

**Amount of substance, Advanced materials, Germany, BAM (Bundesanstalt für Materialforschung und -prüfung)**

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Unless otherwise stated the expanded uncertainties correspond to  $k = 2$  (level of confidence 95%).

NMI Service Identifier	Measurement Service Sub-Category	Matrix	Measurand		Dissemination Range of Measurement Capability			Range of Expanded Uncertainties as Disseminated				Range of Certified Values in Reference Materials			Range of Expanded Uncertainties for Certified Value				Mechanism(s) for Measurement Service Delivery	Comments	
			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?			
I.4-02-02-1	Polymers and plastics	polyethylene	cadmium	Mass fraction	20	200	µg/g	5	3	%	Yes								Reference measurement		Uncertainty convention 2
I.4-02-02-2	Polymers and plastics	polyethylene	chromium	Mass fraction	20	200	µg/g	5	3	%	Yes								Reference measurement		Uncertainty convention 2
I.4-02-03-1	Polymers and plastics	polyethylene	arsenic	Mass fraction	5	50	µg/g	4	3	%	Yes								Reference measurement		Uncertainty convention 2
I.4-02-03-2	Polymers and plastics	polyethylene	mercury	Mass fraction	5	50	µg/g	4	3	%	Yes								Reference measurement		Uncertainty convention 2
I.4-02-04-1	Semiconductors	silicon	cobalt	Mass fraction	0.005	1	ng/g	0.005	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-04-2	Semiconductors	silicon	cesium	Mass fraction	0.005	1	ng/g	0.005	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-04-3	Semiconductors	silicon	europium	Mass fraction	0.005	1	ng/g	0.005	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-04-4	Semiconductors	silicon	antimony	Mass fraction	0.005	1	ng/g	0.005	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-04-5	Semiconductors	silicon	scandium	Mass fraction	0.005	1	ng/g	0.005	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-05-1	Semiconductors	silicon	silver	Mass fraction	0.05	1	ng/g	0.05	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-05-2	Semiconductors	silicon	chromium	Mass fraction	0.05	1	ng/g	0.05	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-05-3	Semiconductors	silicon	lanthanum	Mass fraction	0.05	1	ng/g	0.05	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-05-4	Semiconductors	silicon	selenium	Mass fraction	0.05	1	ng/g	0.05	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-05-5	Semiconductors	silicon	zinc	Mass fraction	0.05	1	ng/g	0.05	0.2	ng/g	No								Reference measurement		Uncertainty convention 2
I.4-02-15-1	Polymers and plastics	polyethylene	cadmium	Mass fraction	1	150	µg/g	1.5	0.4	%	Yes								Reference measurement		Uncertainty convention 2
I.3-02-02	Ceramics	silicon nitride powder	beta-phase of silicon nitride	Mass fraction of the beta phase of silicon nitride of the total crystalline silicon nitride	0.5	99.5	%	10	2	%	Yes								Reference measurement	The quantity measured is the mass fraction of the beta phase of silicon nitride of the total crystalline silicon nitride	Uncertainty convention 2

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			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?			
I.4-02-07	Semiconductors	silicon	antimony	Areal density of antimony atoms in a layer	1E+15	5E+17	cm <sup>-2</sup>	1	0.1	%	Yes								Reference measurement	Approved on 17 November 2005	Uncertainty convention 2
I.4-02-08	Semiconductors	silicon	antimony	Areal density of antimony atoms in a layer	5E+15	5E+16	cm <sup>-2</sup>	2	1.3	%	Yes	4.81E+16	4.81E+16	cm <sup>-2</sup>	1.3	1.3	%	Yes	CRM BAM-L001/IRMM-302	Approved on 17 November 2005	Uncertainty convention 2
I.4-02-15-2	Polymers and plastics	polyethylene	lead	Mass fraction	1	150	µg/g	1.5	0.4	%	Yes								Reference measurement	Approved on 17 November 2005	Uncertainty convention 2
I.4-02-15-3	Polymers and plastics	polyethylene	chromium	Mass fraction	1	150	µg/g	1.5	0.4	%	Yes								Reference measurement	Approved on 17 November 2005	Uncertainty convention 2
I.4-02-16	Polymers and plastics	polyethylene	mercury	Mass fraction	1	50	µg/g	2	0.5	%	Yes								Reference measurement	Approved on 17 November 2005	Uncertainty convention 2
I.1-Poro-1	Other		inorganic compounds	BET specific surface area	0.1	300	m <sup>2</sup> /g	0.01	6	m <sup>2</sup> /g	No								Reference measurement	Approved on 31 March 2006	Uncertainty convention 2
I.1-Poro-2	Other		silica, alumina	BET specific surface area	0.1	300	m <sup>2</sup> /g	0.01	6	m <sup>2</sup> /g	No	0.18	156.0	m <sup>2</sup> /g	0.008	2.7	m <sup>2</sup> /g	No	BAM-PM-101, BAM-PM-102, BAM-PM-103, BAM-PM-104	Approved on 31 March 2006	Uncertainty convention 2
I.1-Poro-3	Other		faujasite, alumina	Micropore volume, specific pore volume (Gurvich)	0.2	0.3	cm <sup>3</sup> /g	0.002	0.006	cm <sup>3</sup> /g	No	0.21	0.25	cm <sup>3</sup> /g	0.002	0.004	cm <sup>3</sup> /g	No	BAM-PM-103, BAM-PM-104, ERM-FD107	Approved on 31 March 2006	Uncertainty convention 2
I.1-Poro-4	Other		faujasite, alumina	Pore width, hydraulic pore radius	0.5	50	nm	0.02	1	nm	No	0.86	5.31	nm	0.02	0.1	nm	No	BAM-PM-103, BAM-PM-104, ERM-FD107	Approved on 31 March 2006	Uncertainty convention 2

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			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?			
I.1-Poro-5	Other		porous glass, alumina	Specific pore volume at 395 MPa, whole pressure-volume curve	100	1000	mm <sup>3</sup> /g	13.0	24	mm <sup>3</sup> /g	No	548.1	924.4	mm <sup>3</sup> /g	13.1	21.6	mm <sup>3</sup> /g	No	ERM®-FD120, ERM®-FD121, ERM®-FD122, BAM-P127	Approved on 31 March 2006	Uncertainty convention 2
I.1-Poro-6	Other		porous glass, alumina	Median pore diameter d50, whole diameter-volume curve	4	7500	nm	0.2	200	nm	No	15.1	228	nm	0.2	5.9	nm	No	ERM®-FD121, ERM®-FD122, ERM®-FD120, BAM-P127	Approved on 31 March 2006	Uncertainty convention 2
I.1-Poro-7	Other		filter tubes, flat membrane (alumina)	Certified single values: specific pore volume	50	250	mm <sup>3</sup> /g	0.9	5	mm <sup>3</sup> /g	No	99.5	207.9	mm <sup>3</sup> /g	0.9	3.5	mm <sup>3</sup> /g	No	ERM®-FD123, BAM-P125	Approved on 31 March 2006	Uncertainty convention 2
I.1-Poro-8	Other		filter tubes, flat membrane (alumina)	Certified single values: pore diameter d50	4	7500	nm	0.2	200	nm	No	3052	5796	nm	19	153	nm	No	ERM®-FD123, BAM-P125	Approved on 31 March 2006	Uncertainty convention 2
I.1-Poro-9	Other		filter tubes (alumina)	Certified pressure-volume curve between 0.28 MPa and 1.41 MPa	2	250	mm <sup>3</sup> /g	0 to 10	240 to 260	mm <sup>3</sup> /g	No	4.2	98.6	mm <sup>3</sup> /g	2.1 to 5.8	94.6 to 102.4	mm <sup>3</sup> /g	No	ERM®-FD123	Approved on 31 March 2006	Uncertainty convention 2

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			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?			
I.1-Poro-10	Other		flat membrane, (alumina)	Certified pressure-volume curve between 0.12 MPa and 0.88 MPa	2	250	mm <sup>3</sup> /g	0 to 10	240 to 260	mm <sup>3</sup> /g	No	4.6	206.4	mm <sup>3</sup> /g	0 to 8.5	194.2 to 218.2	mm <sup>3</sup> /g	No	BAM-P125	Approved on 31 March 2006	Uncertainty convention 2
AM-I.1-01	Ceramics	automotive catalyst (ceramics)	platinum	Mass fraction	100	10000	mg/kg	1.6	1.6	%	Yes								Reference measurement	Approved on 06 December 2011	Uncertainty convention 2
AM-I.1-02	Polymers and plastics	polypropylene	cadmium	Mass fraction	10	1000	mg/kg	0.2	0.5	%	Yes								Reference measurement	Approved on 06 December 2011	Uncertainty convention 1
AM-I.1-03	Polymers and plastics	polypropylene	chromium	Mass fraction	10	1000	mg/kg	0.2	0.5	%	Yes								Reference measurement	Approved on 06 December 2011	Uncertainty convention 1
AM-I.1-04	Polymers and plastics	polypropylene	mercury	Mass fraction	10	1000	mg/kg	1.0	1.5	%	Yes								Reference measurement	Approved on 06 December 2011	Uncertainty convention 1
AM-I.1-05	Polymers and plastics	polypropylene	lead	Mass fraction	10	1000	mg/kg	0.7	1.0	%	Yes								Reference measurement	Approved on 06 December 2011	Uncertainty convention 1
AM-I.2-01	Polymers and plastics	polyethylene, polypropylene	BDE 47 (2,2',4,4'-tetrabromodiphenyl ether)	Mass fraction	10	1000	mg/kg	10.0	7.0	%	Yes								Reference measurement service	Approved on 06 December 2011	Uncertainty convention 2
AM-I.2-02	Polymers and plastics	polyethylene, polypropylene	BDE 183 (2,2',3,3',4,4',5,6'-heptabromodiphenyl ether)	Mass fraction	10	1000	mg/kg	10.0	7.0	%	Yes								Reference measurement service	Approved on 06 December 2011	Uncertainty convention 2
AM-I.2-03	Polymers and plastics	polyethylene, polypropylene	BDE 206 (2,2',3,3',4,4',5,5',6'-nonabromodiphenyl ether)	Mass fraction	10	1000	mg/kg	10.0	7.0	%	Yes								Reference measurement service	Approved on 06 December 2011	Uncertainty convention 2

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			Analyte or Component	Quantity	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?	From	To	Unit	From	To	Unit	Is the expanded uncertainty a relative one?			
AM-I.2-04	Polymers and plastics	polyethylene, polypropylene	BDE 209 (decabromodi phenyl ether)	Mass fraction	10	1000	mg/kg	10.0	7.0	%	Yes								Reference measurement service	Approved on 06 December 2011	Uncertainty convention 2
AM-I.2-05	Polymers and plastics	polyethylene, polypropylene	BDE 99 (2,2',3,4,4'-pentabromodi phenyl ether)	Mass fraction	10	1000	mg/kg	10.0	7.0	%	Yes								Reference measurement service	Approved on 06 December 2011	Uncertainty convention 2
AM-I.2-06	Polymers and plastics	polyethylene, polypropylene	BDE 100 (2,2',4,4',6-pentabromodi phenyl ether)	Mass fraction	10	1000	mg/kg	10.0	7.0	%	Yes								Reference measurement service	Approved on 06 December 2011	Uncertainty convention 2
AM-I.2-07	Polymers and plastics	polyethylene, polypropylene	BB 209 (decabromobi phenyl)	Mass fraction	10	1000	mg/kg	10.0	7.0	%	Yes								Reference measurement service	Approved on 06 December 2011	Uncertainty convention 2