



Alternative sources for pesticides

February 2023

Introduction

The use of pesticides during agricultural practices can result in small leftover residues on our food. Regulation (EC) No 396/2005 provides a legal framework in which limits are set on the concentration of pesticides that are allowed to be present on certain food stuffs, based on good agricultural practices. However, positive findings of active ingredients of pesticide products in food and feed samples can certainly **not always be attributed to deliberate use**. This can lead to disagreements between different parties of the food industry as well as between laboratories and their clients.

It is therefore essential to **carefully interpret positive analytical results** in terms of other sources than pesticide applications.

The risk of possible contaminations is in most cases outside of the control of analytical laboratories and can be reduced by taking appropriate measures along the whole food chain.

This information sheet wants to provide some examples and background information about certain components that can be detected as positive due to various different sources apart from the use of pesticides.

2-phenyl phenol

2-phenyl phenol has a lot of different applications. It is mainly used as an **agricultural fungicide** for the surface treatment of **all types of citrus fruit** and is generally applied **post-harvest**. Apart from this, 2-phenyl phenol is also



commonly used for disinfecting granaries, food processing plants, household, farms, laundries, etc. It is **also a raw material** for pigments and rubber additives production, a component in body deodorants, and so on.

To avoid contamination on food it is mainly important to check any detergent that is used in factories, trucks, labs, ...

Anthraquinone

For a long time, anthraquinone was used as a **bird repellent** at airports and grain fields. Combined with insecticides and fungicides, anthraquinone makes the treated seeds very unappetizing, thus avoiding that they are consumed by the birds, in most cases crows. Since 2008, the use of anthraquinone as a pesticide is not approved anymore in the European Union but various other sources might also result in positive analytical results on food and feed. Especially on **dried samples**, non-conformity with the European legislation without an indication of illegal use is not rare. This positive result can be attributed to a **natural occurrence** of anthraquinone in certain crops (e.g. chokeberry). However, the **most problematic source** of anthraquinone for the public health is the **combustion during the drying process** because this can also be related to the presence of polyaromatic hydrocarbons (PAH's) in the sample. Anthraquinone can be formed during the combustion of the fuel or because of the degradation of PAH's.



Find more on

www.primoris-lab.com



Biphenyl

In the past, biphenyl was used as a **fungicidal post-harvest treatment on all types of citrus fruit**. However, its use as a plant protection product is no longer approved in the European Union. In line with what was mentioned above for anthraquinone, positive results of biphenyl are not automatically related to the illegal use as a pesticide. The chemical structure of biphenyl is very similar to that of polychlorinated biphenyls (PCB's) so its presence might be an indication of a **contamination with dioxins and PCB's** during the drying process of certain food. Therefore, it can be useful to perform an analysis of dioxins and PCB's when the research of positive analytical results of biphenyl shows no illegal use of pesticides.

Avoiding contamination in the lab

As already mentioned, it is essential to **take appropriate measures** along the **whole food chain** to avoid possible contaminations. The **laboratory** is of course no exception. For example, at Primoris, we don't use tissue paper to clean our surfaces in the lab, but microfibre cloths to avoid contamination with 2-phenyl phenol. More in general, all the new equipment, solvents and consumables that we want to implement in the lab have to undergo a thorough screening to make sure that no pesticides or contaminants are present, to **avoid migration to the samples**. Lastly, to verify that all the preventive measures that are taken, are effective and no contamination has occurred, blank samples are moving through the lab every morning.



You can rely on us

Quality and reliability of our analyses is key to us, which is why our in-house R&D team is continuously working to improve our existing methods as well as developing new relevant methods based on market trends. Furthermore, our pesticide analyses are **BELAC** accredited conform the requirements of the EN **ISO/IEC 17025:2017** standard. In addition, we have **various recognitions** to further ensure the quality and relevance of our analysis scope. Below just a selection of our current recognitions.

This information sheet only provides a handful of examples, rendering it far from a complete overview of contamination sources. If you would like to find out more information on this topic and the analyses we offer, please do not hesitate to contact our customer care service.

- customercare.be@primoris-lab.com
- +32 (0)9 330 10 13

relana®



Find more on

www.primoris-lab.com

