

## **Certified Reference Material for an Ore with Rare Earth Elements and Zirconium**

Art. ID	CANMET-REE-3
Unit	100 g
Deliverydetails	No Dangerous Good /not restricted

### Description

The mineral species include: quartz (25.8%), orthoclase (21.0%), albite (15.2%), aegerina-augita (9.8%), aegirine (7.6%), hematite/magnetite (5.0%), zircon (4.3%), biotite (4.2%), allanite-(La) (2.6%), gadolinita-(Sm) (1.7%), murataita and fluorite (0.5%), calcite (0.4%), titanite (0.3%), columbite (0.2%), lourenswalsita, ilmenite, chromferide, sphalerite, anorthite and granate (all at 0.1%), fergusonite (0.07%), bastnasite and ekanite (each at 0.06%), apatite and allanite-(Ce) (each at 0.04%), ferrosaponite and pyrite (each at 0.02%), and actinolite, ferro-actinolite, wollastonite, parisite and monazite (each at 0.01%). /// The raw material was crushed, ground and sieved. The recovery of the minus 75 µm (200 mesh) fraction was 58%. /// a) Either no sets were received using digestion by two acids (hydrochloric and nitric acids) or the sets using digestion by two acids were declared method outliers based on statistical tests. / b) The mean is based mainly on data from samples of 1 to 2 grams ignited for 1 to 2 hours at 900 to 1050°C. / c) The mean is based mainly on data derived from various complete digestion methods.

Text/Information	Analyte/Parameter	CAS number	Concentration/Value	Unit	Method	Source
Certified value - see a ,c	Aluminium (Al)	[7429-90-5]	4,372	%		
Certified value - see a ,c	Barium (Ba)	[7440-39-3]	69,1	µg/g		
Certified value - see a	Beryllium (Be)	[7440-41-7]	82,3	µg/g		
Certified value - see a ,c	Calcium (Ca)	[7440-70-2]	1,644	%		
Certified value - see c	Cerium (Ce)	[7440-45-1]	4,54	µg/g		
Certified value - see c	Chromium (Cr)	[7440-47-3]	82	µg/g		
Certified value - see a ,c	Caesium (Cs)	[7440-46-2]	1,118	µg/g		
Certified value	Copper (Cu)	[7440-50-8]	16,3	µg/g		
Certified value - see a ,c	Dysprosium (Dy)	[7429-91-6]	330,3	µg/g		
Certified value - see a ,c	Erbium (Er)	[7440-52-0]	187,2	µg/g		
Certified value - see a ,c	Europium (Eu)	[7440-53-1]	20,85	µg/g		
Certified value - see a ,c	Iron (Fe)	[7439-89-6]	8,28	%		
Certified value - see a ,c	Gadolinium (Gd)	[7440-54-2]	346	µg/g		
Certified value - see a	Hafnium (Hf)	[7440-58-6]	448	µg/g		

,c	Certified value - see a	Holmium (Ho)	[7440-60-0]	65	µg/g
,c	Certified value - see a	Potassium (K)	[7440-09-7]	3,76	%
,c	Certified value - see c	Lanthanum (La)	[7439-91-0]	2121	µg/g
	Certified value - see b	Loss on Ignition (L.O.I )		0,346	%
	Certified value - see c	Lutetium (Lu)	[7439-94-3]	21,53	µg/g
	Certified value - see a	Magnesium (Mg)	[7439-95-4]	0,0594	%
,c	Certified value	Molybdenum (Mo)	[7439-98-7]	59,7	µg/g
	Certified value - see a	Niobium (Nb)	[7440-03-1]	1,073	µg/g
,c	Certified value - see c	Neodymium (Nd)	[7440-00-8]	2083	µg/g
	Certified value	Nickel (Ni)	[7440-02-0]	10,83	µg/g
	Certified value - see c	Phosphorus (P)	[7723-14-0]	0,0201	%
	Certified value	Lead (Pb)	[7439-92-1]	534	µg/g
	Certified value - see a	Praseodymium (Pr)	[7440-10-0]	550	µg/g
,c	Certified value - see a	Rubidium (Rb)	[7440-17-7]	887	µg/g
,c	Certified value - see c	Silicon (Si)	[7440-21-3]	29,66	%
	Certified value - see a	Samarium (Sm)	[7440-19-9]	398	µg/g
,c	Certified value - see a	Tin (Sn)	[7440-31-5]	121,1	µg/g
,c	Certified value - see c	Strontium (Sr)	[7440-24-6]	133,7	µg/g
	Certified value - see a	Tantalum (Ta)	[7440-25-7]	60,7	µg/g
,c	Certified value - see a	Terbium (Tb)	[7440-27-9]	55,2	µg/g
,c	Certified value - see a	Thorium (Th)	[7440-29-1]	135,5	µg/g
,c	Certified value - see a	Titanium (Ti)	[7440-32-6]	0,3202	%
,c	Certified value - see a	Thulium (Tm)	[7440-30-4]	25,8	µg/g
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Certified value - see a ,c	Yttrium (Y)	[7440-65-5]	1,725	µg/g
Certified value - see a ,c	Ytterbium (Yb)	[7440-64-4]	159,4	µg/g
Certified value	Zinc (Zn)	[7440-66-6]	1,499	µg/g
Certified value - see a ,c	Zirconium (Zr)	[7440-67-7]	18,66	µg/g
Provisional value - see a	Bismuth (Bi)	[7440-69-9]	1,171	µg/g
Provisional value	Cadmium (Cd)	[7440-43-9]	4,2	µg/g
Provisional value - see a	Cobalt (Co)	[7440-48-4]	0,92	µg/g
Provisional value - see a, b	Manganese (Mn)	[7439-96-5]	0,313	%
Provisional value - see a, b	Sodium (Na)	[7440-23-5]	2,328	%
Provisional value	Thallium (Tl)	[7440-28-0]	2,341	µg/g
Provisional value - see a, b	Uranium (U)	[7440-61-1]	29,9	µg/g
Indictative value	Silver (Ag)	[7440-22-4]	2	µg/g
Indictative value	Carbon (C)	[7440-44-0]	0,08	%
Indictative value - see e	Gallium (Ga)	[7440-55-3]	80	µg/g
Indictative value - see b	Indium (In)	[7440-74-6]	0,4	µg/g
Indictative value - see b	Lithium (Li)	[7439-93-2]	60	µg/g
Indictative value - see c	Moisture		0,1	%
Indictative value - see d	Sulfur (S)	[7704-34-9]	0,04	%
Indictative value	Antimony (Sb)	[7440-36-0]	0,2	µg/g
Indictative value	Scandium (Sc)	[7440-20-2]	3	µg/g
Indictative value	Vanadium (V)	[7440-62-2]	4	µg/g
Indictative value - see b, e	Tungsten (W)	[7440-33-7]	1	µg/g