108.6 - Fossil Fuel: Trace Elements (solid forms)

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

Description >>	1632e Trace Elements in Coal (Bituminous)	1633c Trace Elements in Coal Fly Ash	1635a Trace Elements in Coal (Subbitumimous)	2429 Flue Gas Desulfurization Gypsum	2689 Coal Fly Ash	2690 Coal Fly Ash	2691 Coal Fly Ash	2718a Green Petroleum Coke	2719 Calcined Petroleum Coke	8499 Trace Elements in Coal (Bituminous)
Unit of Issue >>	**50 g**	**75 g**	**50 g**	**1 bottle x 200 g**	**3 x 10 g**	**3 x 10 g**	**3 x 10 g**	**50 g**	**50 g**	**50 g**
Elemental Composition as mass fraction in mg/kg (ppm) unless noted by an asterisk * for % or ** for µg/kg										
Aluminum	0.960*	13.28*	*0.5437 %*		12.94*	12.35*	9.81*	*15.4*	58.9	*0.960**
Antimony	*0.428*	8.56	0.251		(9)	(6)	(3)			*0.428*
Arsenic	*8.55*	186.2	0.860	*2.53*	(200)	(26)	(30)			*8.55*
Barium	*62.8*	0.1126*	0.03578*	*49.6*	(800)	(5800)	(5900)			*62.8*
Beryllium	(1)	(16)			(21)	(8)	(8)			(1)
Bismuth	(<1)									(<1)
Boron	*75.7*		*36.0*							*75.7*
Bromine	*11.9*		(1)							*11.9*
Cadmium	(0.1)	0.758	*0.062*							(0.1)
Calcium	0.1714*	1.365*	*1.087**		2.18*	5.71*	18.45*	*165.5*	57.7	0.1714*
Carbon	(76*)							(90*)	(97.1*)	(76*)
Cerium	*12.24*	(180)	*5.45*							*12.24*
Cesium	*0.648*	*9.39*	*0.0998*		(11)	(8)	(1)			*0.648*
Chlorine	*963*		*15.4*	(23.5)						*963*
Chromium	*16.57*	*258*	3.56	*2.74*	(170)	(67)	(68)			*16.57*
Cobalt	*3.622*	42.9	2.004		(48)	(19)	(26)	*5.71*	*18.6*	*3.622*
Copper	*5.70*	173.7	11.42							*5.70*
Dysprosium	(1)	*18.70*								(1)
Erbium	(0.7)									(0.7)
Europium	*0.2457*	*4.67*	*0.1115*		(3)	(2)	(2)			*0.2457*
Fluorine	(60)									(60)
Furnace Ash in %			(6.29)							
Gadolinium	(1)									(1)
Gallium	(5)	(55)								(5)
Germanium	(3)									(3)
Gold	(<1)									(<1)
Hafnium	(0.6)	(6.0)	*3.14*		(7)	(8)	(10)			(0.6)
Holmium	(0.2)									(0.2)
Hydrogen	*4.97**		*3.92 %*					(3.725*)	(0.17*)	*4.97**
Indium	(0.01)	(0.14)								(0.01)
Iodine	(1)									(1)
Iridium	(<1)									(<1)
Iron	1.42*	10.49*	0.2472*		9.32*	3.57*	4.42*	287	201.6	*1.42**
Lanthanum	(7)	*87.0*								(7)
Lead	(5)	95.2	2.85	*0.763*	(52)	(39)	(29)			(5)
Lithium	(8)									(8)
Lutetium	(0.1)	*1.32*								(0.1)
Magnesium	*391*	0.498*	*0.2303**	(12.1)	0.61*	1.53*	3.12*			*391*
Manganese	*18.4*	240.2	6.69		(300)	(300)	(200)	*2.11*		*18.4*
Mercury	0.1351	1.005	0.0836	0.778	(0.018)	(0.0005)	0.0578	*0.197***		*0.1351*
Molybdenum	(1)		*6.36*							(1)
Neodymium	(6)	(87)								(6)
Nickel	*11.08*	132	5.37		(122)	(46)	(53)	*144.06*	204	*11.08*
Niobium	(2)									(2)
Nitrogen	(1.4*)							(1*)	(1.17*)	(1.4*)
Osmium	(<1)									(<1)
Oxygen	(7)									(7)
Palladium	(<1)									(<1)
Phosphorus	(150)	*0.192**			0.10*	0.52*	0.51*			(150)
Platinum	(<1)									(<1)
Potassium	0.1248*	1.773*	*0.01874**	(9.6)	2.20*	1.04*	0.34*			*0.1248**
Praseodymium	(1.5)									(1.5)
Rhenium	(<10)									(<10)
Rhodium	(<1)									(<1)
Rubidium	8.49	117.42	1.226							*8.49*
Ruthenium	(<1)									(<1)
Samarium	(1)	(19)	*0.483*							(1)
Scandium	*3.583*	*37.6*	*1.240*		(32)	(17)	(24)			*3.583*
Selenium	*1.525*	*13.9*	0.662	*5.27*	(7)	(0.8)	(17)			*1.525*
Silicon	1.81*	*21.30**			24.06*	25.85*	16.83*	(50)	(138)	*1.81**
Silver	(0.02)									(0.02)
Sodium	374	0.1707*	01031*	*11.6*	0.25*	o.24*	1.09*	83.0	*15.1*	*374*
Strontium	84.1	901	0.0160*	*328.9*	(700)	(2000)	(2700)			*84.1*
Sulfur	2.738*	*0.110*	0.2909*			0.15*	0.83*	4.690*	0.8877*	*2.738**
Tantalum	(0.1)	*1.58*								(0.1)
Tellurium	(<1)									(<1)
Terbium	(0.2)	*3.12*								(0.2)
Thallium	(0.4)									(0.4)
Thorium	(1)	*23.0*	1.299		(25)	(25)	(26)			(1)
Thulium	(0.1)									(0.1)
Tin	(0.8)									(0.8)
Titanium	519	0.724*	*0.05240**		0.75*	0.52*	0.90*			519
Tungsten	(<10)									(<10)
Uranium	*0.636*	*9.25*	0.4792							*0.636*
Vanadium	*29.2*	286.2	13.34					310	58.6	*29.2*
Ytterbium	(0.6)	(7.7)								
Yttrium	(6)									(0.6)
Zinc	13.0	*235*	*7.3*		(240)	(120)	(120)			*13.0*
Zirconium	(20)									(20)

- Certified values are normal font.
- Non-certified and reference values are italicized.
- Information values and values of potential interest are within parentheses.