



## PESTICIDES IN POTTING SOIL AND GROWING MEDIA

**Pesticides are risky substances that control pests, usually to protect crops. After the use of pesticides, residues can sometimes remain in the environment for a longer period of time. Can pesticide residues also occur in potting soil or substrates and what are the risks?**

### Pesticides

Pesticides are chemical or biological substances that are used in various sectors and sometimes also at home to control pests. In agriculture and horticulture, pesticides are used to protect crops. There are insecticides (against insects), herbicides (against weeds), fungicides (against fungi) and biocides (against various micro-organisms). Although these products are useful, they can also pose risks to the environment, humans and animals. This depends on the type of crop, the toxicity of the product used, the remaining concentration and the degree of (direct) exposure to it. In order to minimise the harmful effects, regulations have been drawn up in most countries and certain dangerous pesticides have been banned for a long time now. Sometimes residues of very slowly degradable pesticides can remain in the environment for a long time and be detectable.

### Pesticides in growing media?

Pesticide residues can occur in potting soil and substrates if they are produced with renewable or circular raw materials containing residue. In many cases, substrate raw materials have a history from another chain. In that chain in the past pesticides (that were then still permitted) may have been used. The substrate raw material peat is free of residue,



because no other activities have previously taken place in peatbogs. For most other raw materials, they do come from a chain with a history of possible pesticide use. For example, in the environment where the raw material has its origin or during (an earlier) production process. Some examples with a history are substrate raw materials like compost, wood fibre and bark. Compost consists entirely of composted vegetables, fruit and garden waste. When pesticides have been used during gardening, this ends up in the organic waste and therefore in the compost. Wood fibre and bark are residual products from the wood industry, where pesticides can also be used. With the transition to increasing use of renewable raw materials, there is also more chance of pesticide residue in potting soil and substrates. Pesticide residues only partially disappear from the raw material through processes such as composting.

### What are the guidelines of the RHP quality mark?

All quality requirements of the RHP quality mark are described in the RHP product certification scheme, which are continuously updated. For residues, these are not yet available. As a standard RHP scans raw materials for residues of 1056

agents. Pesticide residues are regularly found in renewable raw materials (in low concentrations). In the period up to July 2023, residue(s) were found in the following RHP-certified raw materials:

Raw material	Percentage of samples with residue(s)
Bark/composted bark	26%
Compost	65%
Wood fibre	17%
Coir products	8%
Organic fertilizers/biostimulants	50%

Retail sometimes requires that potting soil and substrates are (almost) completely free of residues, but that is not realistic. In addition, measurement techniques are getting better and better, resulting in that residues can nowadays be detected in very low concentrations.

In order to gain more insight into the extent to which residues are taken up by plants, RHP has started a research project in 2022. Raw materials in which residue has been found, are used for this. With these products a substrate is produced on which plants are grown, which are also analysed for residue. The possible uptake by the plant will partly depend on the type of agent and the concentrations (which are often low). The research project will run until the end of 2024, after which RHP wants to develop requirements for residues in raw materials, together with external authorities.

Any values found in the plants, can be tested against the existing maximum residue limits (MRL). MRL indicates how many residues of the active substances of pesticides may remain in, for example, vegetables without health risks. These are officially determined values that apply for Europe. MRL values can't be taken over one-to-one for growing

The EU has strict regulations for the approval of pesticides, which includes an in-depth assessment of the safety and effects of these substances on human health and the environment. In the Netherlands, the 'College voor de toelating van gewasbeschermingsmiddelen en biociden' (Ctgb) does this at a national level.

media, but are a useful tool to determine the requirements for growing media based on plant uptake.

RHP has been carrying out risk assessments at suppliers of substrate raw materials for years. Think of on-site inspections at sawmills and coir fibre factories. Risks in the chain, such as the chance of residue, are therefore reduced for RHP-certified raw materials.

#### Advice for the user

If pesticide residues are present in potting soil or growing media, the question is of course whether there is a risk for the plant and humans. But that is not yet completely known. The RHP research project, which runs until the end of 2024, will clarify the inheritance of residue in the plant and the possible consequences of it.

- ✓ RHP-certified raw materials are regularly scanned for residues of 1056 chemical agents
- ✓ RHP-research must provide more clarity about plant uptake and possible health risks
- ✓ RHP wants to determine acceptable residue levels and requirements for potting soil and growing media

