



# CERTIFIED REFERENCE MATERIAL BCR<sup>®</sup>-529

## CERTIFICATE OF ANALYSIS

| INDUSTRIAL SOIL (sandy soil)  |  |                                      |   |
|---|--|--------------------------------------|---|
|   | Mass fraction based on dry mass          |                                      |   |
| Chlorophenols   | Certified value <sup>1)</sup><br>[mg/kg] | Uncertainty <sup>2)</sup><br>[mg/kg] | Number of accepted sets<br>of results p |
| 3,4-dichlorophenol  | 0.23                                     | 0.04                                 | 7                                       |
| 2,4,5-trichlorophenol   | 1.51                                     | 0.10                                 | 7                                       |
| Pentachlorophenol   | 0.23                                     | 0.04                                 | 8                                       |
| Polychlorodibenzo-p-dioxins<br>and polychlorodibenzo-furans <sup>3)</sup> | Certified value <sup>1)</sup><br>[µg/kg] | Uncertainty <sup>2)</sup><br>[µg/kg] | Number of accepted sets<br>of results p |
| 2,3,7,8-TCDD (D48)  | 4.5                                      | 0.6 <sup>4)</sup>                    | 12                                      |
| 1,2,3,7,8-PeCDD (D54)   | 0.44                                     | 0.05                                 | 6                                       |
| 1,2,3,4,7,8-HxCDD (D66)   | 1.22                                     | 0.21                                 | 9                                       |
| 1,2,3,6,7,8-HxCDD (D67)   | 5.4                                      | 0.9                                  | 11                                      |
| 1,2,3,7,8,9-HxCDD (D70)   | 3.0                                      | 0.4                                  | 12                                      |
| 2,3,7,8-TCDF (F83)  | 0.078                                    | 0.013                                | 7                                       |
| 1,2,3,7,8-PeCDF (F94)   | 0.145                                    | 0.028                                | 8                                       |
| 2,3,4,7,8-PeCDF (F114)  | 0.36                                     | 0.07                                 | 8                                       |
| 1,2,3,4,7,8-HxCDF (F118)  | 3.4                                      | 0.5                                  | 9                                       |
| 1,2,3,6,7,8-HxCDF (F121)  | 1.09                                     | 0.15                                 | 12                                      |
| 1,2,3,7,8,9-HxCDF (F124)  | 0.022                                    | 0.010                                | 5                                       |
| 2,3,4,6,7,8-HxCDF (F130)  | 0.37                                     | 0.05                                 | 12                                      |

<sup>1)</sup> This value is the unweighted mean of the means of p accepted sets of results. The certified value and its uncertainty are traceable to the International System of units (SI).  
<sup>2)</sup> The uncertainty is taken as the half-width of the 95 % confidence interval of the mean given in <sup>1)</sup>.  
<sup>3)</sup> Values as obtained by GC-MS.  
<sup>4)</sup> The uncertainty is adjusted for inhomogeneity.

This certificate is valid for one year after purchase.

Sales date:

The minimum amount of sample to be used is 2 g.

Brussels, November 1998

Latest revision: February 2014

Signed: \_\_\_\_\_

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## NOTE

This material has been certified by BCR (Community Bureau of Reference, the former reference materials programme of the European Commission). The certificate has been revised under the responsibility of IRMM.

## DESCRIPTION OF THE SAMPLE

The sample consists of approximately 50 g of industrial sandy soil in brown glass bottles with a polythene insert lined with aluminium. Information on the presence of additional organic chlorinated compounds other than those tabulated is given in the report.

## ANALYTICAL METHODS USED FOR CERTIFICATION

Calibration was done with BCR-CRMs (PCDD/F) or compounds of verified purity and stoichiometry (CB and CP). The samples were extracted with one or a mixture of solvents and were cleaned-up before or after derivatisation (CP only). Separation and quantification was carried out by HPLC with amperometric detection (CP) or gas chromatography with ECD, MS or atomic emission detection.

## PARTICIPANTS

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- VTT Chemical Technology, Chemical Analysis, Espoo (FIN)
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## SAFETY INFORMATION

Toxic material. The material must be handled with great care, especially avoiding skin contamination, ingestion or inhalation.

## INSTRUCTIONS FOR USE

For analysis the sample should be taken as it is.

Before a bottle is opened, it should be shaken manually for at least 5 minutes so that the material is re-homogenised.

Due to the pre-treatment of the soil its physico-chemical behaviour may differ from soil samples routinely measured. Therefore it may be necessary to re-constitute the reference material.

The water mass fraction of the soil is approximately 1.5 %. Thus any correction will fall well within the uncertainty of the analytical procedure. However it is recommended to verify the water content on a separate portion of the material on each occasion of the analysis, preferably by Karl Fischer titration.

The material is not intended for use as a calibrant.

For detailed information, please consult the certification report.

## STORAGE

The samples should be stored in the dark at a constant temperature of + 4 °C.

However, the European Commission cannot be held responsible for changes that happen during storage of the material at the customer's premises, especially of opened samples.

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## NOTE

A technical report on the production of BCR<sup>®</sup>-529 is available on the internet (<http://www.irmm.jrc.be>). A paper copy can be obtained from IRMM on request.