clothianidin/Peppers</li><li>-Difenoconazole/Invertebrate terrestrial animals (2)</li><li>- Dimethoate/ Artichokes</li><li>- Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)/Peppers(2)</li><li>- Flonicamid (sum of flonicamid, TNFG and TNFA expressed as flonicamid)/Pomegranate</li><li>- Procymidone/ Other small fruits with inedible skin</li><li>- Thiophanate-methyl/ Table grapes</li><li>- TNFG (4-(Trifluoromethyl)nicotinoyl glycine)/Pomegranate</li><li>- Acrinathrin and its enantiomer/Green peas</li></ul>
Lot recalled from the market		32		<ul style="list-style-type: none"><li>- Chlorfenapyr /Chilli Peppers</li><li>- Chlorfenapyr/Peppers</li><li>-Chlorfenapyr/Invertebrate terrestrial animals</li><li>- Chlorpyrifos/Tomatoes</li><li>- Chlorpyrifos/Invertebrate terrestrial animals (12)</li><li>-Clothianidin/Peppers</li><li>-Difenoconazole/Invertebrate terrestrial animals (3)</li><li>- Dimethoate/ Artichokes</li><li>- Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)/Peppers(2)</li><li>- Flonicamid (sum of flonicamid, TNFG and TNFA expressed as flonicamid)/Pomegranate</li><li>- Procymidone/ Other small fruits with inedible skin</li><li>- Thiophanate-methyl/ Table grapes</li><li>- TNFG (4-(Trifluoromethyl)nicotinoyl glycine)/Pomegranate</li><li>-Acetamiprid/Pomegranate</li><li>-Chlorpyrifos/Table olives</li></ul>



				- Dimethoate/Apricots - Fenthion (fenthion and its oxigen analogue, their sulfoxides and sulfone expressed as parent)/Tangerines - Omethoate/Apricots
<b>Destruction of non-compliant lot</b>		6		- Chlorpyrifos/Invertebrate terrestrial animals (2) - Difenoconazole/Invertebrate terrestrial animals (2) - Dimethoate/Apricots - Omethoate/Apricots
<b>Follow-up (suspect) sampling of similar products, samples of same producer or country of origin</b>		11		- Acrinathrin and its enantiomer/Green peas - Boscalid/Olives for oil - Chlorpyrifos/Olives for oil - Cypermethrin (cypermethrin including other mixtures of constituent isomers (sum of isomers))/Other types of roots and tubers except sugar beet - Fluopyram/Olives for oil - Isocarbophos/Olives for oil - Procymidone/Beans (dried) - Prosulfocarb/Olives for oil (3) - Tricyclazole/Rice
<b>Other actions (please specify)</b>	(a) Risk assessment is performed (PRIMO ver3), there is no acute risk (b) Regulatory sampling with compliant result (c) Return to origin (d) Risk assessment is performed. There is no acute risk for the adult population or children (e) The information is transferred to the authority responsible for primary production. Risk assessment is performed (PRIMO ver3), there is no acute risk (f) Unknown. It comes from another autonomous community. (g) Unknown.	26		- Acrinathrin and its enantiomer/Green peas(a) - Cypermethrin (cypermethrin including other mixtures of constituent isomers (sum of isomers))/Other types of roots and tubers except sugar beet(b) - Tricyclazole/Rice (b) - Fenthion (fenthion and its oxigen analogue, their sulfoxides and sulfone expressed as parent)/Tangerines (c) - Acrinathrin and its enantiomer/Brocoli (f) - Chlorates/Potatoes (d) - Chlorates/Appels(e) - Chlorates/Pears (e) - Chlorpyrifos/Tomatoes (2) (g) - Dimethoate/Tangerines(g) - Dimethoate/Zucchini(2)(g) - Dithiocarbamates (dithiocarbamates expressed as CS2, including maneb, mancozeb, metiram, propineb, thiram and ziram)/Artichoke(g) - Dithiocarbamates (dithiocarbamates expressed as CS2, including maneb, mancozeb, metiram, propineb, thiram and ziram)/Spinach (2)(e) - Dodine/Onions (f) - Imazalil/ Strawberries (e) - Omethoate/Zucchini (2)(g)

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				- Meptyldinocap (sum of 2,4 DNOPC and 2,4 DNOP expressed as meptyldinocap)/ Zucchini (g) - Benalaxyl including other mixtures of constituent isomers including benalaxyl-M (sum of isomers)/Chard /Beet leaves (2) (g) - Cyprodinil/Table and wine grapes (2) (g) - Piperonyl Butoxide/ Swine fat (g)
No actions taken		1		-Acephate/Table grapes

-: no information available; TBC: to be confirmed

(a): Table footnote a

## 5. Quality assurance

**Table 9:** Laboratories participation in the national control program

Country	Laboratory	Accreditation		Participation in proficiency tests or inter-laboratory tests	
		Name	Date	Body	
Spain	Laboratorio de la Agencia de Salud Pública de Barcelona (LASPB)		03.06.19	ENAC	FAPAS, EUPT, Test-Qual
Spain	Laboratorio Regional de Salud Pública de Madrid		14.10.16	ENAC	FAPAS
Spain	Laboratorio de Salud Pública de Badajoz		24.05.13	ENAC	FAPAS, EUPT
Spain	Laboratorio de Salud Pública de Valencia		24.03.17	ENAC	FAPAS, EUPT
Spain	Laboratorio Agroalimentario de Burjasot-Valencia (Comunidad Valenciana)		02.11.99	ENAC	FAPAS, EUPT, Test-Qual
Spain	Laboratorio KUDAM S.L		20.07.18	ENAC	FAPAS, EUPT, Test-Qual
Spain	Laboratorio Químico Microbiológico S.A., de Mairena de Aljarafe, de Sevilla		16.12.05	ENAC	EUPT, EUPT, Test-Qual
Spain	Laboratorio de Salud Pública de Almería (Junta de Andalucía)		11.01.19	ENAC	FAPAS, EUPT
Spain	Laboratorio COEXPHAL de El Viso (Almería)		16.02.18	ENAC	FAPAS, Test-Qual
Spain	Laboratorio Oficial de Salud Pública de la Delegación de Salud y Bienestar Social de Cuenca		02.12.11	ENAC	FAPAS, EUPT
Spain	Laboratorio Tecnológico de las Palmas de Gran Canarias (Gobierno de Canarias)			ENAC	FAPAS, EUPT, Test-Qual
Spain	Laboratorio Agroalimentario y de Sanidad Animal (LAYSA) de Murcia		21.07.15	ENAC	FAPAS, EUPT, Test-Qual
Spain	Laboratorio Agrario Regional de Burgos (Junta de Castilla León)		18.05.01	ENAC	FAPAS, EUPT
Spain	Laboratorio Normativo de Salud Pública de Bilbao		19.09.18	ENAC	FAPAS, EUPT
Spain	Laboratorios ECOSUR, S.A.L.		21.06.19	ENAC	FAPAS, EUPT, Test-Qual
Spain	AINIA		20.12.96	ENAC	FAPAS, EUPT, Test-Qual
Spain	Analytica Alimentaria GmbH Sucursal en España		11.07.16	DAKKS y IAS	FAPAS, EUPT
Spain	Químico microbiológico S.A. Murcia		14.07.06	ENAC	EUPT, Test-Qual



Country	Laboratory	Accreditation		Participation in proficiency tests or inter-laboratory tests	
		Name	Date	Body	
Spain	Laboratorio de Salud Pública (Madrid Salud) Ayto.M		04.01.06	ENAC	EUPT
Spain	Laboratorio analítico bioclinico S.L.		25.11.05	ENAC	FAPAS, EUPT, Test-Qual
Spain	Labs & technological Services AGQ, S.L.		29.03.19	ENAC	FAPAS, EUPT, Test-Qual
Spain	Laboratorio de Salud Pública de Galicia		27.07.18	ENAC	FAPAS, EUPT, Test-Qual
Spain	Laboratorio de Salud Pública en Bizkaia		05.07.19	ENAC	FAPAS
Spain	Laboratorio Regional del Gobierno de La Rioja		10.07.19	ENAC	FAPAS, EUPT, Test-Qual
Spain	Laboratorio Agroalimentario de Zaragoza		19.07.19	ENAC	FAPAS, EUPT, Test-Qual

## 6. Processing Factors (PF)

In the tables below the processing factors that were used by national competent authorities to verify compliance of processed products with EU MRLs are compiled.

**Table 10:** Processing factors overview

Pesticide (report name) <sup>(a)</sup>	Unprocessed product (RAC)	Processed product	Processing factor <sup>(b)</sup>
All pesticides	Wine grapes	Wine	1
All pesticides	Olives for oil production	Olive oil	5
All pesticides	Olives for oil organic production	Organic extra virgin olive oil	5

**Table 11:** Processing factors

Pesticide (report name) <sup>(a)</sup>	Unprocessed product (RAC)	Processed product	Processing factor <sup>(b)</sup>
2-phenylphenol (sum of 2-phenylphenol and its conjugates, expressed as 2-phenylphenol)	Wine grapes	Wine	1
Acephate			
Acetamiprid			
Acrinathrin and its enantiomer			
Alachlor			
Aldicarb			
Aldicarb (sum of aldicarb, its sulfoxide and its sulfone, expressed as aldicarb)			
Aldicarb-Sulfone			
Aldicarb-Sulfoxide			
Aldrin			
Aldrin and Dieldrin (Aldrin and dieldrin combined expressed as dieldrin)			
Atrazine			
Azinphos-ethyl			
Azinphos-methyl			
Azoxystrobin			
Benalaxyloxybenzoate including other mixtures of constituent isomers including benalaxyloxybenzoate-M (sum of isomers)	Wine grapes		
Bendiocarb			
Bifenox			





Dimethomorph (sum of isomers)			
Diniconazole (sum of isomers)			
Diphenylamine			
Dithiocarbamates (dithiocarbamates expressed as CS <sub>2</sub> , including maneb, mancozeb, metiram, propineb, thiram and ziram)			
Dodine			
Endosulfan (sum of alpha- and beta-isomers and endosulfan-sulphate expresses as endosulfan)			
Endosulfan, alpha-			
Endosulfan, beta-			
Endosulfansulfate			
Endrin			
EPN			
Epoxiconazole			
Ethalfluralin			
Ethiofencarb			
Ethion			
Ethirimol			
Ethofumesate (Sum of ethofumesate, 2-keto-ethofumesate, open-ring-2-keto-ethofumesate and its conjugate, expressed as ethofumesate)			
Ethoprophos			
Etofenprox			
Etoxazole			
Famoxadone			
Fenamidone			
Fenamiphos			
Fenamiphos (sum of fenamiphos and its sulphoxide and sulphone expressed as fenamiphos)			
Fenamiphos-Sulfon			
Fenamiphos-Sulfoxid			
Fenarimol			
Fenazaquin			
Fenbuconazole			
Fenhexamid			
Fenitrothion			
Fenoxy carb			
Fenpropothrin			
Fenpropimorph (sum of isomers)			
Fenpyroximate			
Fensulfothion			
Fenthion			
Fenthion (fenthion and its oxygen analogue, their sulfoxides and sulfone expressed as parent)		Wine grapes	
Fenthion-Sulfon			
Fenthion-Sulfoxide			
Fenuron			
Fenvalerate (any ratio of constituent isomers (RR, SS, RS and SR) including esfenvalerate)			Wine
Fipronil			1
Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)			
Fipronil-Sulfone			
Fluazifop-P (sum of all the constituent isomers of fluazifop, its esters and its conjugates, expressed as fluazifop)			
Flubendiamide			
Fludioxonil			
Flufenoxuron			
Fluometuron			
Fluopyram			
Fluquinconazole			
Flusilazole			



Flutolanil  
Flutriafol  
Fluvalinate  
Fluvalinate, tau-  
Folpet  
Fonofos  
Formetanate: Sum of formetanate and its salts expressed as  
formetanate(hydrochloride)  
Formothion  
Fosthiazate  
HCH, delta-  
HCH-epsilon  
Heptachlor (sum of heptachlor and heptachlor epoxide  
expressed as heptachlor)  
Heptenophos  
Hexachlorobenzene  
Hexachlorocyclohexane (HCH), alpha-isomer  
Hexachlorocyclohexane (HCH), beta-isomer  
Hexachlorocyclohexane (HCH), sum of isomers, except the  
gamma isomer  
Hexaconazole  
Hexazinone  
Hexythiazox  
Imazalil  
Imidacloprid  
Indoxacarb (sum of indoxacarb and its R enantiomer)  
Iprodione  
Iprovalicarb  
Isocarbophos  
Isofenphos  
Isofenphos-methyl  
Isoprocarb  
Isoprothiolane  
Isoproturon  
Kresoxim-methyl  
Lenacil  
Lindane (Gamma-isomer of hexachlorocyclohexane (HCH))  
Linuron  
Lufenuron (any ratio of constituent isomers)  
Malaoxon  
Malathion  
Malathion (sum of malathion and malaoxon expressed as  
malathion)  
Mandipropamid  
Mecarbam  
Mepanipyrim  
Metalaxyl including other mixtures of constituent isomers  
including metalaxyl-M (sum of isomers)  
Metamitron  
Metconazole (sum of isomers)  
Methamidophos  
Methidathion  
Methiocarb  
Methiocarb (sum of methiocarb and methiocarb sulfoxide and  
sulfone, expressed as methiocarb)  
Methiocarb-Sulfon  
Methiocarb-Sulfoxid  
Methomyl  
Methoxychlor  
Methoxyfenozide  
Metobromuron

Wine grapes

Wine

1



Metolachlor and S-metolachlor (metolachlor including other mixtures of constituent isomers including S-metolachlor (sum of isomers))  
Metribuzin  
Mevinphos (sum of E- and Z-isomers)  
Monocrotophos  
Monolinuron  
Monuron  
Myclobutanil  
Neburon  
Nitenpyram  
Nuarimol  
Ofurace  
Omethoate  
Oxadixyl  
Oxamyl  
Oxydemeton-methyl  
Oxydemeton-methyl (sum of oxydemeton-methyl and demeton-S-methylsulfone expressed as oxydemeton-methyl)  
Oxyfluorfen  
Paclobutrazol  
Paraoxon-Methyl  
Parathion  
Parathion-methyl  
Parathion-methyl (sum of Parathion-methyl and paraoxon-methyl expressed as Parathion-methyl)  
Penconazole  
Pencycuron  
Pendimethalin  
Permethrin (sum of isomers)  
Phenothrin  
Phenthroate  
Phorate (sum of phorate, its oxygen analogue and their sulfones expressed as phorate)  
Phosalone  
Phosmet  
Phosmet (phosmet and phosmet oxon expressed as phosmet)  
Piperonyl Butoxide  
Pirimicarb  
Pirimiphos-Ethyl  
Pirimiphos-methyl  
Prochloraz (sum of prochloraz and its metabolites containing the 2,4,6-Trichlorophenol moiety expressed as prochloraz)  
Procymidone  
Profenofos  
Promecarb  
Prometryn  
Propachlor: oxalic derivative of propachlor, expressed as propachlor  
Propamocarb (Sum of propamocarb and its salt expressed as propamocarb)  
Propargite  
Propazine  
Propham  
Propiconazole (sum of isomers)  
Propoxur  
Propyzamide  
Prothiofos  
Pymetrozine  
Pyraclostrobin  
Pyrazophos  
Pyridaben  
Pyridaphenthion

Wine gaps

Wine 1



Pyrifenox  
Pyrimethanil  
Pyriproxyfen  
Quinalphos  
Quinoxifen  
Quizalofop-Ethyl  
Simazine  
Spinosad (spinosad, sum of spinosyn A and spinosyn D)  
Spirodiclofen  
Spiromesifen  
Spiroxamine (sum of isomers)  
Sulfotep  
Sum of folpet and phthalimide, expressed as folpet  
Tebuconazole  
Tebufenozide  
Tebufenpyrad  
Teflubenzuron  
Tefluthrin  
Terbufos  
Terbumeton  
Terbutylazine  
Terbutryn  
Tetrachlorvinphos  
Tetraconazole  
Tetradifon  
Tetramethrin  
Thiabendazole  
Thiacloprid  
Thiamethoxam  
Thiocyclam  
Thiodicarb  
Thiophanate-methyl  
Tolclofos-methyl  
Tolylfluanid  
Tolylfluanid (Sum of tollyfluanid and dimethylaminosulfotoluide expressed as tollyfluanid)  
Triadimefon  
Tri-allate  
Triazophos  
Trifloxystrobin  
Triflumizole Triflumizole and metabolite FM-6-1(N-(4-chloro-2-trifluoromethylphenyl)-n-propoxyacetamide), expressed as  
Triflumizole  
Triflumuron  
Trifluralin  
Triticonazole  
Vamidothion  
Vinclozolin

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DE SANIDAD, CONSUMO  
Y BIENESTAR SOCIALSubdirección General de Coordinación de  
Alertas y Programación del Control Oficial

Pesticide (report name) <sup>(a)</sup>	Unprocessed product (RAC)	Processed product	Processing factor <sup>(b)</sup>
1,1-dichloro-2,2-bis(4-ethylphenyl)ethane 2,4-D (sum of 2,4-D, its salts, its esters and its conjugates, expressed as 2,4-D) 2,4-Dimethylanilin 2-phenylphenol (sum of 2-phenylphenol and its conjugates, expressed as 2-phenylphenol) 3,4-dichloraniline Abamectin (sum of avermectin B1a, avermectinB1b and delta-8,9 isomer of avermectin B1a, expressed as avermectin B1a) Acephate Aequinocyl Acetamiprid Acetochlor Aclonifen Acrinathrin and its enantiomer Alachlor Aldicarb Aldicarb (sum of aldicarb, its sulfoxide and its sulfone, expressed as aldicarb) Aldicarb-Sulfone Aldicarb-Sulfoxide Aldrin Aldrin and Dieldrin (Aldrin and dieldrin combined expressed as dieldrin) Ametoctradin Ametryn Amitraz Amitraz (amitraz including the metabolites containing the 2,4 - dimethylaniline moiety expressed as amitraz) Anthraquinone Atrazine Azadirachtin Azamethiphos Azimsulfuron Azinphos-ethyl Azinphos-methyl Azoxystrobin Benalaxyl including other mixtures of constituent isomers including benalaxyl-M (sum of isomers) Bendiocarb Benfluralin Benfuracarb Bentazone (Sum of bentazone, its salts and 6-hydroxy (free and conjugated) and 8-hydroxy bentazone (free and conjugated), expressed as bentazone) Benthiavalicarb (Benthiavalicarb-isopropyl(KIF-230 R-L) and its enantiomer (KIF-230 S-D) and its diastereomers(KIF-230 S-L and KIF-230 R-D), expressed as benthiavalicarb-isopropyl) Benzoximate Bifenazate (sum of bifenazate plus bifenazate-diazene expressed as bifenazate) Bifenthrin (sum of isomers) Bioallethrin Biphenyl Bitertanol (sum of isomers) Boscalid Bromacil Bromfenvinfos Bromophos Bromophos-ethyl	Olives for oil production	Olive oil	5



Bromopropylate			
Bromoxynil and its salts, expressed as bromoxynil			
Bromoconazole (sum of diasteroisomers)			
Bupirimate			
Buprofezin			
Butachlor			
Butafenacil			
Butocarboxim			
Butocarboxim (sum)			
Butoxycarboxim			
Butralin			
Cadusafos			
Captafol			
Carbaryl			
Carbendazim and benomyl (sum of benomyl and carbendazim expressed as carbendazim)			
Carbetamide			
Carbofuran (sum of carbofuran (including any carbofuran generated from carbosulfan, benfuracarb or furathiocarb) and 3-OH carbofuran expressed as carbofuran)			
Carbofuran, 3-hydroxy			
Carbophenothon			
Carboxin			
Carfentrazone-ethyl (determined as carfentrazone and expressed as carfentrazone-ethyl)			
Chinomethionat			
Chlorantraniliprole			
Chlorbenside			
Chlordane (sum of cis- and trans-chlordan)			
Chlorfenapyr			
Chlorfenson			
Chlorfenvinphos			
Chlorfluazuron			
Chloridazon (sum of chloridazon and chloridazon-desphenyl, expressed as chloridazon)			
Chlorobenzilate			
Chloropropylate			
Chlorothalonil			
Chlorotoluron			
Chloroxuron			
Chlorpropham			
Chlorpyrifos			
Chlorpyrifos-methyl			
Chlorthal-dimethyl			
Chlorthiophos			
Chlozolinate			
Clethodim			
Clethodim (sum of Sethoxydim and Clethodim including degradation products calculated as Sethoxydim)			
Clofentezine			
Clomazone			
Clopyralid			
Clothianidin			
Coumaphos			
Cyantraniliprole			
Cyazofamid			
Cycloate			
Cycloxydim including degradation and reaction products which can be determined as 3-(3-thianyl)glutaric acid S-dioxide (BH 517-TGSO2) and/or 3-hydroxy-3-(3-thianyl)glutaric acid S-dioxide (BH 517-5-OH-TGSO2) or methyl esters thereof, calculated in total as cycloxydim			
Cycluron			



Cyflufenamid: sum of cyflufenamid (Z-isomer) and its E-isomer  
Cyfluthrin (cyfluthrin including other mixtures of constituent isomers (sum of isomers))  
Cyhalothrin, lambda-  
Cymoxanil  
Cypermethrin  
Cypermethrin (cypermethrin including other mixtures of constituent isomers (sum of isomers))  
Cypermethrin, beta-  
Cycloconazole  
Cyprodinil  
Cyromazine  
DDD, p,p-  
DDE, p,p-  
DDT (sum of p,p'-DDT, o,p'-DDT, p-p'-DDE and p,p'-TDE (DDD) expressed as DDT)  
DDT, p,p-  
Deltamethrin (cis-deltamethrin)  
Demeton-S-Methyl  
Demeton-S-Methylsulfone  
Desmedipham  
Diafenthiuron  
Dialifos  
Di-allate (sum of isomers)  
Diazinon  
Dichlobenil  
Dichlofenthion  
Dichlofluanid  
Dichlormid  
Dichlorobenzophenone, 4,4` -  
Dichlorprop (Sum of dichlorprop (including dichlorprop-P) and its salts, esters and conjugates, expressed as dichlorprop)  
Dichlorvos  
Diclofop (sum diclofop-methyl and diclofop acid expressed as diclofop-methyl)  
Diclofop-Methyl  
Dicloran  
Dicofol (sum of p, p' and o,p' isomers)  
Dicrotophos  
Dieldrin  
Diethofencarb  
Difenoconazole  
Diflubenzuron  
Diflufenican  
Dimethachlor  
Dimethoate  
Dimethomorph (sum of isomers)  
Dimethylphenylformamide, 2,4-  
Dimethylphenyl-N-methylformamidine, N-2,4-  
Dimoxystrobin  
Diniconazole (sum of isomers)  
Dinobuton  
Dinocap (sum of dinocap isomers and their corresponding phenols expressed as dinocap)  
Dinotefuran  
Dioxacarb  
Diphenamid  
Diphenylamine  
Disulfoton (sum of disulfoton, disulfoton sulfoxide and disulfoton sulfone expressed as disulfoton)  
Ditalimfos  
Dithianon

Olives for oil production

Olive oil

5



Dithiocarbamates (dithiocarbamates expressed as CS<sub>2</sub>, including maneb, mancozeb, metiram, propineb, thiram and ziram)  
Diuron  
DNOC  
Dodemorph  
Dodine  
Edifenphos  
Emamectin benzoate B1a, expressed as emamectin  
Endosulfan (sum of alpha- and beta-isomers and endosulfan-sulphate expresses as endosulfan)  
Endosulfan, alpha-  
Endosulfan, beta-  
Endosulfansulfate  
Endrin  
Endrin ketone  
EPN  
Epoxiconazole  
Ethalfluralin  
Ethiofencarb  
Ethiofencarb (sum)  
Ethiofencarb-Sulfoxid  
Ethion  
Ethiprole  
Ethirimol  
Ethofumesate  
Ethofumesate (Sum of ethofumesate, 2-keto-<sup>14</sup>C-ethofumesate, open-ring-2-keto-ethofumesate and its conjugate, expressed as ethofumesate)  
Ethoprophos  
Ethoxyquin  
Etofenprox  
Etoxazole  
Etridiazole  
Etrimfos  
Famoxadone  
Fenamidone  
Fenamiphos  
Fenamiphos (sum of fenamiphos and its sulphoxide and sulphone expressed as fenamiphos)  
Fenamiphos-Sulfon  
Fenamiphos-Sulfoxid  
Fenarimol  
Fenazaquin  
Fenbuconazole  
Fenbutatin oxide  
Fenhexamid  
Fenitrothion  
Fenobucarb  
Fenoxy carb  
Fenpropathrin  
Fenpropidin (sum of fenpropidin and its salts, expressed as fenpropidin)  
Fenpropimorph (sum of isomers)  
Fenpyrazamine  
Fenpyroximate  
Fenson  
Fensulfothion  
Fenthion  
Fenthion (fenthion and its oxygen analogue, their sulfoxides and sulfone expressed as parent)  
Fenthion-Sulfon  
Fenthion-Sulfoxide

Olives for oil production

Olive oil

5



Fenuron			
Fenvalerate (any ratio of constituent isomers (RR, SS, RS and SR) including esfenvalerate)			
Fipronil			
Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)			
Fipronil-Desulfanyl			
Fipronil-Sulfone			
Flazasulfuron			
Flonicamid			
Flonicamid (sum of flonicamid, TNFG and TNFA expressed as flonicamid)			
Fluazifop-P (sum of all the constituent isomers of fluazifop, its esters and its conjugates, expressed as fluazifop)			
Fluazifop-P-butyl			
Fluzinam			
Flubendiamide			
Flucythrinate (flucythrinate including other mixtures of constituent isomers (sum of isomers))			
Fludioxonil			
Flufenacet (sum of all compounds containing the N fluorophenyl-N-isopropyl moiety expressed as flufenacet equivalent)			
Flufenoxuron			
Flumioxazine			
Fluometuron			
Fluopicolide			
Fluopyram			
Flotrimazole			
Fluoxastrobin (sum of fluoxastrobin and its Z-isomer)			
Fluquinconazole			
Fluridone			
Fluroxypyr (sum of fluroxypyr, its salts, its esters, and its conjugates, expressed as fluroxypyr)			
Flusilazole			
Flutolanil			
Flutriafol			
Fluvalinate			
Fluvalinate, tau-			
Fonofos			
Forchlorfenuron			
Formetanate: Sum of formetanate and its salts expressed as formetanate(hydrochloride)			
Fosthiazate			
Fuberidazole			
Furalaxylyl			
Furathiocarb			
Halofenozone			
Haloxyfop			
Haloxyfop (Sum of haloxyfop, its esters, salts and conjugates expressed as haloxyfop (sum of the R- and S- isomers at any ratio))			
Haloxyfop-Ethoxyethylester			
Haloxyfop-Methyl			
Haloxyfop-P			
Haloxyfop-P-methyl			
HCH, delta-			
HCH-epsilon			
Heptachlor			
Heptachlor (sum of heptachlor and heptachlor epoxide expressed as heptachlor)			
Heptachlor epoxide			
Heptenophos			



Hexachlorobenzene			
Hexachlorocyclohexane (HCH), alpha-isomer			
Hexachlorocyclohexane (HCH), beta-isomer			
Hexachlorocyclohexane (HCH), sum of isomers, except the gamma isomer			
Hexaconazole	Olives for oil production	Olive oil	5
Hexaflumuron			
Hexazinone			
Hexythiazox			
Hymexazol			
Imazalil			
Imazamox (sum of imazamox and its salts, expressed as imazamox)			
Imidacloprid			
Indoxacarb (sum of indoxacarb and its R enantiomer)			
Iodofenphos			
Ioxynil (sum of Ioxynil, its salts and its esters, expressed as ioxynil)			
Iprodione			
Iprovalicarb			
Isazofos			
Isocarbophos			
Isodrin			
Isofenphos			
Isofenphos-methyl			
Isoprocarb			
Isopropalin			
Isoprothiolane			
Isoproturon			
Isoxaben			
Kresoxim-methyl			
Lenacil			
Leptophos			
Lindane (Gamma-isomer of hexachlorocyclohexane (HCH))			
Linuron			
Lufenuron (any ratio of constituent isomers)			
Malaoxon			
Malathion			
Malathion (sum of malathion and malaoxon expressed as malathion)			
Mandipropamid			
MCPA and MCPB (MCPA, MCPB including their salts, esters and conjugates expressed as MCPA)			
Mecarbam			
Mefenacet			
Mepanipyrim			
Mepronil			
Metaflumizone (sum of E- and Z- isomers)			
Metalaxyl including other mixtures of constituent isomers including metalaxyl-M (sum of isomers)			
Metamitron			
Metazachlor (sum of metabolites 479M04, 479M08, 479M16, expressed as metazachlor)			
Metconazole (sum of isomers)			
Methabenzthiazuron			
Methacrifos			
Methamidophos			
Methidathion			
Methiocarb			
Methiocarb (sum of methiocarb and methiocarb sulfoxide and sulfone, expressed as methiocarb)			
Methiocarb-Sulfon			
Methiocarb-Sulfoxid			



Methomyl  
Methoprotryne  
Methoxychlor  
Methoxyfenozide  
Metobromuron  
Metolachlor and S-metolachlor (metolachlor including other mixtures of constituent isomers including S-metolachlor (sum of isomers))  
Metolcarb  
Metoxuron  
Metrafenone  
Metribuzin  
Mevinphos (sum of E- and Z-isomers)  
Mexacarbate  
Mirex  
Molinate  
Monocrotophos  
Monolinuron  
Myclobutanil  
Naled  
Napropamide  
Nicosulfuron  
Nitetenpyram  
Nitralin  
Nitrofen  
Nonachlor-Cis  
Nonachlor-Trans  
Norflurazon  
Novaluron  
Nuarimol  
Ofurace  
Omethoate  
Oryzalin  
Oxadiargyl  
Oxadiazon  
Oxadixyl  
Oxamyl  
Oxycarboxin  
Oxydemeton-methyl  
Oxydemeton-methyl (sum of oxydemeton-methyl and demeton-S-methylsulfone expressed as oxydemeton-methyl)  
Oxyfluorfen  
Paclobutrazol  
Paraoxon-Methyl  
Parathion  
Parathion-methyl  
Parathion-methyl (sum of Parathion-methyl and paraoxon-methyl expressed as Parathion-methyl)  
Penconazole  
Pencycuron  
Pendimethalin  
Penthiopyrad  
Permethrin (sum of isomers)  
Phenmedipham  
Phenothrin  
Phenthroate  
Phorate (sum of phorate, its oxygen analogue and their sulfones expressed as phorate)  
Phorate-Sulfon  
Phorate-Sulfoxid  
Phosalone  
Phosmet  
Phosmet (phosmet and phosmet oxon expressed as phosmet)

Olives for oil production

Olive oil

5



Phosmet oxon  
Picoxystrobin  
Piperonyl Butoxide  
Pirimicarb  
Pirimicarb, Desmethylformamido-  
Pirimiphos-Ethyl  
Pirimiphos-methyl  
Pretilachlor  
Prochloraz (sum of prochloraz and its metabolites containing the 2,4,6-Trichlorophenol moiety expressed as prochloraz)  
Procymidone  
Profenofos  
Profluralin  
Promecarb  
Prometon  
Prometryn  
Propachlor: oxalinic derivate of propachlor, expressed as propachlor  
Propamocarb (Sum of propamocarb and its salt expressed as propamocarb)  
Propanil  
Propaquizafop  
Propargite  
Propham  
Propiconazole (sum of isomers)  
Propisochlor  
Propoxur  
Propyzamide  
Proquinazid  
Prosulfocarb  
Prothiofos  
Pymetrozine  
Pyracarbolid  
Pyraclofos  
Pyraclostrobin  
Pyraflufen  
Pyraflufen-ethyl  
Pyraflufen-ethyl (sum of pyraflufen-ethyl and pyraflufen, expressed as pyraflufen-ethyl)  
Pyrazophos  
Pyridaben  
Pyridalyl  
Pyridaphenthion  
Pyridate (sum of pyridate, its hydrolysis product CL 9673 (6-chloro-4-hydroxy-3-phenylpyridazin) and hydrolysable conjugates of CL 9673 expressed as pyridate)  
Pyrifenoxy  
Pyrimethanil  
Pyriproxyfen  
Quinalphos  
Quinclorac  
Quinmerac  
Quinoxylfen  
Quintozene (sum of quintozene and pentachloro-aniline expressed as quintozene)  
Quizalofop (including Quizalfop-P)  
Quizalofop-Ethyl  
Rimsulfuron  
Rotenone  
Saflufenacil (sum of saflufenacil, M800H11 and M800H35, expressed as saflufenacil)  
Secbumeton  
Sethoxydim

Olives for oil  
production

Olive oil

5



Siduron			
Simazine			
Simetryn			
Spinetoram			
Spinosad (spinosad, sum of spinosyn A and spinosyn D)			
Spirodiclofen			
Spiromesifen			
Spirotetramat			
Spirotetramat and its 4 metabolites BYI08330-enol, BYI08330-ketohydroxy, BYI08330-monohydroxy, and BYI08330 enol-glucoside, expressed as spirotetramat		Olives for oil production	Olive oil
Spiroxamine (sum of isomers)			5
Sulcotriione			
Sulfotep			
Sulfoxaflor (sum of isomers)			
Sulprofos			
Sum of captan and THPI, expressed as captan			
Sum of folpet and phthalimide, expressed as folpet			
Tebuconazole			
Tebufenozide			
Tebufenpyrad			
Tebuthiuron			
Tecnazene			
Teflubenzuron			
Tefluthrin			
Terbacil			
Terbufos			
Terbufos Sulfone			
Terbufos Sulfoxide			
Terbufos-oxon-sulfone			
Terbumeton			
Terbutylazine			
Terbutryn			
Tetrachlorvinphos			
Tetraconazole			
Tetradifon			
Tetramethrin			
TFNA-AM (4-(trifluoromethyl)pyridine-3-carboxamide)			
Thiabendazole			
Thiacloprid			
Thiamethoxam			
Thiobencarb			
Thiocyclam			
Thiodicarb			
Thiometon			
Thiophanate-methyl			
Tolclofos-methyl			
Tolyfluanid			
Tolyfluanid (Sum of tolyfluanid and dimethylaminosulfotoluidide expressed as tolyfluanid)			
Transfluthrin			
Triadimefon			
Triadimenol (any ratio of constituent isomers)			
Tri-allate			
Triazophos			
Trichlorfon			
Triclopyr			
Tricyclazole			
Tridemorph			
Trifloxystrobin			
Triflumizole Triflumizole and metabolite FM-6-1(N-(4-chloro-2-trifluoromethylphenyl)-n-propoxyacetamide), expressed as Triflumizole			



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Triflumuron  
Trifluralin  
Triforine  
Uniconazole  
Vamidothion  
Vinclozolin  
Zoxamide

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Pesticide (report name) <sup>(a)</sup>	Unprocessed product (RAC)	Processed product	Processing factor <sup>(b)</sup>
Acephate Acetamiprid Aldrin and Dieldrin (Aldrin and dieldrin combined expressed as dieldrin) Azinphos-methyl Azoxystrobin Bifenthrin (sum of isomers) Bitertanol (sum of isomers) Bupirimate Buprofezin Carbaryl Carbendazim and benomyl (sum of benomyl and carbendazim expressed as carbendazim) Carbofuran (sum of carbofuran (including any carbofuran generated from carbosulfan, benfuracarb or furathiocarb) and 3-OH carbofuran expressed as carbofuran) Chlorfenapyr Chlorpyrifos Clofentezine Clothianidin Cyperconazole Cyprodinil Diazinon Diethofencarb Difenoconazole Diflubenzuron Dimethoate Dimethomorph (sum of isomers) Endosulfan (sum of alpha- and beta-isomers and endosulfan-sulphate expresses as endosulfan) Ethirimol Fenamidone Fenbuconazole Fenhexamid Fenoxy carb Fenpropothrin Fenpropimorph (sum of isomers) Fenpyroximate Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil) Flufenoxuron Flusilazole Flutriafol Fosthiazate Hexaconazole Hexythiazox Imazalil Imidacloprid Indoxacarb (sum of indoxacarb and its R enantiomer) Iprovalicarb Kresoxim-methyl Linuron Malathion (sum of malathion and malaoxon expressed as malathion) Methamidophos Methiocarb (sum of methiocarb and methiocarb sulfoxide and sulfone, expressed as methiocarb) Methoxyfenozide Oxadixyl	Olives for oil organic production	Organic extra virgin olive oil	5

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Oxydemeton-methyl (sum of oxydemeton-methyl and demeton-S-methylsulfone expressed as oxydemeton-methyl) Paclobutrazol Penconazole Pencycuron Phosmet (phosmet and phosmet oxon expressed as phosmet) Pirimicarb Propargite Propiconazole (sum of isomers) Pymetrozine Pyridaben Pyrimethanil Pyriproxyfen Quinoxyfen Spinosad (spinosad, sum of spinosyn A and spinosyn D) Spirodiclofen Spiromesifen Spiroxamine (sum of isomers) Tebuconazole Tebufenozide Tebufenpyrad Terbutylazine Tetraconazole Thiabendazole Thiacloprid Thiamethoxam Thiophanate-methyl Tolclofos-methyl Trifloxystrobin Triflumuron Vinclozolin	Olives for oil organic production	Organic extra virgin olive oil	5
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- a) Report name as specified in the MatrixTool2016  
b) Processing factor for the enforcement residue definition



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## Abbreviations

AESAN	Spanish Agency for Food Safety and Nutrition
MSCBS	Ministry of Health, Consumer Affairs and Social Welfare
EFSA	European Food Safety Authority.
AA CC	Autonomous Communities
RASFF	Rapid Alert System for Food and Feed
EU	European Union
MRL	Maximum residue level
ARfD	Acute Reference Dose
ENAC	National accreditation entity
EUPT	European Union Proficiency Test