



The Dutch Accreditation Council RvA, operating as accreditor for test laboratories,
declares that

**Tauw Laboratoires C.V.
DEVENTER**

complies with the accreditation criteria for test laboratories as laid down in
ISO/IEC 17025:1999. The accreditation covers the quality system of the laboratory as
well as the specific activities as described in the authorized annex bearing the
accreditation number.

The accreditation is valid provided that the laboratory continues to meet the criteria
as laid down by the Dutch Accreditation Council RvA.

This certificate with accreditation number:

L005

is granted on 28 July 2004 and is valid until

26 August 2008

The accreditation has been granted for the first time on

26 August 1988

The Chief Executive

Ir. J.C. van der Poel

KEMA Nederland B.V.
KPS building M05
Attn. Mister Dr. R. Meij
P.O. Box 9035
6800 ET ARNHEM

Date	7 March 2005	Our Ref.	B001-4800205EBAD01
Project Number	4800205	Your Ref.	
Handled by	Elly van Bakergem		

Subject Analyses of PAH and dioxins in fly ash

Dear Mister Meij,

Tauw Laboratory is accredited conform EN-ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories since 1988. The scope of this accreditation is listed on the internet site of the Dutch Accreditation Board (www.RvA.nl) under number L005.

This accreditation is acknowledged by the European Association of Accreditations (EA).

The accreditation includes various analyses in soil, water and other materials. Tauw Laboratory is acknowledged by the Dutch Government for testing soils and residues according to the Dutch Building Decree (Accreditation Programme 04). For Dioxins and dibenzofurans, Tauw Laboratory is acknowledged for measurement of emissions by the Dutch Ministry of VROM (Housing, Physical Planning and the Environment) and for measurement in feed and food according to GMP -10 agreement.

The scope of the accreditation according to EN-ISO/IEC 17025 includes the analysis of Dioxins in fly ash. Due to the fact that no normalized methods are available for this kind of analysis, the method is listed as in-house method. The method applied for measuring dioxins in fly-ash is based on the method for air samples. For air samples, the normalized method EN 1948 part 2 and 3 (Emissions of stationary sources - Determination of the concentration of PCDDs/PCDFs - Part 2: Extraction and preparation and Part 3: Identification and quantification) is applied. These standards are conform EU guideline 94/67/EU. This standard is for fly ash collected in flue gases, but is also used for the determination of dioxins and dibenzofurans in PFA.

PAH in fly ash is not part of the accreditation scope. The technique Tauw Laboratory applies for the analysis of PAH in fly ash is based on the accredited method for the analysis of PAH in soil samples by GC-LRMS.

The pre-treatment (extraction) of PAH out of the fly ash is the same as applied by the analysis of dioxins. When, in the same sample, dioxins have to be measured, one extraction is performed.

Description of the methods

- Extraction
To a known amount of sample, hydrochloric acid is added to remove calcium carbonate. The obtained suspension is filtered and the residue inclusive filter is dried by 105 °C. The dried material is extracted by the Soxhlett-technique with toluene.
- Measurement dioxins
A clean-up is performed on the toluene phase, after which the dioxins and furans are measured with GC-LRMS and GC-HRMS.

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– Measurement PAH

The toluene extract is concentrated to a small volume (typical 1 ml). The PAH are determined with GC-LRMS.

For further information or questions about the determinations, you can contact undersigned.

Yours sincerely,

Mrs. E. van Bakergem M.Sc.
Project Manager
Development & Quality
Tauw Laboratories C.V.