
The request for advice

The President of the Health Council received the following letter, dated 15 March 2000, no. DGM/SVS/2000024545, from the Minister of Housing, Spatial Planning and the Environment:

I hereby request that the Health Council advise me concerning the standards for PCBs, for the protection of ecosystems, which have been derived using a new method as part of the Setting Integrated Environmental Quality Objectives project, as described in the appended report entitled Maximum Permissible Concentrations for Polychlorinated Biphenyls (RIVM number 601501006).

The objective of the Setting Integrated Environmental Quality Objectives project is to derive and establish general, non-statutory environmental quality standards (maximum permissible risk levels, MPRLs, and target values, TV) for the compartments of soil, water, sediment, groundwater and air. When drawing up standards, the aim is that the standard for a given compartment should also provide protection to organisms in the other compartments (intercompartmental harmonisation).

The Health Council has, on several occasions, issued advisory reports on ecotoxicological standard setting (Publications 'Advisory report on starting points for standard setting' GR 1985/31, 'Assessing the risk of toxic chemicals for ecosystems' GR 1988/28, 'Ecotoxicological extrapolation methods' GR 1991/11, 'Secondary poisoning. Toxic substances in food chains' GR 1993/04 and 'Ecotoxicology on course' GR 1994/13). In 1995, the Health Council issued an extensive advisory report on the INS project dealing with the INS standards (and the associated methodology) for three groups of substances, namely trace metals, volatile compounds and substances with the potential for secondary poisoning ('The Project: Setting Integrated

Environmental Quality Objectives' GR 1995/07). Finally, the Health Council has issued an advisory report on topics such as standard setting for zinc (Zinc GR 1997/34).

One of the comments made by the Health Council regarding the method used for deriving standards was that for highly hydrophobic compounds, most experimental bioconcentration factors (the ratio between the concentration of a substance in an organism and in an environmental compartment) are unreliable (1995/07). In a number of advisory reports, the Council also points to the uncertainties in the methods used for standard setting (Aldenberg and Slob) and to the underlying assumptions involved. As regards secondary poisoning, the accumulation of toxic substances in the food chain, the Health Council has indicated that the INS method used is a practical one. While it is certainly capable of giving an initial indication of whether secondary poisoning is occurring, this method provides no guarantees regarding the protection of higher organisms (1993/04, 1995/07). Another recurring concern expressed by the Council relates to the differences between laboratory and field data, and the fact that this was not taken into consideration when the INS standards were being derived (1995/07).

On the basis of these advisory reports, RIVM has developed a new method for deriving standards for PCBs which meets some of these criticisms. This new method was developed (and the appended report drawn up) in cooperation with a supervisory committee of national experts in the field of environmental chemistry and toxicology of PCBs and dioxins, as shown on page 5 of the report.

Some of the ways in which the new method, which is used for PCBs, differs from the classical INS method are:

- different dosing methods have been incorporated;
- a different method was used to estimate secondary poisoning, which made it possible to avoid using a possibly uncertain BCF factor;
- field data are also used in support of the MPRLs;
- a probabilistic model is used when calculating the MPRLs, instead of the methods normally used in INS. The advantage of this is that it pinpoints the uncertainties much more clearly.

The selection of PCB, for which individual standards have been set, is based on toxicity, occurrence in the environment and the monitoring programs that have been carried out by the Public Works and Water Management Department for many years. Since the non-ortho PCBs and mono-ortho PCBs have a comparable mechanism of action, and usually occur in comparable patterns in the environment, a mixture-specific MPRL has also been derived, on the basis of the occurrence of PCB #118. Instructions for the use of this MPRL are provided on pages 51-52.

I would be grateful if the Health Council could answer the following questions:

- 1 What is the Council's assessment of this novel method for deriving standards for PCBs? I would be interested to hear your views on the use of field data, the method for the assessment of secondary poi-

- soning, probabilistic modelling and the determination of the maximum permissible risk level (MPRL) for the mixture.
- 2 Through the use of probabilistic modelling, the MPRL was established at the 5th percentile value of the probabilistic distribution. Does the Health Council concur with the reasoning behind the selection of 5% as the level of protection for ecosystems? Does the Health Council take the view that the introduction of probabilistic techniques has produced genuine improvements in the underpinning and transparency of standard setting?
 - 3 How does the Health Council feel about setting standards for the most commonly occurring individual PCBs and for the PCB#18 mixture?
 - 4 Would you recommend that parts of this method (i.e. the use of field data, the method for the assessment of secondary poisoning, and probabilistic modelling) also be used for the derivation of standards for other substances? If so, for which groups of substances could they be used?

Each year, in December, the INS steering committee sets a number of standards. I would therefore be most grateful if I could receive a copy of the completed report no later than the end of the year 2000.

Yours sincerely,

The Minister for Housing, Spatial Planning
and the Environment

JP Pronk