115-5 (2004)	Barium compounds, soluble (as Ba)
CAS Nº: various	EINECS Nº: various
EC-LV (8 h): - Lowest European LV (8h): 0,5 mg/m³ Highest European LV (8h): 0,5 mg/m³	EC-STLV: - Lowest European STLV: 1 mg/m³ Highest European STLV: 2 mg/m³

SUMMARY OF THE METHOD	
Language: English	**Reference:** **Metal and metalloid particulates in workplace atmospheres (Atomic absorption):** OSHA ID-121, OSHA Sampling and Analytical Methods, Salt Lake City (2002).
Summary: Personal air samples are collected on an MCE filter in a 37 mm filter cassette. The MCE filter samples are extracted with deionised water. The Barium analysis is performed by FAAS using a nitrous oxide/acetylene flame.	
SAMPLING	
Sampler type	37 mm filter cassette
Sampling substrate	MCE filter
Recommended flow rate	2 l/min
Recommended sampling time	15 – 480 min
Recommended volume	-
TRANSPORT AND STORAGE	
Description/conditions of transport and storage incl. specific issues	Transport and storage of the filter in the sampling cassette, sealed with plastic end caps.
ANALYSIS	
Sample preparation	The filter is transferred to a beaker, 15 ml of H_2O is added to cover the filter and the beaker is placed for 10 min in an ultrasonic bath. The sample is filtered through a 0,45 µm MCE filter, quantitatively transferred to a 25 ml volumetric flask with H_2O and diluted to volume, making the final solution 4 % HNO_3 / 1 mg/l K^+.
Analytical technique	Analysis by FAAS, nitrous oxide / acetylene flame.
METHOD EVALUATION DATA	
Range studied	Not applicable – see limit of quantification.
Sampling bias	Overall uncertainty calculation: < 5 % (according to EN 13890) Expanded uncertainty calculation: included in sampling precision
Analytical bias	+ 4,7 %
Method bias	-
Sampling precision	Overall uncertainty calculation: < 5,3 % (according to EN 13890) Expanded uncertainty calculation: 9,2 % (incorporates bias uncertainty)
Analytical precision	10 %
Method precision	-
Limit of quantification	12,5 µg per sample

METHOD EVALUATION DATA (continued)	
Overall uncertainty (EN 482)	32 %
Expanded uncertainty (prEN 482)	0,1×LV 0,5×LV 2×LV 31 % 30 % 30 % LLV and HLV
INFORMATION IN RELATION TO THE VALIDATION	
Is the sample dissolution procedure described widely applicable?	yes
Does the sample dissolution method include wall deposits, where applicable?	no
Was a test gas atmosphere used, where applicable?	not applicable
How was the recovery determined?	Tested by analysis of filters spiked with a solution containing 50 – 75 µg Ba
Was the sampler capacity or breakthrough volume determined?	No upper limit for sample loading is stated in the method.
Was temperature and RH considered, where appropriate?	not applicable
EVALUATION	
Rating category	B
Rationale for rating	Overall uncertainty requirements not met, expanded uncertainty requirements met, method has the potential to meet the EN 482 requirements if an inhalable sampler is used rather than a filter cassette. The overall uncertainty data above have been determined from the analytical bias and precision data given in 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 *Analytical methods for chemical agents*. The expanded uncertainty data above has been calculated assuming that a GSP sampler is used for 4 h sampling.
Observations	-
Similar methods	MétroPol Fiche 003