

# Investigations on the transfer of non-dioxin like PCBs from feed into eggs of laying hens

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## Summary

Polychlorinated biphenyls (PCBs) are a group of 209 congeners of chlorinated substances that differ in the number (1-10 per molecule) and position of the chlorine atoms on the biphenyl. Unlike dioxins, PCBs were intentionally manufactured and have been used in the past for various applications, mainly as non-burning and viscous fluids with low conductivity in transformers and hydraulic oils. Despite their worldwide ban, PCBs still occur as undesirable by-products of chemical reactions. Like dioxins, PCBs are lipophilic, chemically and thermally stable (persistent) and accumulate in the tissues of humans and animals alike. A toxicological classification for ndl-PCBs is currently difficult due to few available studies.

In autumn 2018, non-dioxin-like polychlorinated biphenyls (ndl-PCBs) were detected in samples of feed and food of animal origin in three federal states at concentrations above the legal maximum levels. The cause of the contamination in 2018 was apparently paint chipping in loading cells of a feed manufacturer. Subsequently, the excessive levels in the feed led to exceedances in foodstuffs (poultry meat, eggs) obtained from the fed animals. Currently, only few data are available on the transfer behaviour of individual ndl-PCB congeners from the feed to the farm animal and the food derived from it. Therefore it seems sensible and even necessary to carry out targeted transfer studies with defined ndl-PCB concentrations and known congener patterns in animal feed in order to better estimate their transfer into eggs and possible metabolism.

Based on this experiment, toxicokinetic model for the excretion behaviour of ndl-PCB congeners is developed at BfR. Such models serve as the basis for computer programs that are to serve feed and food monitoring as management tools in the event of an incident.

## Registration details

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| License                        |  |