



# New Rules for „Unauthorized“ Products and Substances in Organic Products

Articles 28 and 29 of Regulation (EU) 2018/848

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- **Aurora Abad, Secretary General of OPTA:** Industry's key asks for the revision of the organic regulation
- **Johannes Jaschik, Analytical Service Manager, Eurofins Dr. Specht International:** Understanding Pesticide Metabolites: Relevance for MRLs and Organic Integrity
- **Dr. Werner Nader, Consultant, Eurofins Dr. Specht Express Testing & Inspection:** Multiple source substances – empirical knowledge and science to prevent unjustified investigations
- **Juan Carlos Pérez Montero, Vice President of the EOCC:** Unauthorized products and substances under regulation (EU) 2018/848: Challenges for the organic certifiers

# ABOUT OPTA EUROPE

OPTA Europe is the voice of leading organic processing and trade companies in Europe.



Leading Companies and Associations

**A large share** of total EU import & export and processing of organic products.

# Provisions

Art 28.3 Where an operator **suspects**, due to the **presence** of a product or substance that is not authorised pursuant to the first subparagraph of Article 9(3) for use in organic production in a product that is intended to be used or marketed as an organic or in-conversion product, that the latter product does not comply with this Regulation, the operator shall:

- (a) identify and separate the product concerned;
- (b) check whether the **suspicion** can be substantiated;

# In numbers

## PRESENCE OF NON-AUTHORIZED SUBSTANCES IN NUMBERS. RESULTS OF INDUSTRY DATA COLLECTION



3,652  
19 %

Contained quantifiable residues of non-authorized substances



3,214  
88 %

Above 0.01 Mg/Kg



Most  
searched  
substances

Fosetyl / Phosphonic acid, Chlorate\*, Glyphosate, Dithiocarbamates\*, Bromide\*, Quaternary Ammonium Compounds (QACs)

\*Naturally occurring substances / contaminants present in the environment, as established by EFSA



159 391 €

SME's average spending in residues laboratory testing /year

# Impact



## Delays

Supply contracts can not be respected



## Additional cost

Replacement of goods – additional storage – on-site inspection -sampling - analysis



## Damage to reputation

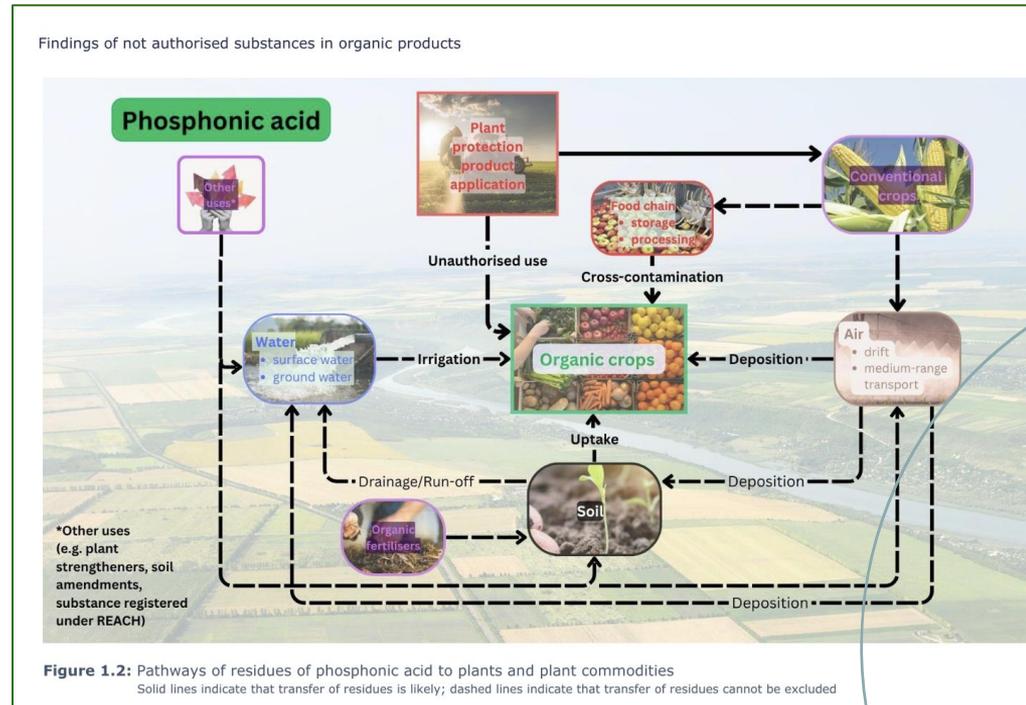


## Supplier and inspection bodies in EU records

OFIS notification, regardless the content and outcome

# EFSA report

- For each substance, several possible sources of residues were identified. Other than the unauthorized application, the report acknowledges that the transfer from contaminated soil, water and air, from short and long distances, can also explain the presence of residues in organic products.



# The way forward?

Q1 2026 - EU Commission's report to the European Parliament and the Council on the implementation of Article 29, on the presence of non-authorized products and substances and on the assessment of the national rules. The report *may* be accompanied by a legislative proposal for further harmonisation.

**Industry expectations** -> EFSA conclusions to lead to result in policy changes as well as changes in how those policies are implemented

- ✓ Readjust the inappropriate weight attributed to the presence of non-authorized substances as an indicator of non-compliance;
- ✓ Accept the 'most likely' source and cause of the presence of non-authorized conclusion of official investigations;
- ✓ Technical guidelines for an harmonized implementation by operators, control bodies, competent authorities;
- Differentiated treatment for processed products, with harmonized processing factors.



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# Understanding Pesticide Metabolites:

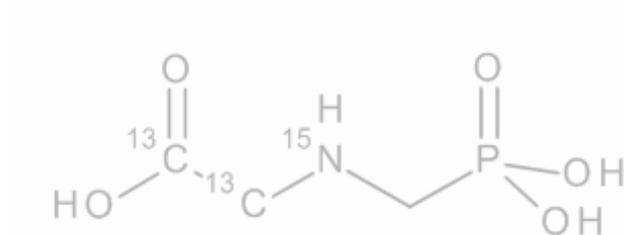
## Relevance for MRLs and Organic Integrity

**Johannes Jaschik**

Eurofins Dr. Specht International GmbH



Organic residue analysis has become detective work: every trace, every metabolite requires not just detection, but interpretation.

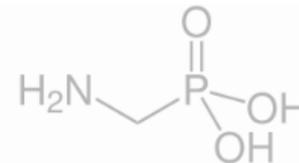


Glyphosat + AMPA



“When you have eliminated the impossible, whatever remains, however improbable, must be the truth.”

Sherlock Holmes



Representative image AI generated using Microsoft Copilot.



## Article 28

### Precautionary measures to avoid the presence of non-authorised products and substances

1. In order to avoid contamination with products or substances that are not authorised in accordance with the first subparagraph of Article 9(3) for use in organic production, operators shall take the following precautionary measures at every stage of production, preparation and distribution:

- (a) put in place and maintain measures that are proportionate and appropriate to identify the risks of contamination of organic

Food Business Operators  
at every level:

Identify risks for contamination  
and avoid risks

- (b) put in place and maintain measures that are proportionate and appropriate to avoid risks of contamination of organic production and products with non-authorised products or substances;

suspicion



2. Where an operator suspects, due to the presence of a product or substance that is not authorised pursuant to the first subparagraph of Article 9(3) for use in organic production in a product that is intended to be used or marketed as an organic or in-conversion product, that the latter product does not comply with this Regulation, the operator shall:

- (a) identify and separate the product concerned;

- (b) check whether the suspicion can be substantiated;

no use



- (c) not place the product concerned on the market as an organic or in-conversion product and not use it in organic production unless the suspicion can be eliminated;

inform  
control body



- (d) where the suspicion has been substantiated or where it cannot be eliminated, immediately inform the relevant competent authority, or, where appropriate, the relevant control authority or control body, and provide it with available elements, where appropriate;

cooperation



- (e) fully cooperate with the relevant competent authority, or, where appropriate, with the relevant control authority or control body, in identifying and verifying the reasons for the presence of non-authorised products or substances.

**Metabolites** are transformation products of a parent compound (e.g., a pesticide). They form through biological, chemical, or photolytic reactions.

- formed through metabolism, hydrolysis, oxidation, photolysis, etc.
- often more polar or structurally simplified
- may be toxicologically relevant — sometimes more critical than the parent compound
- often belong to a “sum of...” residue definition (otherwise no MRL applicable)
- must be explicitly quantified in residue analysis

Glyphosate → AMPA

Chloridazon → Desphenyl-Chloridazon

Dithiocarbamates → CS<sub>2</sub> (analytical marker)

**Isomers** are not degradation products — they are structural variants of the **same chemical formula**.

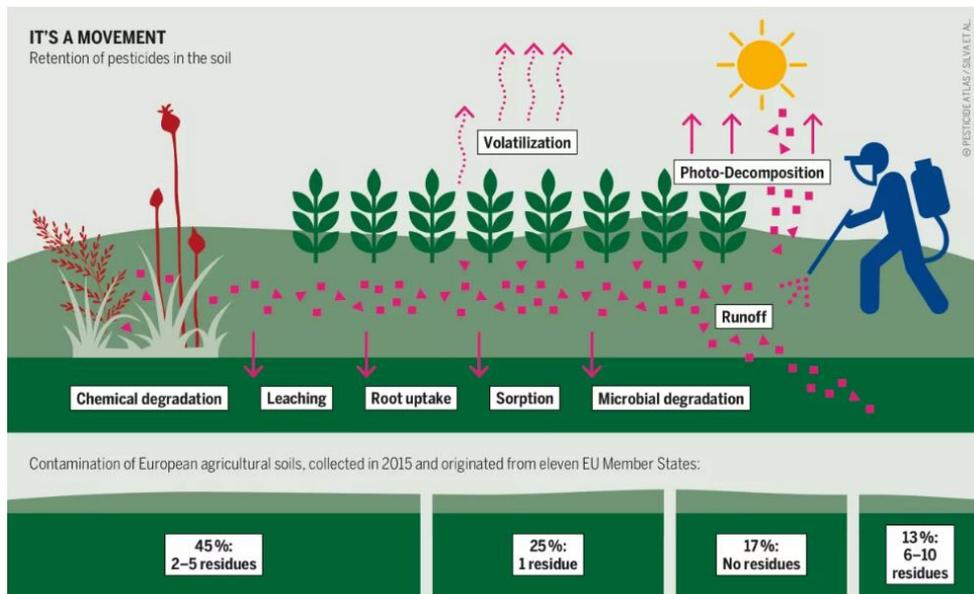
- same atoms, arranged differently
- can differ dramatically in biological activity or toxicity
- do not have separate MRLs — all isomers fall under the parent active substance
- sometimes difficult to resolve chromatographically

Permethrin: mixture of cis/trans isomers

Hexachlorocyclohexane (HCH): α-, β-, γ-, δ-HCH (only γ-HCH = lindane is the active substance)

Chlorothalonil: several structural isomers in technical products

Metabolites: products of enzyme-catalysed reactions that occur naturally within cells for pesticides e.g. Glyphosate – AMPA (Aminomethylphosphonic acid)



The "half-life" is the time required for half of the compound to break down in the environment.

- 1 half-life = 50% remaining
- 2 half-lives = 25% remaining
- 3 half-lives = 12% remaining
- 4 half-lives = 6% remaining
- 5 half-lives = 3% remaining

Half-lives can vary widely based on environmental factors. The amount of chemical remaining after a half-life will always depend on the amount of the chemical originally applied. It should be noted that some chemicals may degrade into compounds of toxicological significance.

Even if a pesticide is not persistent, this does not change the impact it has on the environment and humans at the time of application.

<https://web.archive.org/web/20150905081051/http://npic.orst.edu/index.html>

<https://eu.boell.org/en/PesticideAtlas-soils#:~:text=Pesticide%20residues%20in%20the%20soil,experiments%20included%20in%20this%20review.>

# Examples in the pesticide regulation

**Haloxyfop (Sum of haloxyfop, its esters, salts and conjugates expressed as haloxyfop (sum of the R- and S-isomers at any ratio))(R),(F)** ⓘ  
Reg. (EU) 2024/398  
**applicable**  
Annex II

**Clethodim (sum of Sethoxydim and Clethodim including degradation products calculated as Sethoxydim)** ⓘ  
Reg. (EC) No 839/2008  
**Applicable**  
Annex

**Spinetoram (sum of spinetoram-J and spinetoram-L)(F),(A)** ⓘ  
Reg (EU) 2023/1069  
**applicable**  
Annex II

**Atrazine (F)** ⓘ  
Reg. (EU) 2016/440  
**Applicable**  
Annex

**Phosphonic acid and its salts expressed as phosphonic acid(R)** ⓘ  
Commission Regulation (EU) 2024/2619  
**Applicable**  
Annex

**Endosulfan (sum of alpha- and beta-isomers and endosulfan-sulphate expressed as endosulfan)(F)** ⓘ  
Reg. (EU) No 310/2011  
**applicable**  
Annex II, IIIB

**Glyphosate** ⓘ  
Reg. (EU) No 293/2013  
**Applicable**  
Annex

**Spirotetramat and spirotetramatenol (sum of), expressed as spirotetramat(R)** ⓘ  
Reg. (EU) 2023/1049  
**applicable**  
Annex II

**Chloridazon (sum of chloridazon and chloridazon-desphenyl, expressed as chloridazon)(R)** ⓘ  
Reg. (EU) No 2023/710  
**applicable**  
Annex V

**Folpet (sum of folpet and phtalimide, expressed as folpet)(R)** ⓘ  
Reg. (EU) 2023/1042  
**applicable**  
Annex II

**Bromide ion** ⓘ  
Reg. (EC) No 839/2008  
**applicable**  
Annex IIIA

**Fosetyl** ⓘ  
Commission Regulation (EU) 2024/2619  
**Applicable**  
Annex

**Carboxin (carboxin plus its metabolites carboxin sulfoxide and oxycarboxin (carboxin sulfone), expressed as carboxin)** ⓘ  
Reg. (EU) 2023/2382  
**Applicable**  
Annex

**Ethylene oxide (sum of ethylene oxide and 2-chloro-ethanol expressed as ethylene oxide)(F)** ⓘ  
Reg. (EU) 2015/868  
**applicable**  
Annex V

**Trimethyl-sulfonium cation, resulting from the use of glyphosate (F)** ⓘ  
Reg. (EC) No 149/2008  
**applicable**  
Annex II, IIIB

active substance regulated incl. metabolites

active substance regulated with isomers

active substance regulated without metabolites

metabolit/active substance regulated seperately

regulated counterion

active substance regulated included esters and conjugates

Source: efsa data base <https://ec.europa.eu/food/plant/pesticides/eu-pesticides-database/start/screen/mrls>

## Spirotetramat (insecticide, no EU approval since 2024)

### Regulated residue definition

- Spirotetramat + Spirotetramat-Enol (main metabolite)

### Further metabolites originating from Spirotetramat:

- Spirotetramat-Ketohydroxy
- Spirotetramat-Enol-Glucosid
- Spirotetramat-Monohydroxy

### Application profile:

- Broad spectrum insecticide with wide use across many crops.

### Persistence:

- Not persistent.
- Half-life of parent and metabolites: 3–4 days in soil, shorter in plants.

## Chloridazon (herbicide, no EU approval since 2018)

### Regulated residue definition:

- Chloridazon + Desphenyl-Chloridazon (main metabolite)

### Further metabolites originating from Chloridazon:

- Methyl-Desphenyl-Chloridazon

### Application profile:

- Primarily used in sugar beet cultivation (weed control).

### Persistence:

- Moderately persistent.
- Parent half-life: ~43 days
- Metabolites are more persistent and more mobile than the parent.

Findings of metabolites — whether regulated or not — may indicate the (former) use of the active substance, as these metabolites are highly specific to their parent compound.

# Metabolites, regulated but not specific

## Folpet (fungicide, EU approval until 2039)

### Regulated residue definition

- Sum of Folpet + Phthalimide

### Application profile:

- Folpet is a widely used fungicide, particularly in grapes, fruits, vegetables, cereals, often used in viticulture.

### Persistence:

- Folpet not very stable, but Phthalimide more stable

### Multiple source origin Phthalimid :

- Phthalimide is also a known metabolite of Phosmet (an organophosphate insecticide).
- Formed during thermal processing of foods  
Phthalic anhydride (a ubiquitous environmental contaminant from plastics, inks, coatings, paper, etc.) can react with amino acids to form phthalimide during drying, roasting or heating.

## Fosetyl/Phosphonic acid (fungicide, EU approval until 2026)

### Regulated residue definition:

- Fosetyl
- Phosphonic acid and its salts

### Application profile:

- Fosetyl-Al is widely used in fruit, grape, horticultural crops.

### Persistence:

- Phosphonic acid is highly persistent, can remain in permanent crops for several seasons

### Multiple-source origin Phosphonic acid:

- Phosphonates used as or in pesticides, fertilizers or plant-strengtheners (also undeclared use)
- Natural compound produced by microorganisms (biogeochemical phosphorus cycle)
- Industrial by-product released into environment via effluents (household + industrial)
- Found in compost/manure and soil from former applications

Therefore, detecting these metabolites alone is insufficient evidence for the parent pesticide's application.

# Metabolites, not regulated and not specific

## Glyphosate (herbicide, EU approval until 2033)

### Metabolites originating from Glyphosate not in residue definition:

- AMPA (Aminomethylphosphonic acid)

### Application profile:

- Broad-spectrum, systemic, non-selective herbicide used in agriculture, horticulture, railways, roadsides, parks, private gardens.

### Persistence:

- Glyphosate degradation highly variable depending on temperature & moisture (DT50 1.5 – 53 days), AMPA more persistent in soil

### Multiple source origin AMPA:

- Industrial phosphonates & detergents (environmental breakdown of organophosphorus compounds)

## Linuron (herbicide, no EU approval since 2017)

### Metabolites originating from Linuron not in residue definition:

- 3,4-Dichloroaniline (3,4-DCA)

### Application profile:

- Selective phenylurea herbicide used in vegetables (carrots, beans, asparagus), cereals, cotton, coffee, tea, rice, ornamentals.

### Persistence:

- Linuron is moderately persistent in soil (DT50: 30-150 days)
- 3,4-DCA is also persistent

### Multiple-source origin 3,4-DCA:

- is a metabolite of several phenylurea herbicides (diuron, propanil, etc.)
- is also an industrial intermediate used in the synthesis of dyes, pharmaceuticals, cosmetics, and chemicals, and may enter the environment via industrial effluents.
- can form through degradation of various chlorinated aniline derivatives

Therefore, detecting these metabolites alone is insufficient evidence for the parent pesticide's application.

Technical Report



APPROVED: 24 June 2025  
doi: 10.2903/sp.efsa.2025.EN-9524

## Findings of not authorised substances in food and feed certified as organic

### 5 Recommendations

- When residues of the active substances considered in this report are quantified in organic commodities, the possibility of active use needs to be investigated.  
In addition, EFSA recommends,
- when residues of phosphonic acid, boscalid, fluopyram and difenoconazole are quantified in organic commodities, to analyse the soil where the plants were grown;
- when residues of glyphosate, boscalid, azoxystrobin, fluopyram and spirotetramat, are quantified in organic commodities, to analyse the water source used to irrigate the plants;
- to investigate the use of pesticides around the organic production site in order to confirm or rule out the possible transfer of residues due to drift from conventional crops growing in the vicinity of organic crops;
- Member States to submit environmental monitoring data to IPCHEM<sup>96</sup> that follow the FAIR principles of findability, accessibility, interoperability and reusability. Regular updates of data on IPCHEM are recommended to ensure alignment with updates made in the data source.

Fosetyl-Al (incl. Phosphonic acid)
Glyphosate
Cypermethrin
Imidacloprid
Boscalid
Tebuconazole
Folpet (incl. Phthalimide)
Pirimiphos-methyl
Azoxystrobin
Fluopyram
Lambda-Cyhalothrin
Acetamiprid
Chlormequat
Pendimethalin
Spirotetramat
Cyprodinil
Chloridazon
Pyriproxifen
Fludioxinil
Difenoconazole
Deltamethrin

A mixture of completely different substances

Some of them already discussed

Source: <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/sp.efsa.2025.EN-9524>

# Findings, Metabolites, 2025

Parameter	Ratio
Glyphosate	30.7
Phthalimid	6.3
Propamocarb (sum)	5.5
Folpet (Sum)	6.1
Phosphonic acid	47.0
Spirotetramat-enol	2.9
Captan (Sum)	2.9
THPI (Tetrahydrophthalimide)	2.6
Spirotetramate (Sum)	3.3
Spirotetramat-enolglucoside	1.7
Aminomethylphosphonic acid (AMPA)	6.4
Spirotetramat-ketohydroxy	1.5
Spirotetramat	1.2
Ethylene oxide (sum ethylene oxide and 2-chloro...)	6.8
2-chloro-ethanol (expr. as ethylene oxide)	6.8
Captan	1.0
Chloridazon-desphenyl	1.3
Chloridazon (Sum)	1.1
Clethodim sulfone	0.3
Spirotetramat-monohydroxy	0.3
Atrazin	0.1
Clethodim/Sethoxydim (Sum)	0.2
Clethodim sulfoxide	0.3
Atrazin, desethyl-	0.1
Fosetyl	2.1
Clethodim	<0.1
Chloridazon, methyl-desphenyl-	0.1
Atrazine-desethyl-desisopropyl	6.4
Atrazin, deisopropyl-	<0.1

## Glyphosate

is more often found, than its metabolite AMPA.

## Folpet/Captan

nearly all Folpet(sum) findings because of phthalimide detections

## Spirotetramat

and a whole lot of metabolites

## Chloridazon

only findings of metabolites

Conventional: more than 100,000 data sets

Parameter	Ratio
Phosphonic acid	45.6
Glyphosate	12.8
Phthalimid	2.8
Folpet (Sum)	2.8
Aminomethylphosphonic acid (AMPA)	2.4
Chloridazon (Sum)	0.5
Chloridazon-desphenyl	0.5
Propamocarb (sum)	0.2
Captan (Sum)	0.2
THPI (Tetrahydrophthalimide)	0.2
Ethylene oxide (sum ethylene oxide and 2-chloro...)	1.7
Fosetyl	0.6
Spirotetramate (Sum)	0.1
Spirotetramat-enol	0.1
Clethodim sulfone	0.1
Trimethylsulfonium-Kation	28.6
Captan	0.1
Atrazin, desethyl-	<0.1
Folpet	<0.1
Clethodim/Sethoxydim (Sum)	<0.1
Spirotetramat-ketohydroxy	<0.1
Clethodim sulfoxide	<0.1

Organic: more than 10,000 data sets

The evaluations are based on test results and analysis data from Eurofins Food & Feed Testing laboratories in Germany. All data have been anonymised so that no conclusions can be drawn about individual clients. The data does not claim to be representative for the global market. Reasonable care has been taken by the publishing company to ensure that the information provided in this document is true and accurate according to the defined statistical minimum requirements. The information provided in this document is exclusively intended as an informal information for individual consideration and does not replace a quality control and risk assessment program of a food and feed producer, trader, packer or retailer, which must be tailored to the individual situation. To the extent permitted by law, the company shall not be liable for any loss, damage or expense whatsoever arising out of or in connection with this publication, directly or indirectly, including but not limited to, in contract, tort, strict liability or any other legal bases.

Chloridazon findings: 0.0

No findings of Folpet in dried products. Only fresh grapes

Products	Ratio	Median	P90
TEA, BLACK	42.5	0.03	0.12
HERBAL INFUSIONS (DRIED)	34.1	0.02	0.04
SESAME SEED	22.7	0.02	0.05
SOY BEAN	13.5	0.05	0.12
LENTIL (DRIED) (WHOLE)	7.6	0.01	0.02
HONEY	14.5	0.01	0.06
SOY FLOUR	54.8	0.06	0.30
TEA, GREEN	23.2	0.02	0.85
SUNFLOWER CAKES	71.4	0.09	0.42
COCOA, BEANS	17.4	0.03	0.22
BROWN FLAX SEED	17.7	0.04	0.76
FLAX / LINSEED	33.9	1.00	2.60
GINGER, DRIED	27.8	0.02	0.04

## Glyphosate findings 2025

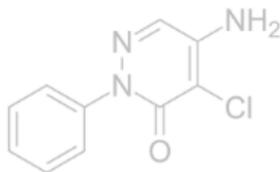
Top 1 for AMPA is soil, ratio 20%  
Glyphosat ratio is 6%

## AMPA findings 2025

Products	Ratio	Median	P90
SOY FLOUR	24.2	0.01	0.11
SOY BEAN	3.6	0.01	0.02
FLAX / LINSEED	17.7	0.03	0.04
RICE PROTEIN	32.1	0.03	0.07
SUNFLOWER CAKES	19	0.01	0.03
LEAVES (AS PART OF PLANT)	0.8	0.07	0.13
SESAME SEED	1.2	0.01	0.02
TEA, BLACK	1.4	0.02	0.03
TEA, GREEN	2.2	0.02	0.03
BROWN FLAX SEED	1.6	0.04	0.05

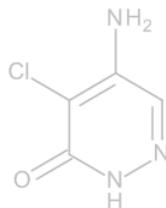
*The evaluations are based on test results and analysis data from Eurofins Food & Feed Testing laboratories in Germany. All data have been anonymised so that no conclusions can be drawn about individual clients. The data does not claim to be representative for the global market. Reasonable care has been taken by the publishing company to ensure that the information provided in this document is true and accurate according to the defined statistical minimum requirements. The information provided in this document is exclusively intended as an informal information for individual consideration and does not replace a quality control and risk assessment program of a food and feed producer, trader, packer or retailer, which must be tailored to the individual situation. To the extent permitted by law, the company shall not be liable for any loss, damage or expense whatsoever arising out of or in connection with this publication, directly or indirectly, including but not limited to, in contract, tort, strict liability or any other legal bases.*

Trimethylsulfonium can always be found if the product is dried



Cloridazon (sum)

Products	Ratio	Median	P90
CHAMOMILE (FLOWER)	6.9	0.02	0.03
HERBAL INFUSIONS (DRIED)	5.6	0.02	0.05
FENNEL SEED	4.3	0.03	0.03
HERBAL TEA MIXTURE	3.8	0.02	0.02
PARSLEY (DRIED)	2.8	0.38	0.40



Chloridazon-desphenyl

Products	Ratio	Median	P90
CHAMOMILE (FLOWER)	6.9	0.01	0.02
HERBAL INFUSIONS (DRIED)	5.6	0.01	0.03
FENNEL SEED	4.3	0.02	0.02
HERBAL TEA MIXTURE	3.8	0.01	0.01
PARSLEY (DRIED)	2.8	0.25	0.27

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Chloridazon

No findings

All findings are solely related to Chloridazon-desphenyl.

## Captan findings in organic products:

APPLE (FRESH)
HERBAL TEA MIXTURE
LAVENDER
LEAF (AGRICULTURE / HORTICULTURE)
LIME / LINDEN (FLOWER), HERBAL INFUSION
TARRAGON, DRIED

## THPI findings in organic products:

APPLE JUICE
APPLE CONCENTRATE
APPLE (FRESH)
DRIED FRUIT OR VEGETABLE
HERBAL TEA MIXTURE
APPLE, CONCENTRATE
APRICOT, DRIED
CARDAMON
CHEERRY CONCENTRATE
COMPOTE
CRANBERRY, DRIED
MULTIFRUIT/VEGETABLE JUICE
SAUCE ALREADY MADE
STRAWBERRY CONCENTRATE
WINE OF OVERRIPE GRAPE

## Folpet findings in organic products:

TABLE GRAPE (FRESH)
---------------------

## Phthalimid findings in organic products:

With finding ratios up to 100% !

HERBAL MATE (L	PLANT E	CLOVE	HAZELN	APRICOT	CINNAM	JUNIPER I	POMEGRANATE (DRY EXTRACT)
TEA, GR	SESAME	DRIED	INSTAN	BAKING I	CLOVE P	LEEK, DRI	RED WINE (DRY)
BANAN/	BASIL (C	FRUIT E	LEMON I	BANANA	COMMO	LEMON P	RHUBARB (JUICE)
RICE PR	BASIL (F	HERBA	MALT	BASIL	ECHINAC	LEMON V	RICE BRAN
PART OF	DRIED N	LIQUOF	MALT EX	BEETROC	ELDERBE	LIME / LIN	ROOIBOS (LEAVES), HERBAL INFUSION
CRISPB	OREGAN	LOVAG	MINT (F	BERRY, SI	FEEDING	LIQUORIC	ROSEMARY (FLAKES/POWDER)
PEPPER	SPEARM	MACA F	NETTLE	BIRCH (LI	FENNEL	LOVAGE, I	SAGE (FLAKES/POWDER)
LEAF (A	WINE	MARJO	OREGAN	BIRCH (LI	FENNUG	MALLOW	SEAWEED (DRIED)
STRAW	CHILLI P	NUTRA	PASTRY	BLACKBE	FIELD HC	MANGO (	SESAME, OIL
CHAMO	DIETAR)	OREGA	PEPPER	BREAD (L	FLEAWO	MARJORA	SPINACH (FLAKES/
RICE GR	FRUIT T	STRAW	ROSE PE	BROCCO	FODDER	MINT (DR	STRAW
HERBAL	GINGER	THYME	SPINACH	BUTTERF	GARLIC (	ONION, F	SPINACH (FLAKES/
MATE (L	LEMON)	BASIL, I	SPIRULII	CARROT,	GINSENC	ORANGE	SUNFLOWER PRES
TEA, BL	MARJOF	BAY LE	TARRAG	CAYENNE	GRAPE-T	PAPRIKA	SWEET PEPPER (FL
BLUEBE	MUSHR	CARDA	TOMATC	CELERY (I	GRASS H	PARSLEY (	TABLE GRAPE (FRE
ELDER (I	PARSL	CARDA	VANILLA	CELERY (I	GRASS H	PARSLEY (	TEA, BLACK / POLY
BLACK P	SPIRULI	CHICO	ALCOHO	CHERRY (	GUAVA (	PEPPERCO	TEA, GREEN (AROMA
BROWN	THYME,	CORIA	ANISE (F	CHINESE	HIBISCU	PEPPERM	TEA, OOLONG
PEPPER	VANILLA	ELDERE	APPLE (I	CHLOREL	JUNIPER	PINEAPPL	TEA, WHITE
							TURMERIC / CURCUMA (FLAKES/POWDER)

Most dried products show always low levels of Phthalimid. Therefore Phthalimide finding do not work in these cases as an indication for a use of a not allowed active substance.

## Example: dried product (pepper)



Parameter	Concentration [mg/kg]	MRL, note	Action Level*
Phthalimide	0.079	Non specific metabolite	see Folpet (sum)
Spirotetramat-enol	0.061	Calculated as Spirotetramat	see Spirotetramat (sum)
Spirotetramat-ketohydroxy	0.011	Not included in residue definition	addit. metabolite
Folpet (Sum)	0.16	0.03 (fresh), 0.3 (dried)	does not apply
Spirotetramat (Sum)	0.074	1 (fresh), 10 (dried, factor 10)	0.01 / 0.1 (with factor)

### Evaluation:

Spirotetramat-enol and Spirotetramat-ketohydroxy are metabolites of Spirotetramat which is not listed in Annex I of Implementing Regulation (EU) 2021/1165 and is therefore not permitted for use in organic production under Regulation (EU) 2018/848



Article 28 of Regulation (EU) 2018/848

- A metabolite finding alone is not sufficient evidence of a pesticide application; multiple alternative sources must be considered.
- Metabolites may originate from environmental sources, former uses (persistence), industrial chemicals, or food processing.
- Interpretation requires context: crop history, environmental contamination, processing steps, and supply-chain influences.
- Regulated residue definitions determine whether metabolites are legally relevant — but findings outside those definitions can still be relevant in the evaluation of organic products.
- Sound interpretation requires combining analytics, agronomic understanding, and risk assessment.

Many thanks for your attention!



## Contact



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# Multiple Source Substances – empirical knowledge and science to prevent unjustified investigations



Dr. Werner Nader

February 11th, 2026

# BIOFACH

### Industry concerns, as we in the laboratory business are aware of:

- Investigations are frequently triggered by analytical findings which do not indicate a violation, if one applies empirical knowledge or scientific findings
- What means “*presence*” in article 29(1)? Analytical methods of residues and contaminants do not recognize “non-presence” – at most not detected above LOD.
- Interpretation and implementation of requirements of Articles 28 and 29 differ in the EU Member States.

### Industry proposal (presentation of Aurora Abad, OPTA)

- ✓ Readjust the inappropriate weight attributed to the presence of non-authorized substances as an indicator of non-compliance
- ✓ Accept the ‘most likely’ source and cause of the presence of non-authorized conclusion of official investigations
- ✓ Technical guidelines for an harmonized implementation by operators, control bodies, competent authorities
- ✓ Differentiated treatment for processed products, with harmonized processing factors.

# Trouble Maker # 1: Multi Source Substances

Multisource substance	Potential use as agrochemical	Other sources
<b>TOP Trouble Makers</b>		
1 Phosphonic acid	Metab. fosetyl, phosphonate salts	anaerobic microbial metabolism in environment, mineral fertilizer, industrial waste water
Fosetyl	Fungicide	Esterification of phosphonate with ethanol in wine
2 Glyphosate/AminoMethylPhosphonic Acid	Herbicide and its metabolite AMPA	Degradation of antiscalants in household detergents and industrial cooling water
3 Chlorate	herbicide sodium chlorate	chlorinated processing and cleaning water
4 Bromide	Methyl bromide fumigation	Soil (volcanic, close to sea), natural in Brazil nuts
5 Dithiocarbamates	Large group of fungicides	False positive result from plants with high sulphur content, Brassicaceae
6 Quaternary ammonium compounds	Antimicrobial and fungicide	Disinfectant in food processing plants
<b>Natural pesticides</b>		
7 Rotenone / Deguelin	Natural insecticides	Cross contamination from <i>Tephrosia vogelii</i> , widely used tropical tree
8 Matrine / Oxymatrine	Natural insecticides	Cross contamination of liquorice by <i>Sophora flavescens</i> roots
9 Karanjin	Insecticide, acaricide	Cross contamination of tea from the Karanja tree, <i>Millettia pinnata</i>
10 Nicotine	Natural insecticide	hands of smokers, dust from tobacco fields
<b>Potential processing contaminants</b>		
11 Phthalimide	Metabolite of pesticides folpet and phosmet	Reaction of phthalic anhydride with amino acids under heat
12 2,6-DIPN	Plant Growth Regulator (Potatoes)	Cross contamination, lubricants, recycling packaging, combustion
13 Trimesium	Counter cation of glyphosate	Processing of dried herbs and tea
14 Mepiquate	Growth regulator	Food baking and roasting involving the Maillard reaction
15 Anthraquinone	Bird repellent	Combustion, drying, roasting, packaging paper
16 Biphenyl	Fungicide against molds in citrus	Combustion, drying, roasting, packaging paper
<b>Natural biochemicals</b>		
17 Indole-3-acetic acid	Growth regulator	Natural plant hormone, also stored in seeds
18 Copper	Fungicide in organic agriculture	Co-factor in cuproenzymes in all living organisms
<b>Others</b>		
19 DEET	Insect repellent	Hands of persons handling food and samples
20 Mercury	Mercury fungicides	Contamination of rivers by gold mining, e.g. Mekong river

# Phosphonic acid Findings in Eurofins Data Base, Bytannion



Is the detection of fosetyl-Al and ethyl-phosphonic acid in organic wines an evidence of fosetyl-Al application in organic vineyards?

Alessandra Trinchera <sup>a</sup>, Giuseppe Vassanelli <sup>b</sup>, Luca Lorenzi <sup>b</sup>, Dylan Warren Raffa <sup>a, \*</sup>

<sup>a</sup> Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria (CREA), Centro di ricerca Agricoltura e Ambiente, Via della Navicella, 4, 00184 Rome, Italy  
<sup>b</sup> Vassanelli Lab, Via P. Vassanelli, 9, 37012 Busanigo (VR), Italy

ARTICLE INFO

ABSTRACT

Table 4

FOS, Et-PHY and PHY content (mg/kg) in oenological adjuvants used in cellar.

Oenological adjuvants	FOS-Al (sum of fosetyl and phosphonic acid and their salts, expressed as fosetyl) mg/kg	Et-PHY* (ethylphosphonic acid) mg/kg	PHY (phosphonic acid) mg/kg
DAP-1	23.2	< 0.1	17.3
DAP-2	232	< 0.1	173
DAP-3	281	< 0.1	210
Deactivated yeast	0.16	< 0.1	0.12
Deactivated yeast, DAP and cellulose	3.8	< 0.1	2.8
Dried yeast-1	2	< 0.1	1.5
Dried yeast-2	<0.1	< 0.1	< 0.1
Thiamin+deactivated yeast + DAP	6	< 0.1	4.5
Thiamin+ yeast hulls+ DAP	63.4	< 0.1	47.2

**DAP – Diammoniumphosphate**

\* LOO<sub>Et-PHY</sub> ≤ 0.1 mg/kg in oenological matrices.

[Soil and Plant Food, Vol. 5, No. 1, 1959]

## PHOSPHATE REDUCTION IN THE PADDY FIELD I.

GORO TSUBOTA

Tochigi Agricultural Experiment Station, Utsunomiya

RECEIVED MAY 19, 1959

Product	al	Max
	mg/kg	
Almond	55,10	
Lentil	15,50	
Mushroom	28,27	
Peanut	60,60	
Pea	0,70	
Buckwheat	0,73	
Wine	50,78	
Quinoa	40,00	
Lemon	7,80	
Bean	20,10	
Orange	6,30	
Strawberry	8,70	
Apple	30,00	
Apricot	1,10	
Ginger	3,70	
Tomato	24,00	
Wheat	2,70	
Rice	>1.000	38,9%
	0,040	2,70
	33,1%	0,030
100,00	10,00	
Total	>30.000	48,7%
	0,069	15,00
	46,1%	0,474
	124,00	

The paper on the phosphate reduction in the paddy field has not yet been found. Although it seemed that its study was made by a Soviet investigator, K.I. RUDAKOV (2, 3), his research was not concerned with the paddy field and his original paper has not been available to the author.

During the study on some problems of phosphate fertilizer utilization, the author had come to presume, without referring the research of RUDAKOV, the possibility of occurrence of phosphate reduction in the soil under flooded condition.

The author presumed three levels of reduced compounds derived from phosphate, i.e., phosphate - phosphite - hypophosphite - phosphine,

Table 1. Redoxpotential in Each Level in the Course of Phosphate Reduction

Reaction	E <sub>0</sub>	ΔH
H <sub>2</sub> PO <sub>4</sub> —H <sub>2</sub> PO <sub>3</sub>	-0.38 <sup>v</sup> (-0.20)*	-17.5
H <sub>2</sub> PO <sub>4</sub> —H <sub>2</sub> PO <sub>2</sub>	-0.67 (-0.50)**	-30.9
H <sub>2</sub> PO <sub>4</sub> —PH <sub>3</sub>	-0.34	-31.3

Note: ( <sup>v</sup> ) \* N.A. LANGRIS: Handbook of Chemistry (1956)  
 ( \*\* ) G. CHARLOT: L'Analyse Qualitative et les Reactions en Solution (1957)

among the known phosphorus compounds. Redoxpotentials in each level were calculated from the value of ΔH and shown in the the following table.

Considered from the values in the table, the possibility of microbiological reduction of phosphate in nature cannot be excluded. This phenomenon is considered to be of great significance in the study of relationship between soil and fertilizer in the flooded paddy field. If the phosphate reduction occurs in the paddy field, the transformation of phosphate into unavailable form for plants other than its absorption or fixation by soil will have to be studied. A. FUJIWARA (1) has informed the toxic effect of phosphite and hypophosphite upon the rice plant. And if phosphate is reduced to phosphine, the degree of dephosphorification and toxicity of reduced compounds of phosphate must be investigated from the standpoint of manure utilization in the soil.

The author and his collaborators have worked on this problem since 1957. In this paper, three items of the problem which the author studied under Prof. K. ARIMA at the Department of Agricultural Chemistry, University of Tokyo, will be reported. They are, 1) phenomenon of



## Buckwheat field in the Gilgit area, Pakistan

### Test results

**XP103 Pesticide-Screening Quechers LC-MS/MS**  
 Method DIN EN 15662:2018 mod., SPF-14.141, LC-MS/MS  
 Subcontracted to a Eurofins laboratory accredited for this test.

Screened pesticides Not Detected

**XP207 Pesticide-Screening Quechers GC-MS/MS**  
 Method DIN EN 15662:2018 mod., SPF-14.141, GC-MS/MS  
 Subcontracted to a Eurofins laboratory accredited for this test.

Screened pesticides Not Detected

**XP313 Fosetyl/Phosphonic acid**  
 Method Internal Method SPF-14.188-4, SPF-14.188, LC-MS/MS  
 Subcontracted to a Eurofins laboratory accredited for this test.

Fosetyl	< 0.01	mg/kg
Phosphonic acid	0.63	mg/kg
Fosetyl-Al (fosetyl+phosph. acid/salts as fosetyl)	0.84	mg/kg
Regulatory Limit	2.0	mg/kg *

Buckwheat field in inner Mongolia

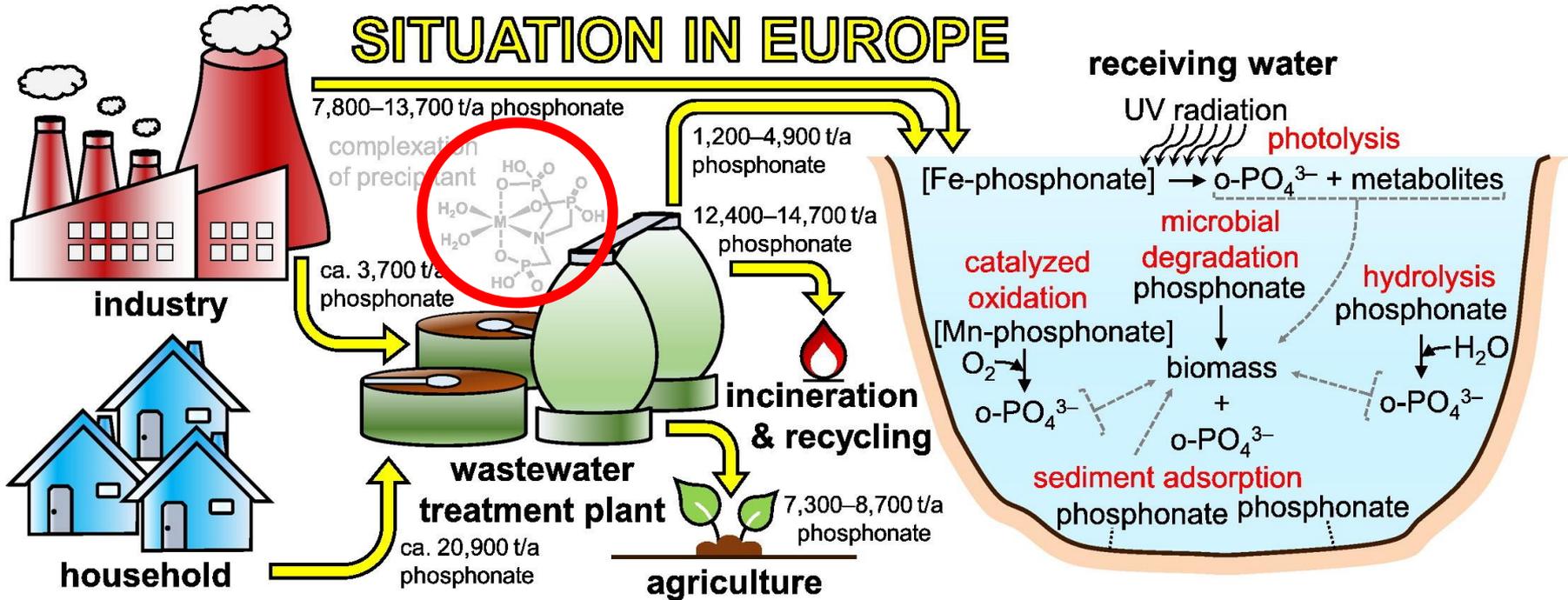


**0.12 g/kg phosphonic acid  
DAP – Diammoniumphosphate**  
 $\delta^{15}\text{N} -2 \pm 0.1$  [‰] v.s. Air

**Nitrogen stable isotopes in  
buckwheat with 0.082 ppm  
phosphonic acid**  
 $\delta^{15}\text{N} 6.5 \pm 0.1$  [‰] v.s. Air

**No Indication of mineral  
fertilization**

## SITUATION IN EUROPE



Rott, E., Steinmetz, H. & Metzger, J.W. (2018). Organophosphonates: A review on environmental relevance, biodegradability and removal in wastewater treatment plants. *Science of Total Environment*, 615, 1176-1191.  
<https://doi.org/10.1016/j.scitotenv.2017.09.223>

# Glyphosate and AMPA from Aminopolyphosphonates

Water Research 280 (2025) 123464

Contents lists available at ScienceDirect

Water Research

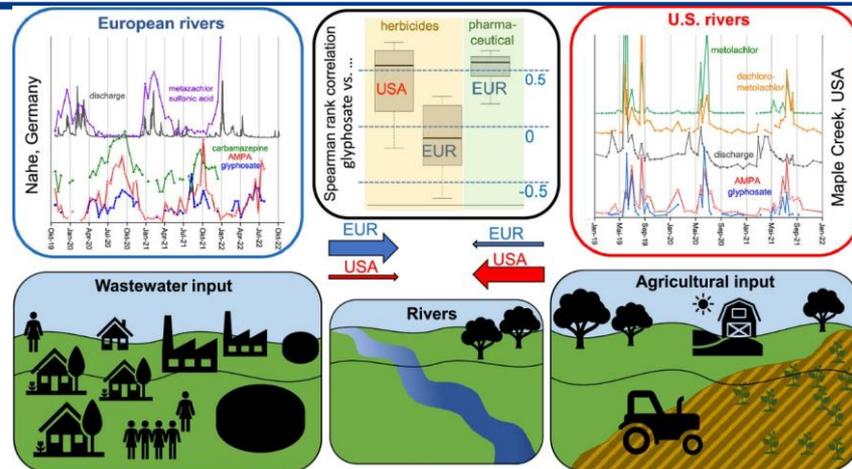
journal homepage: [www.elsevier.com/locate/watres](http://www.elsevier.com/locate/watres)



In-situ formation of glyphosate and AMPA in activated sludge from phosphonates used as antiscalants and bleach stabilizers in households and industry

L. Engelbart<sup>a, #</sup>, S. Bieger<sup>a, #</sup>, K. Thompson<sup>b</sup>, L. Fischer<sup>a</sup>, T. Bader<sup>c</sup>, M. Kramer<sup>d</sup>, S.B. Haderlein<sup>e</sup>, A.M. Röhnelt<sup>e</sup>, P.R. Martin<sup>e, 1</sup>, D. Buchner<sup>e</sup>, R. Bloch<sup>f</sup>, H. Rügner<sup>e</sup>, C. Huhn<sup>a, 1</sup>

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<sup>c</sup> Zweckverband Landeswasserversorgung, Laboratory for Operation Control and Research, Germany  
<sup>d</sup> Eberhard Karls Universität Tübingen, Institute of Organic Chemistry, Department of Chemistry, Germany  
<sup>e</sup> Eberhard Karls Universität Tübingen, Geo- and Environmental Research Center, Department of Geosciences, Germany  
<sup>f</sup> Berliner Wasserbetriebe, Germany

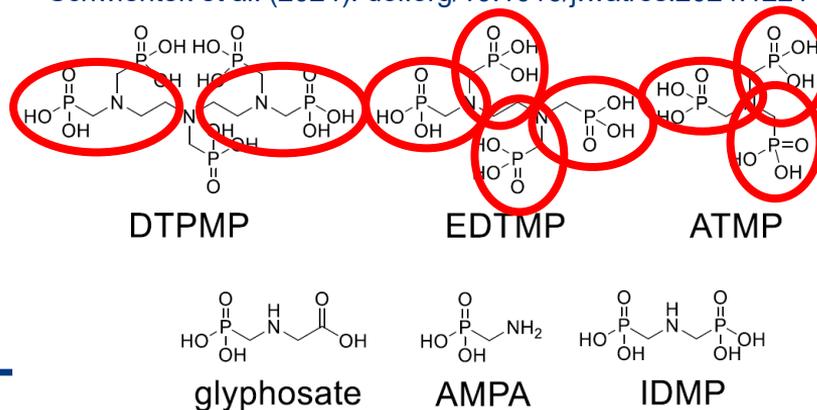
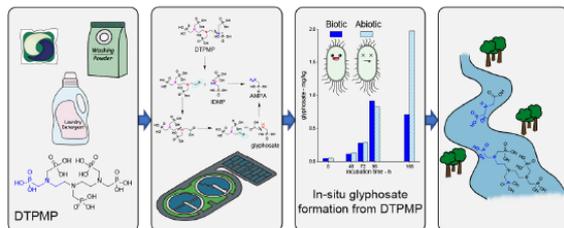


Schwientek et al. (2024). [doi.org/10.1016/j.watres.2024.122140](https://doi.org/10.1016/j.watres.2024.122140)

## HIGHLIGHTS

- Glyphosate is a transformation product of a laundry additive in activated sludge.
- De novo formation is unambiguously demonstrated using isotope labeled compounds.
- The transformation also proceeds under abiotic conditions after azide treatment.
- Extrapolation of formation rates reveals relevant effluent concentrations.
- A possible pathway is deduced from known transformation reactions of glyphosate.

## GRAPHICAL ABSTRACT



# THE END

## Hopefully not the end of further research



## Articles 28 and 29 of (EU) 2018/848: Implementation from Control Bodies side.

**Biofach. 11<sup>TH</sup> February 2026**

**Juan Carlos Pérez Montero**

EOCC Vicepresident / Technical Manager of  
CAAE

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EOCC is the European Organic Certifiers Council.

International non-profit organization, since 2010.

In 2026, 74 members (CBs, CAs, national CBs association) in more than 36 countries.

## eocc MEMBERS IN 2024



over

**180.000**

operators certified to  
the EU organic  
standard in the EU



over

**6 mln ha**

in the EU under  
control

15 YEARS OF COOPERATION FOR RELIABILITY

## eOCC MEMBERS IN 2024



## eocc MEMBERS IN 2024

---



> **74.000**

certificates of Import (EU COI)  
for organic products issued

15 YEARS OF COOPERATION FOR RELIABILITY

## **The EOCC Working Bodies:**

1 Working Group Import

7 Task-Forces:

- Residues
- OFIS
- OCR (Official Control Regulation) and Official Investigation
- Group of Operators
- Remote Audits
- Mass-Balance
- Inputs

Mostly digital meetings in English – with minutes

- **CBs and CAs are delegated bodies for doing controls**

*Article 40*

**Additional rules on the delegation of official control tasks and tasks related to other official activities**

1. Competent authorities may delegate to control bodies certain official control tasks and certain tasks related to other official activities only if the following conditions, in addition to those set out in Chapter III of Regulation (EU) 2017/625, are satisfied:
  - (a) the delegation contains a detailed description of the delegated official control tasks and tasks related to other official activities, including reporting obligations and other specific obligations, and of the conditions under which the control body may carry them out. In particular, the control body shall have submitted the following to the competent authorities for prior approval:

- **Why is it given such high importance to the sampling as core of certification decision?**



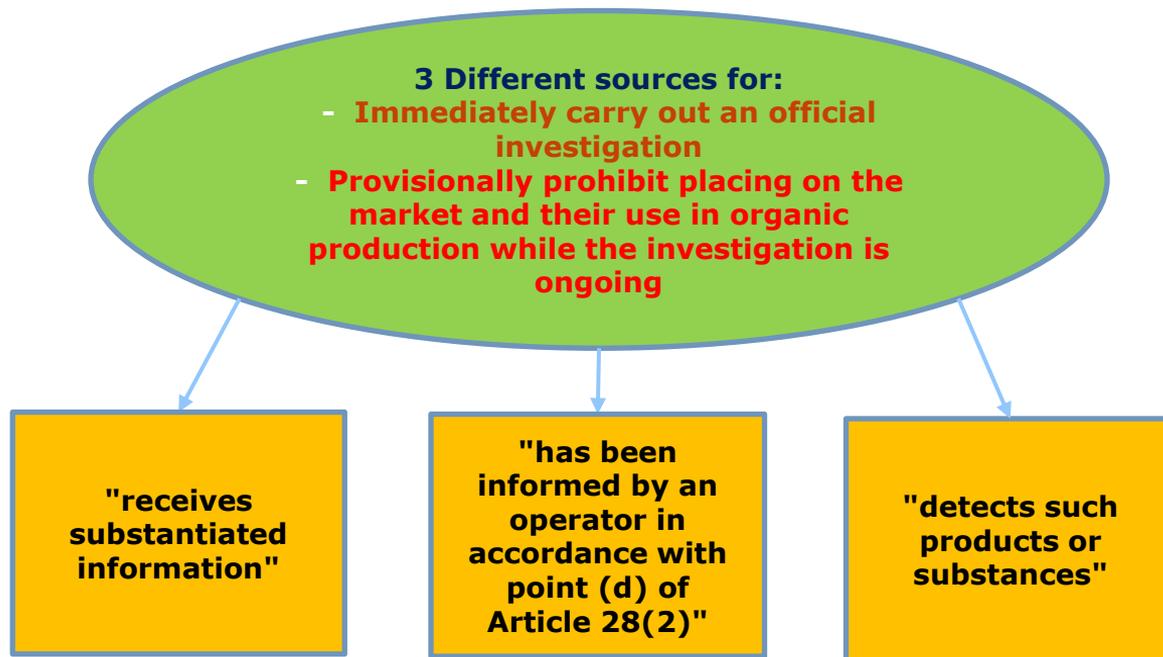
## **Article 29 Regulation (EU) 2018/848. Core legislation article for CBs**

### *Article 29*

#### **Measures to be taken in the event of the presence of non-authorized products or substances**

1. Where the competent authority, or, where appropriate, the control authority or control body, receives substantiated information about the presence of products or substances that are not authorised pursuant to the first subparagraph of Article 9(3) for use in organic production, or has been informed by an operator in accordance with point (d) of Article 28(2), or detects such products or substances in an organic or an in-conversion product:
  - (a) it shall immediately carry out an official investigation in accordance with Regulation (EU) 2017/625 with a view to determining the source and the cause in order to verify compliance with the first subparagraph of Article 9(3) and with Article 28(1); such investigation shall be completed as soon as possible, within a reasonable period, and shall take into account the durability of the product and the complexity of the case;
  - (b) it shall provisionally prohibit both the placing on the market of the products concerned as organic or in-conversion products and their use in organic production pending the results of the investigation referred to in point (a).

## The 3 sources for CBs (Article 29.1 Regulation EU 2018/848)



## "receives substantiated information" (from third parties)

–Not a clear definition of “substantiated information” out of the notification from operator’s side:

- i. Different sources of information come to the CBs:
  1. Official: OFIS Cases, detections from Competent Authorities, etc
  2. Non official: supermarkets or client’s from certified operators that finally do not come as OFIS cases, etc
  
- ii. No legal dispositions.
  
- iii. In most of the cases, the affected lots are sold.

**"has been informed by an operator in accordance with point (d) of Article 28(2)"**

- Article 1 of Reg (UE) 2021/279 not very clear how deep the investigation should go into the traceability downstream.

## "detects such products or substances" (from CBs)

- No clear legal dispositions about:
  - The **scope of the analysis** besides multiresidue methods in case of pesticides
  - The **interpretation of the results**:
    - In case of pesticides about LOQ (usually 0,01 ppm in most of laboratories in the case of pesticides), LOD or RL (Reporting limit).
    - The uncertainty of the results.
    - The concentration factors.
- Different approaches from different Member States.

## Official investigation (article 2 Regulation EU 2021/279)

- CBs shall at least conclude on:
  - the integrity of the products
  - **the source and the cause**
  - whether one of the elements of Art. 29.2 is established:
    - (a) has used products or substances not authorised
    - (b) has not taken the precautionary measures referred to in Article 28(1)
    - (c) has not taken measures to previous requests

## **Official investigation (article 2 Regulation EU 2021/279). Cont.**

- Few restrictions on investigation period are introduced by "reasonable period", "durability of product" and "complexity" although no clear dispositions.
- This issues put pressure on CBs, when sometimes is difficult to get clear answers to the three elements above.

## **Need for harmonization. Implementation of the regulation in different countries:**

**a. Spain:** <https://www.mapa.gob.es/dam/mapa/contenido/alimentacion/temas/produccion-ecologica/2-legislacion-cartas-interpret.-ue-y-directrices/directices/di-res-ecov2.pdf>

**b. Portugal** <https://www.dgadr.gov.pt/pt/agricultura-e-producao-biologica/controlo-certificacao>

**c. Germany** (only for operators on precautionary measures)  
<https://orgprints.org/id/eprint/42876/>

**d. Italy.** <https://sinab.it/wp-content/uploads/2024/10/DECRETO-LEGISLATIVO-6-ottobre-2023-n.-148.pdf>

# EFSA Report on findings of non authorised substances and EU Commission Report to the Parliament and Council (Article 29.4):



Technical Report



APPROVED: 24 June 2025  
doi: 10.2903/sp.efsa.2025.EN-9524

## Findings of not authorised substances in food and feed certified as organic

European Food Safety Authority (EFSA)

Maria Anastassiadou, Mst Tazmin Akhter, Daniela Brocca, Luna Greco,  
Martin Josheski, Mariano Lopez Romano, Jose Oriol Magrans,  
Anamarija Romac, Miguel Santos and Tuuli Tauriainen

4. By [► M3](#) [↓](#) 31 December 2025 [◀](#), the Commission shall present a report to the European Parliament and the Council on the implementation of this Article, on the presence of products and substances not authorised pursuant to the first subparagraph of Article 9(3) for use in organic production and on the assessment of the national rules referred to in paragraph 5 of this Article. That report may be accompanied, where appropriate, by a legislative proposal for further harmonisation.

- **Thank you for attention!**

**Juan Carlos Pérez Montero**

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