

78-9 (2004)	Antimony and compounds, except SbH₃ (as Sb)
CAS N°: 7440-36-0	EINECS N°: 231-146-5
EC-LV (8 h): - Lowest European LV (8h): 0,5 mg/m³ Highest European LV (8h): 13,0 mg/m³	EC-STLV: - Lowest European STLV: 1,0 mg/m³ Highest European STLV: 25,0 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).
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Summary: Personal air samples are collected on an MCE filter in a 37 mm filter cassette. The samples are digested with HNO₃ on a hotplate to near dryness. After adding of HCl and dilution with H₂O, antimony analysis is performed by FAAS using an air/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.
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ANALYSIS

Sample preparation	The filter is transferred to a beaker, 3 – 5 ml HNO ₃ is added to cover the filter and the beaker is heated on a hot plate until near dryness. 8 ml HCl is added and the beaker is warmed gently again on the hot plate. The sample solution is then quantitatively transferred to a 25 ml volumetric flask and diluted to volume with H ₂ O.
Analytical technique	Analysis by FAAS, air/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	- 1,6 %
Method bias	-
Sampling precision	Overall uncertainty calculation: < 5,3 % (according to EN 13890) Expanded uncertainty calculation: 9,2 % (incorporates bias uncertainty)
Analytical precision	8,1 %
Method precision	-
Limit of quantification	2,5 µg per sample

METHOD EVALUATION DATA (continued)				
Overall uncertainty (EN 482)	23 %			
Expanded uncertainty (prEN 482)	0,1×LV 26 %	0,5×LV 26 %	2×LV 26 %	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 Sb.			
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	A 2			
Rationale for rating	<p>Overall uncertainty and 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.</p> <p>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 <i>Analytical methods for chemical agents</i>.</p> <p>The expanded uncertainty data above has been calculated assuming that a GSP sampler is used for 4 h sampling.</p>			
Observations:	-			
Similar methods	BIA 6175			