



Metals and minerals

in food and food supplements

ALS Scandinavia offers a comprehensive accreditation for metals and minerals in food and food supplements. Different sample types sets different demands for sample preparation and digestion methods. Consequently, reporting limits (LORs) will also be affected.

Different sample matrices

Dealing with food and food supplements, there are significant differences in sample types. When determining LORs, the laboratory needs to take into account sample matrix, expected concentrations as well as suitable sample preparation and digestion methods. As a result of this, we always appreciate as much information as possible about the sample at hand.

Digestion

For food supplements we have concluded that the recovery of metals and minerals is significantly improved when adding hydrofluoric acid. That is why ALS offers this as standard for food supplements.

Silicon (Si) is one element that frequently is present in tablets. Silicon is normally present as silicon dioxide, which in high concentrations forms salts that are difficult to digest. In order to fully digest such matrices, a digestion by fusion may be necessary. This will result in an unaccredited analysis.

The table below presents all accredited elements and LORs for different types of food and food supplements.



Element	LOR (mg/kg)	LOR (mg/kg)	LOR (mg/kg)	LOR (mg/kg)	LOR (mg/kg)	LOR (mg/kg)
	default	a	b	c	d	e
Ag	0.001	0.003	0.01	0.00005	0.00025	0.007
Al	0.5	2	5	0.05	0.25	7
As	0.005	0.02	0.05	0.0005	0.0025	0.07
B	0.5	2	5	0.05	0.25	7
Ba	0.05	0.2	0.5	0.002	0.01	0.3
Be	0.001	0.003	0.01	0.0001	0.0005	0.02
Ca	10	30	100	0.2	1	30
Cd	0.002	0.005	0.02	0.00005	0.00025	0.007
Co	0.005	0.02	0.05	0.0002	0.001	0.03
Cr	0.02	0.05	0.2	0.002	0.01	0.3
Cs	0.001	0.003	0.01	0.00005	0.00025	0.007
Cu	0.05	0.2	0.5	0.005	0.025	0.7
Fe	0.5	2	5	0.05	0.25	7
Hg	0.005	0.02	0.05	0.0002	0.001	0.03
K	50	200	500	0.1	0.5	20
Li	0.05	0.2	0.5	0.005	0.025	0.7
Mg	5	20	50	0.05	0.25	7
Mn	0.05	0.2	0.5	0.005	0.025	0.7
Mo	0.01	0.03	0.1	0.001	0.005	0.2
Na	20	50	200	0.2	1	30
Ni	0.02	0.05	0.2	0.002	0.01	0.3
P	20	50	200	0.1	0.5	20
Pb	0.01	0.03	0.1	0.0005	0.0025	0.07
Rb	0.02	0.05	0.2	0.001	0.005	0.2
S	20	50	200	0.5	2.5	70
Sb	0.005	0.02	0.05	0.0001	0.0005	0.02
Se	0.05	0.2	0.5	0.005	0.025	0.7
Si	50	200	500	0.5	2.5	70
Sn	0.02	0.05	0.2	0.002	0.01	0.3
Sr	0.02	0.05	0.2	0.002	0.01	0.3
Th	0.001	0.003	0.01	0.00005	0.00025	0.007
Ti	0.5	2	5	0.01	0.05	2
Tl	0.001	0.003	0.01	0.00005	0.00025	0.007
U	0.001	0.003	0.01	0.00005	0.00025	0.007
V	0.005	0.02	0.05	0.0005	0.0025	0.07
Zn	0.2	0.5	2	0.02	0.1	3

default	LOR fresh/undried food
a	LOR dry food and solid food supplements (weigh-in 0.4g)
b	LOR veg./ animalic oil (weigh-in 1ml)
c	LOR mineral water, soda (weigh-in 1ml)
d	LOR juice, milk (weigh-in 1ml, additional 5x dilution)
e	LOR effervescent tablets (weigh-in 4g)

Please note: Food supplements are always digested with HF.



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version 17-08-2018