

TABLE 5. Trace-element composition (ppmw) of corundum from Snezhnoe, by LA-ICP-MS.^{a,b,c}

Chemical element	From micaceous lenses			From marble
	Purple sapphire (n=3)	Slightly pink sapphire (n = 8)	Dark red ruby (n = 3)	Bright red ruby with a slightly purple hue (n= 6)
Cr	416–661 (530)	687–1775 (1077)	2012–2820 (2376)	1696–4204 (3190)
Ti	17.2–50.3 (28.5)	52.5–165 (92)	30.8–69.9 (49.3)	5.7–75.4 (31.5)
V	38.4–41.0 (39.7)	37.5–49.2 (43.1)	93.0– 95.1 (93.7)	51.5–122 (95.3)
Ga	52.5–56.9 (55.1)	53.4–63.3 (59)	67.2–87.6 (79.1)	60.9–83.4 (71.3)
Fe ^b	bdl	bdl	bdl	bdl
Mg	12.3–24.6 (17.97)	17.7–898 (205)	16. 6–35.9 (24.2)	3.67–71.9 (27.9)
Mn	bdl–0.300 (0.1)	bdl–2.11 (0.61)	bdl–0.61 (0.34)	bdl–6.82 (1.75)
Ca	bdl–296 (115)	bdl–4363 (1066)	bdl–188 (85.8)	39.5–926 (387)
Na	bdl–8.19 (4.76)	39.9–4764 (1182)	34.3–176 (85.3)	bdl–316 (59.8)
Si	1001–1724 (1358)	1217–28,407 (10,731)	1044–1645 (1300)	869–3225 (1674)
P	23.5–27.7 (25.7)	18.9–62.4 (33.6)	bdl–19.8 (10.6)	15.4–34.7 (23.2)
K	bdl–13.6 (5.87)	4.75–3833 (668)	bdl–49.0 (19.5)	bdl–31.7 (9.23)
Sc	bdl	bdl–0.441 (0.226)	bdl	bdl–0.531 (0.181)
Co	bdl–0.174 (0.08)	bdl–2.98 (0.87)	bdl–0.069 (0.02)	bdl–0.393 (0.13)
Ni	0.490–4.04 (1.7)	bdl–109 (22.6)	bdl	bdl–6.51 (2.95)
Cu	0.5–2.43 (1.2)	bdl–228 (54.8)	bdl	bdl–22.6 (4.21)
Zn	1.14–6.21 (3.63)	1.49–129 (26.8)	bdl–1.22 (0.4)	bdl–31.9 (11.4)
Ge	bdl	bdl–1.69 (0.21)	bdl	bdl
Mo	bdl	bdl–1.81 (0.42)	bdl	bdl
La	bdl	bdl–0.380 (0.15)	bdl–0.052 (0.02)	bdl–0.248 (0.17)
Nd	bdl	bdl–0.73 (0.14)	bdl	bdl–0.235 (0.04)
W	bdl–0.284 (0.095)	bdl–0.201 (0.03)	bdl–0.187 (0.12)	bdl
Bi	bdl–0.182 (0.08)	bdl–7.12 (1.97)	bdl	bdl–0.134 (0.02)

^a Minimum and maximum values are given, along with average (in parentheses).

^b Fe was analyzed by electron microprobe.

^c Zr, Nb, Sm, Dy, and Ta were measured but found to be consistently below detection limits; bdl = below detection limits.