

Black Buck Metal & Mineral Data (where known; n=6)

Minerals measured by ICP/MS. This mineral data is based on Puls, Mineral Levels in Animal Health, 1994.

Liver (Dry weight basis) - Determined gravimetrically

Analyte	Black Buck Normal Range	Units	Deficient	High	Toxic
Cobalt	-	ug/g dwt	-	-	-
Copper	200 - 400	ug/g dwt	-	-	-
Iron	560 - 4000	ug/g dwt	-	-	-
Manganese	10.0 - 16.8	ug/g dwt	-	-	-
Molybdenum	-	ug/g dwt	-	-	-
Selenium	1.08 - 1.84	ug/g dwt	-	-	-
Zinc	200 - 280	ug/g dwt	-	-	-
Arsenic	< 2.0	ug/g dwt	-	-	-
Cadmium	< 0.8	ug/g dwt	-	-	-
Lead	< 8.0	ug/g dwt	-	-	-
Thallium	-	ug/g dwt	-	-	-
Dry wt. fraction	25 - 34				

For information only, the following data are known for sheep and goats:

Caprine Metal & Mineral Data (where known)

Minerals measured by ICP/MS. Note that our mineral reference ranges have been updated. This mineral data is based on Puls, Mineral Levels in Animal Health, 1994 and updated data gathered by Dr. Tom Herdt, Nutritionist at the Michigan State University Veterinary Diagnostic Laboratory. We are in the process of gathering population data for multiple species to adjust the adequate ranges.

Liver (Dry weight basis) - Determined gravimetrically

Analyte	Black Buck Normal Range	Units	Deficient	High	Toxic
Cobalt	-	ug/g	-	-	-
Copper	100 - 600	ug/g	< 40	-	> 920
Iron	200 - 520	ug/g	< 120	-	-
Manganese	8.0 - 24.0	ug/g	< 4.0	-	-
Molybdenum	> 1.24	ug/g	-	-	-
Selenium	1.00 - 4.80	ug/g	< 0.40	-	-
Zinc	100 - 480	ug/g	< 80	-	-
Dry wt. fraction	25 - 34				

Ovine Metal & Mineral Data (where known)

Liver (*Dry weight basis*) – Determined gravimetrically

Analyte	Ovine Normal Range (adults and growing lambs)	Ovine Normal Range (neonates)	Units	Deficient	High	Toxic
Cobalt	0.08 - 0.35	0.08 - 0.35	ug/g dwt	< 0.02	-	> 20.00
Copper	200 - 600	200 - 600	ug/g dwt	< 16	-	> 1000
Iron	250 - 1000	250 - 1000	ug/g dwt	< 100	-	> 35,600
Manganese	3.5 - 20	3.5 - 20	ug/g dwt	-	-	-
Molybdenum	0.9 - 7.5	0.9 - 7.5	ug/g dwt	-	-	> 30.0
Selenium	0.8 - 3	0.8 - 3	ug/g dwt	< 0.4	-	> 60.0
Zinc	80 - 300	80 - 300	ug/g dwt	< 60	-	> 1600
Arsenic	< 0.2	< 0.2	ug/g dwt	-	> 4	> 10
Cadmium	< 1.4	< 1.4	ug/g dwt	-	6 - 36	> 50
Lead	< 0.8	< 0.8	ug/g dwt	-	> 5	> 10
Thallium	< 0.05	< 0.05	ug/g dwt	-	-	< 0.16
Dry wt. fraction	25 - 34	18 - 29	%			