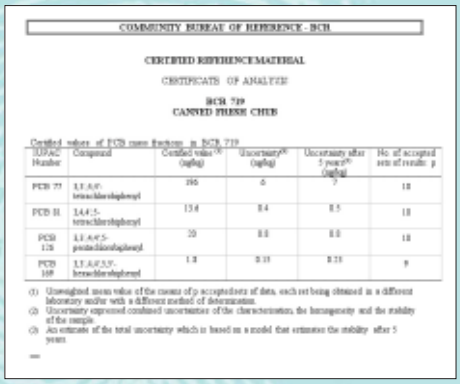
CRMs for the measurement of PCBs and other organic contaminants in food

Tins with sterilised wet fish as PCB CRMs.

Over the last three decades organic contaminants such as polychlorinated biphenyls (PCBs), chlorinated dioxins and furans, organochlorine pesticides and brominated flame retardants have been of increasing importance in European environmental and food monitoring programmes. Recent crises such as in Belgium with PCBs and dioxins in chickens and the citrus pulp affair have led to an increasing demand for reliable analyses. Certified reference materials (CRMs) play a key role in the quality of measurements.

For complex substances, production of CRMs is laborious and costly, and there is a shortage in Europe of reliable CRMs. The projects CERMUS and CHRONO have resulted in the production of three high quality CRMs for PCBs, including dioxin-like PCBs in fish and shellfish with unique narrow uncertainties. The ongoing BROC project includes a feasibility study on the production of CRMs for brominated flame retardants, organochlorine pesticides and PAHs. In DIFFERENCE, a feasibility study is carried out on the production of CRMs for PCBs and dioxins in food and animal feed.



COMMUNITY BUREAU OF REFERENCE - BCR

CERTIFIED REFERENCE MATERIAL

CERTIFICATE OF ANALYSIS

BCR 719
CANNED FRESH CHUB

Certified values of PCB mass fractions in BCR 719

IUPAC Number	Compound	Certified value (1) (ng/kg)	Uncertainty (2) (ng/kg)	Uncertainty after 5 years (3) (ng/kg)	No. of accepted sets of results p
PCB 77	3,3',4,4'-tetrachlorobiphenyl	395	6	9	18
PCB 81	3,4,4',5-tetrachlorobiphenyl	13.6	0.4	0.5	18
PCB 126	3,3',4,4',5-pentachlorobiphenyl	20	0.8	0.8	18
PCB 169	3,3',4,4',5,5'-hexachlorobiphenyl	1.8	0.18	0.18	9

(1) Unweighted mean value of the means of p accepted sets of data, each set being obtained in a different laboratory and/or with a different method of determination.
(2) Uncertainty expressed combined uncertainties of the characterisation, the homogeneity and the stability of the sample.
(3) An estimate of the total uncertainty which is based on a model that estimates the stability after 5 years.

Certificate of CRM 719 – non-ortho PCBs in chub.

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