

<b>115-2 (2004)</b>	<b>Soluble barium compounds (as Ba)</b>
CAS N°: various	EINECS N°: various
EC-LV (8 h): - Lowest European LV (8h): 0,5 mg/m <sup>3</sup> Highest European LV (8h): 1 mg/m <sup>3</sup>	EC-STLV: - Lowest European STLV: 1 mg/m <sup>3</sup> Highest European STLV: 1 mg/m <sup>3</sup>

### SUMMARY OF THE METHOD

<b>Language:</b> French	<b>Reference:</b> Métaux – Métalloïdes, MétroPol Fiche 003, INRS, Paris (2005).
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**Summary:** Air is drawn through a QF filter in a 37 mm filter cassette. Soluble barium compounds are extracted from the dust and fume collected on the filter by 1 h extraction with water at 37 ± 2°C inside the sample cassette. The resulting solution is filtered through the sample filter and analysed by FAAS, ETAAS or ICP-AES.

### SAMPLING

<b>Sampler type</b>	37 mm closed-face cassette
<b>Sampling substrate</b>	QF filter
<b>Recommended flow rate</b>	1 l/min
<b>Recommended sampling time</b>	1 – 4 h
<b>Recommended volume</b>	-

### TRANSPORT AND STORAGE

<b>Description/conditions of transport and storage incl. specific issues</b>	The sample is transported in the labelled sampler used for sampling, after sealing with suitable plastic caps. There is no risk of sample loss because the extraction takes place in the sampler. The samples are stable indefinitely.
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### ANALYSIS

<b>Sample preparation</b>	The sample is extracted with water for 1 h at 37 ± 2°C inside the sample cassette. The resulting solution is filtered under vacuum through the sample filter.
<b>Analytical technique</b>	Analysis by FAAS, ETAAS or ICP-AES.

### METHOD EVALUATION DATA

<b>Range studied</b>	Not applicable – see limit of quantification
<b>Sampling bias</b>	Overall uncertainty calculation: < 5 % (according to EN 13890) Expanded uncertainty calculation: included in sampling precision
<b>Analytical bias</b>	- 2 % to + 5 %
<b>Method bias</b>	-
<b>Sampling precision</b>	Overall uncertainty calculation: < 5,3 % (according to EN 13890) Expanded uncertainty calculation: 9,0 % (incorporates bias uncertainty)
<b>Analytical precision</b>	2,8 %
<b>Method precision</b>	-
<b>Limit of quantification</b>	2,8 µg per sample

METHOD EVALUATION DATA (continued)				
<b>Overall uncertainty (EN 482)</b>	20 %			
<b>Expanded uncertainty (prEN 482)</b>	0,1×LV 21 % 20 %	0,5×LV 20 % 20 %	2×LV 20 % 20 %	LLV HLV
INFORMATION IN RELATION TO THE VALIDATION				
<b>Is the sample dissolution procedure described widely applicable?</b>	yes			
<b>Does the sample dissolution method include wall deposits, where applicable?</b>	yes			
<b>Was a test gas atmosphere used, where applicable?</b>	not applicable			
<b>How was the recovery determined?</b>	Recovery of total barium was determined from analysis of filters spiked with barium solution.			
<b>Was the sampler capacity or breakthrough volume determined?</b>	not applicable			
<b>Was temperature and RH considered, where appropriate?</b>	not applicable			
EVALUATION				
<b>Rating category</b>	A 2			
<b>Rationale for rating</b>	<p>Up to date methodology, detailed method description, overall uncertainty and expanded uncertainty requirements met.</p> <p>The overall uncertainty data above have been determined from the analytical bias and precision data of the method using the calculation method and sampling bias and precision estimates given in EN 13890. The expanded uncertainty data have been calculated using the method described in the EU mandated report <i>Analytical methods for chemical agents</i>. The data are for an air volume of 240 l.</p> <p>The method specifies the use of a filter cassette that is not an inhalable sampler. However, this method involves the analysis of wall deposits, for which the collection efficiency of the filter cassette has not been determined. Published comparisons with inhalable samplers indicate that such methods might meet the EN 482 performance requirements, at least for a restricted range of particle size distributions. Therefore, the overall and expanded uncertainty data above have been calculated assuming that the filter cassette used in this method acts as an inhalable sampler.</p>			
<b>Observations</b>	The analytical bias and precision data above are for determination of total Ba. The data are expected to be as good or better for soluble Ba.			
<b>Similar methods</b>	None.			