



In order to monitor *Good Agricultural Practice (GAP)*, Maximum Residue Levels (MRL) for pesticide residues in foodstuffs are set in Regulation (EU) No 396/2005 for the most part for unprocessed products ("raw material"). The latter are often subjected to subsequent processing. This can be simple processes (e.g. drying) or intermediate steps (e.g. flour, oil production), which may be followed by further complex processing steps up to the final product, the processed product. If these end products are analysed for residues, Article 20 of Regulation (EC) No 396/2005 applies:

The MRLs set for the products listed in Annex I (NB: mainly raw material) also apply to processed products, taking into account changes in pesticide residue levels resulting from processing and/or mixing.

During the processing process, changes in residue concentrations may occur compared to the unprocessed product. Substances can accumulate (e.g. during drying) or decrease (e.g. during baking at high temperatures or during dilution). This circumstance must be taken into account for processed products by the processing factor PF:

$$PF = \frac{\text{residue in processed product}}{\text{residue in raw product}}$$

Specific concentration or dilution factors may be listed in Annex VI of Regulation (EC) No 396/2005, but this has not yet been done and is not in sight. Legally binding processing factors thus do not exist so far.

Therefore, the ideal way is still the monitoring of raw materials through the food manufacturer's own controls before processing. If the raw material is legally compliant, as evidenced by a test report, this also applies to the processed product.

If there is no raw material control, the question arises as to how processed foodstuffs can nevertheless also be checked for compliance with Maximum Residue Levels?

1. Processing factors in the form of simple „auxiliary factors“, such as drying factors (e.g. for freeze-drying) or dilution factors, can be used as a makeshift.
2. As part of the authorisation of their plant protection products, plant protection product manufacturers can commission processing studies. The resulting factors are usable and, moreover, planned for the development of an EU database.
3. Industry recommendations are realistic processing factors, as they have the specific knowledge of the basic processing steps, e.g. the ESA dehydration factors for spices ("*European Spice Association, dehydration factors*").

Conclusion:

The technically correct assessment of pesticide residues in processed foodstuffs requires, from a scientific point of view, the use of realistic processing factors, as the limit values according to Regulation (EU) No. 396/2005 are mainly regulated for raw materials.