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$Mg_{44.29}Ru_7$

Junhui Li,[a] Changzeng Fan,[a,b]* Bin Wen[a] and Lifeng Zhang[a,c]

[a]State Key Laboratory of Metastable Materials Science and Technology, Yanshan University, Qinhuangdao 066004, People's Republic of China, [b]Hebei Key Lab for Optimizing Metal Product Technology and Performance, Yanshan University, Qinhuangdao 066004, People's Republic of China, and [c]School of Mechanical and Materials Engineering, North China University of Technology, Beijing 100144, People's Republic of China. *Correspondence e-mail: chzfan@ysu.edu.cn

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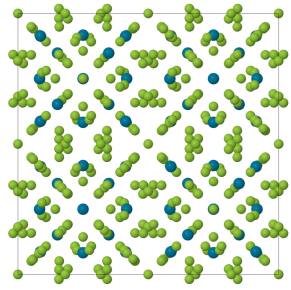
A cubic phase with composition $Mg_{44.29}Ru_7$ (tetratetracontamagnesium hepta-ruthenium) was obtained during high-pressure sintering of a mixture with an initial chemical composition of MgRuB. $Mg_{44.29}Ru_7$ has space-group symmetry $F\bar{4}3m$ and adopts the $Mg_{29-x}Pt_{4+y}$ type of structure, which is categorized as one of the two structural types identified in complex A_6B compounds.

3D view



Structure description

There are two structural types in complex compounds with idealized formula A_6B crystallizing in the cubic space group $F\bar{4}3m$. For example, the $Mg_{44}Rh_7$ phase discovered by Westin (1971) belongs to the first structure type with lattice parameter a = 20.148 Å. Westin & Edshammar (1972) reported on a related magnesium-rich compound in the Mg/Ir system, $Mg_{44}Ir_7$, which is isotypic with $Mg_{44}Rh_7$. Based on Westin's work (Westin, 1972), Andersson (1978) pointed out that Mg/Ru phases near the composition $Mg_{44}Rh_7$ have a large homogeneity range so that 'slightly different phases appear upon heat treatment at relatively low temperatures of $Mg_{44}Ru_7$'. Such a different cubic phase with composition of $Mg_{44.29}Ru_7$ was obtained in the present study during high-pressure sintering of a mixture with an initial chemical composition of MgRuB. The lattice parameter a is similar to the aforementioned $Mg_{44}Rh_7$ phases. The refined composition of the $Mg_{44.29}Ru_7$ phase aligns closely with the elemental ratios determined by energy-dispersive X-ray spectroscopy (EDX) analysis (see Table S1 of the supporting information).

The present $Mg_{44.29}Ru_7$ phase (Fig. 1) belongs to the second structure type of complex A_6B compounds, just like the two phases in the Mg/Pd and Mg/Pt systems. Samson (1972) worked out that the basic building blocks of the $Mg_{340.04}Pd_{55.84}$ phase consist of eight icosahedra, four tri-capped trigonal prisms and 48 pentagonal prisms. Four such building blocks share a Laves–Friauf polyhedron, the centre of which is occupied in this case by

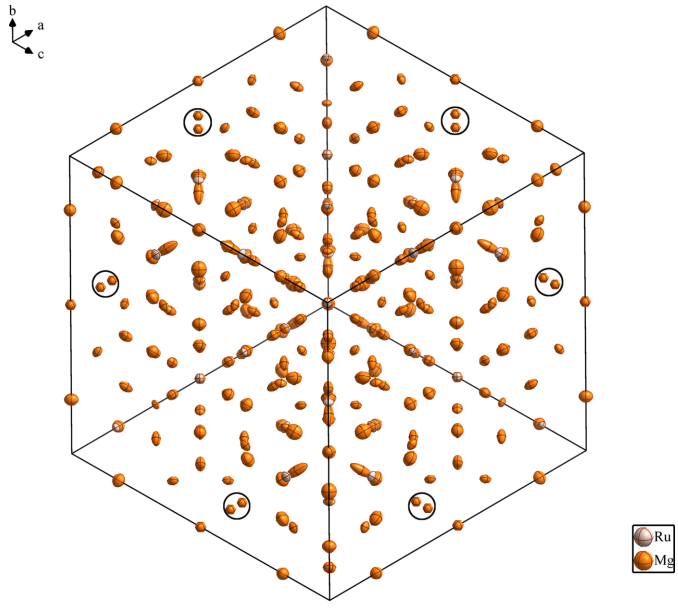


Figure 1
The crystal structure of $Mg_{44.29}Ru_7$ (showing one unit cell projected along [111]), with displacement ellipsoids drawn at the 99% probability level. The circles represent partially split Mg11 and Mg13 sites.

the Mg11 atomic position (multiplicity 4, Wyckoff letter *d*), but is empty in $Mg_{44}Rh_7$ (first type). Agnarelli *et al.* (2022) performed chemical bonding and structure analyses of $Mg_{29-x}Pt_{4+y}$ phases, revealing that the same central position is partially occupied by Mg8 atoms (multiplicity 4, Wyckoff letter *a*), and the nearest Mg position is split into Mg11 (when Mg8 is present) and Mg12 (when Mg8 is unoccupied). In the case of Mg11, this leads to a rather unusual partial occupancy by Pt. The final refinement resulted in occupancies of 58% Mg + 5% Pt for the Mg11 site and 15% Mg for the Mg12 site. During the refinement of the crystal structure of $Mg_{44.29}Ru_7$, it was confirmed that it exhibits a similar atomic environment at the same central position as the $Mg_{29-x}Pt_{4+y}$ phases. The central position is characterized by partial occupancy by Mg1 ($\bar{4}3m$ symmetry, multiplicity 4, Wyckoff letter *b*), and is further subdivided into Mg11 and Mg13 at the nearest Mg position. The final refinement of $Mg_{44.29}Ru_7$ resulted in an Mg occupancy of 67 (2)% for Mg11 and 33 (2)% for Mg13. Another Mg/Ru phase related to $Mg_{44.29}Ru_7$ is the Ru-richer phase $Mg_{43.83}Ru_{7.17}$ (Westin & Edshammar, 1973). The main differences between the two phases are: (1) the Ru2 and Ru4 sites are co-occupied by both Ru and Mg in $Mg_{43.83}Ru_{7.17}$ while

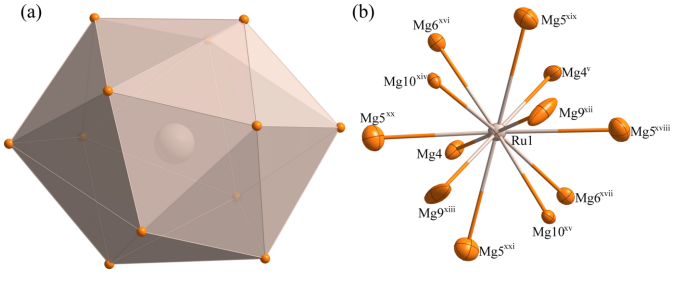


Figure 2
(*a*) The icosahedron formed around Ru1 at the 24 *g* site; (*b*) the environment of Ru1 with displacement ellipsoids drawn the 99% probability level. [Symmetry codes: (v) $-x+\frac{1}{2}, -y+\frac{1}{2}, z$; (xii) $-x+1, -y+1, z$; (xiii) $x-\frac{1}{2}, y-\frac{1}{2}, z$; (xiv) $-x+1, y-\frac{1}{2}, -z+\frac{3}{2}$; (xv) $x-\frac{1}{2}, -y+1, -z+\frac{3}{2}$; (xvi) $x, -y+\frac{1}{2}, -z+\frac{3}{2}$; (xvii) $-x+\frac{1}{2}, y, -z+\frac{3}{2}$; (xviii) $-y+\frac{1}{2}, -z+1, x+\frac{1}{2}$; (xix) $-z+1, -x+\frac{1}{2}, y+\frac{1}{2}$; (xx) $y, z-\frac{1}{2}, x+\frac{1}{2}$; (xxi) $z-\frac{1}{2}, x, y+\frac{1}{2}$.]

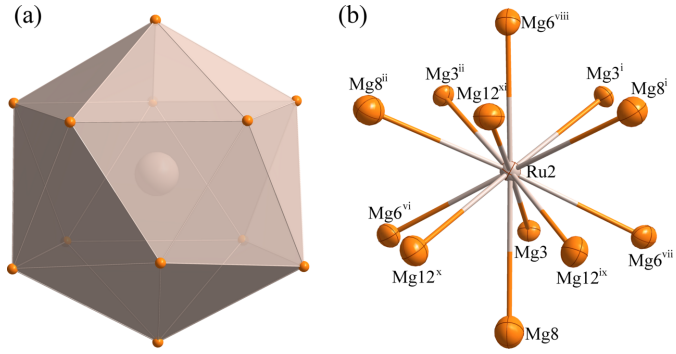


Figure 3
(*a*) The icosahedron formed around Ru2 at the 16 *e* site; (*b*) the environment of Ru2 with displacement ellipsoids drawn at the 99% probability level. [Symmetry codes:(i) y, z, x; (ii) z, x, y; (vi) $y, z-1, x$; (vii) $z-1, x, y$; (viii) $x, y, z-1$; (ix) $x-1, -y+1, -z+1$; (*x*) $-x+1, y-1, -z+1$; (xi) $-x+1, -y+1, z-1$.]

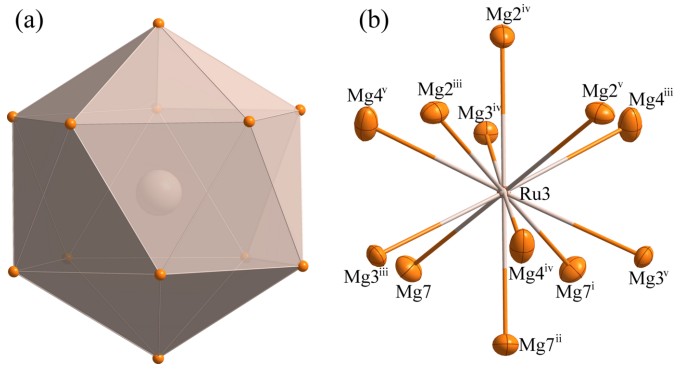


Figure 4
(*a*) The icosahedron formed around Ru3 at the 16 *e* site; (*b*) the environment of the Ru3 atom with displacement ellipsoids given at the 99% probability level. [Symmetry codes:(i) y, z, x; (ii) z, x, y; (iii) $-y+\frac{1}{2}, z, -x+\frac{1}{2}$; (iv) $z, -x+\frac{1}{2}, -y+\frac{1}{2}$; (v) $-x+\frac{1}{2}, -y+\frac{1}{2}, z$.]

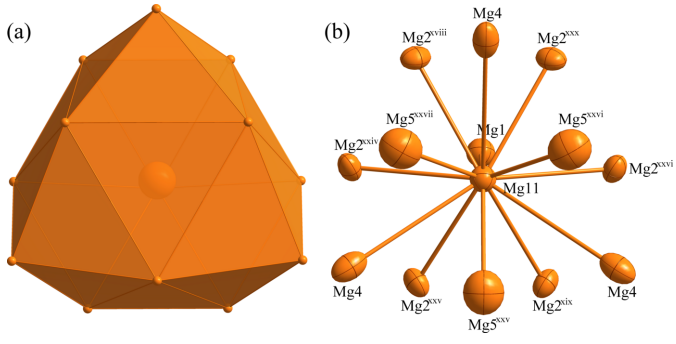


Figure 5
(*a*) The 22-faced polyhedron formed around Mg11 at the 16 *e* site; (*b*) the environment of Mg1 with displacement ellipsoids drawn at the 99% probability level. [Symmetry codes: (xviii) $-y+\frac{1}{2}, -z+1, x+\frac{1}{2}$; (xix) $-z+1, -x+\frac{1}{2}, y+\frac{1}{2}$; (xxiv) $-z+1, x+\frac{1}{2}, -y+\frac{1}{2}$; (xxv) $y+\frac{1}{2}, z, x+\frac{1}{2}$; (xxvi) $z, x+\frac{1}{2}, y+\frac{1}{2}$; (xxvii) $x+\frac{1}{2}, y+\frac{1}{2}, z$; (xxx) $x+\frac{1}{2}, -y+\frac{1}{2}, -z+1$.]

Table 1
Experimental details.

Crystal data	
Chemical formula	$Mg_{44.29}Ru_7$
M_r	1784.30
Crystal system, space group	Cubic, $F\overline{4}3m$
Temperature (K)	296
a (Å)	20.480 (9)
V (Å^3)	8591 (11)
Z	8
Radiation type	Mo $K\alpha$
μ (mm^{-1})	3.05
Crystal size (mm)	0.10 × 0.08 × 0.08
Data collection	
Diffractometer	Bruker D8 Venture Photon 100 CMOS
Absorption correction	Multi-scan (*SADABS*; Krause *et al.*, 2015)
T_{min}, T_{max}	0.623, 0.746
No. of measured, independent and observed [$I > 2\sigma(I)$] reflections	31409, 1021, 903
R_{int}	0.157
(sin $\theta/\lambda)_{max}$ (Å^{-1})	0.645
Refinement	
$R[F^2 > 2\sigma(F^2)]$, $wR(F^2)$, S	0.040, 0.063, 1.06
No. of reflections	1021
No. of parameters	65
$\Delta\rho_{max}$, $\Delta\rho_{min}$ (e Å^{-3})	0.72, −0.81
Absolute structure	Flack x determined using 359 quotients $[(I^+)-(I^-)]/[(I^+)+(I^-)]$ (Parsons *et al.*, 2013)
Absolute structure parameter	−0.05 (5)

Computer programs: *APEX3* and *SAINT* (Bruker, 2023), *SHELXT* (Sheldrick, 2015*a*), *SHELXL* (Sheldrick, 2015*b*), *DIAMOND* (Brandenburg & Putz, 2017) and *publCIF* (Westrip, 2010).

both positions are fully occupied in $Mg_{44.29}Ru_7$; (2) there is an additional partially occupied Mg1 site in $Mg_{44.29}Ru_7$ with $\overline{4}3m$ symmetry; (3) the Mg11 site in $Mg_{43.83}Ru_{7.17}$ is split into two separated positions Mg11 and Mg13 in the present model.

The environments of the Ru1, Ru2 and Ru3 and Mg11 sites are shown in Figs. 2–5, respectively. The Ru1 atom is located at a site with symmetry 2.*mm* (multiplicity 24, Wyckoff letter *g*) and is surrounded by twelve Mg atoms, with the shortest Ru—Mg separation of 2.707 (5) Å for Ru1—Mg4. The Ru2, Ru3 and Mg11 atoms occupy a site with symmetry .3*m* (16 *e*). The Ru2 and Ru3 sites are surrounded by twelve Mg atoms while the Mg11 site is surrounded by thirteen Mg atoms. The shortest Ru—Mg separations are Ru2—Mg3 = 2.778 (4) Å, Ru3—Mg7 = 2.8540 (19) Å and Mg11—Mg5 = 2.993 (11) Å.

Synthesis and crystallization

High-purity magnesium (indicated purity of 99.9%; 0.1785 g), ruthenium (indicated purity of 99.9%; 0.7421 g) and boron (indicating purity of 99.9%; 0.0793 g) with a stoichiometric ratio of 1:1:1 were evenly mixed and finely ground in agate mortar for 40 min. The mixed powder was then placed in a cemented carbide grinding mold with a diameter of 5 mm and pressed into a block at about 4 MPa for three min. Cylindrical blocks without deformation and cracks were obtained. Details of high-pressure sintering experiments using a six-anvil high-temperature and high-pressure equipment are described elsewhere (Liu & Fan, 2018). The sample was pressurized to 6 GPa and heated to 1273 K for 40 min, and then quickly cooled to room temperature by turning off the furnace power. A single crystal was selected and mounted on a glass fiber for the X-ray diffraction study.

Refinement

Crystal data, data collection and structure refinement details are summarized in Table 1. For better comparison with previously reported $Mg_{43.83}Ru_{7.17}$ (Westin & Edshammar, 1973), the labelling scheme and atomic coordinates of $Mg_{44.29}Ru_7$ were adapted from it. Site occupancies of Mg1, Mg11 and Mg13 were refined freely. The maximum and minimum residual electron densities in the final difference map of $Mg_{44.29}Ru_7$ are located 1.80 Å from site Mg2 and 0.98 Å from Ru2, respectively.

Acknowledgements

We are indebted to Yibo Liu for useful discussions.

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full crystallographic data

IUCrData (2025). **10**, x250729 [https://doi.org/10.1107/S2414314625007291]

$Mg_{44.29}Ru_7$

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Tetratetracontamagnesium heptaruthenium

Crystal data

$Mg_{44.29}Ru_7$
M_r = 1784.30
Cubic, $F\bar{4}3m$
a = 20.480 (9) Å
V = 8591 (11) Å^3
Z = 8
$F(000)$ = 6716
D_x = 2.759 Mg m^{-3}
Mo $K\alpha$ radiation, λ = 0.71073 Å
Cell parameters from 5950 reflections
θ = 2.8–26.2°
μ = 3.05 mm^{-1}
T = 296 K
Lump, gray
0.10 × 0.08 × 0.08 mm

Data collection

Bruker D8 Venture Photon 100 CMOS diffractometer
phi and ω scans
Absorption correction: multi-scan (*SADABS*; Krause *et al.*, 2015)
T_{min} = 0.623, T_{max} = 0.746
31409 measured reflections
1021 independent reflections
903 reflections with $I > 2\sigma(I)$
R_{int} = 0.157
θ_{max} = 27.3°, θ_{min} = 2.8°
h = −26→26
k = −26→21
l = −26→26

Refinement

Refinement on F^2
Least-squares matrix: full
$R[F^2 > 2\sigma(F^2)]$ = 0.040
$wR(F^2)$ = 0.063
S = 1.06
1021 reflections
65 parameters
0 restraints
$w = 1/[\sigma^2(F_o^2) + (0.0178P)^2 + 174.1245P]$ where $P = (F_o^2 + 2F_c^2)/3$
$(\Delta/\sigma)_{max} < 0.001$
$\Delta\rho_{max}$ = 0.72 e Å^{-3}
$\Delta\rho_{min}$ = −0.81 e Å^{-3}
Absolute structure: Flack x determined using 359 quotients $[(I^+)-(I^-)]/[(I^+)+(I^-)]$ (Parsons *et al.*, 2013)
Absolute structure parameter: −0.05 (5)

Special details

Geometry. All esds (except the esd in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell esds are taken into account individually in the estimation of esds in distances, angles and torsion angles; correlations between esds in cell parameters are only used when they are defined by crystal symmetry. An approximate (isotropic) treatment of cell esds is used for estimating esds involving l.s. planes.

Fractional atomic coordinates and isotropic or equivalent isotropic displacement parameters (Å^2)

	x	y	z	U_{iso}*/U_{eq}	Occ. (<1)
Ru1	0.250000	0.250000	0.58281 (7)	0.0136 (4)	

Ru2	0.08650 (5)	0.08650 (5)	0.08650 (5)	0.0079 (4)	
Ru3	0.34837 (5)	0.34837 (5)	0.34837 (5)	0.0032 (3)	
Mg1	0.500000	0.500000	0.500000	0.014 (10)	0.59 (6)
Mg2	0.05113 (14)	0.05113 (14)	0.3415 (2)	0.0126 (10)	
Mg3	0.10802 (14)	0.10802 (14)	0.2187 (2)	0.0092 (9)	
Mg4	0.19177 (16)	0.19177 (16)	0.4794 (2)	0.0164 (10)	
Mg5	0.09229 (18)	0.09229 (18)	0.7261 (2)	0.0266 (13)	
Mg6	0.15752 (17)	0.15752 (17)	0.9815 (2)	0.0133 (11)	
Mg7	0.250000	0.250000	0.3563 (3)	0.0127 (12)	
Mg8	0.000000	0.000000	0.1817 (4)	0.0207 (17)	
Mg9	0.6878 (4)	0.6878 (4)	0.6878 (4)	0.034 (3)	
Mg10	0.8320 (2)	0.8320 (2)	0.8320 (2)	0.0103 (18)	
Mg11	0.5809 (4)	0.5809 (4)	0.5809 (4)	0.012 (2)	0.671 (19)
Mg12	0.9447 (2)	0.9447 (2)	0.9447 (2)	0.019 (2)	
Mg13	0.5583 (9)	0.5583 (9)	0.5583 (9)	0.012 (2)	0.329 (19)

Atomic displacement parameters (Å²)

	U^{11}	U^{22}	U^{33}	U^{12}	U^{13}	U^{23}
Mg1	0.014 (10)	0.014 (10)	0.014 (10)	0.000	0.000	0.000
Ru1	0.0160 (5)	0.0160 (5)	0.0088 (8)	0.0014 (8)	0.000	0.000
Ru2	0.0079 (4)	0.0079 (4)	0.0079 (4)	−0.0011 (5)	−0.0011 (5)	−0.0011 (5)
Ru3	0.0032 (3)	0.0032 (3)	0.0032 (3)	−0.0002 (4)	−0.0002 (4)	−0.0002 (4)
Mg2	0.0112 (14)	0.0112 (14)	0.015 (2)	−0.0001 (17)	0.0029 (13)	0.0029 (13)
Mg3	0.0106 (13)	0.0106 (13)	0.006 (2)	−0.0004 (16)	−0.0009 (12)	−0.0009 (12)
Mg4	0.0166 (15)	0.0166 (15)	0.016 (3)	0.005 (2)	−0.0056 (15)	−0.0056 (15)
Mg5	0.0249 (18)	0.0249 (18)	0.030 (3)	−0.003 (2)	−0.0044 (16)	−0.0044 (16)
Mg6	0.0153 (16)	0.0153 (16)	0.009 (2)	0.002 (2)	−0.0010 (13)	−0.0010 (13)
Mg7	0.0106 (17)	0.0106 (17)	0.017 (3)	−0.002 (3)	0.000	0.000
Mg8	0.021 (2)	0.021 (2)	0.021 (4)	0.003 (3)	0.000	0.000
Mg9	0.034 (3)	0.034 (3)	0.034 (3)	0.021 (3)	0.021 (3)	0.021 (3)
Mg10	0.0103 (18)	0.0103 (18)	0.0103 (18)	0.0023 (15)	0.0023 (15)	0.0023 (15)
Mg11	0.012 (2)	0.012 (2)	0.012 (2)	0.000 (3)	0.000 (3)	0.000 (3)
Mg12	0.019 (2)	0.019 (2)	0.019 (2)	−0.002 (2)	−0.002 (2)	−0.002 (2)
Mg13	0.012 (2)	0.012 (2)	0.012 (2)	0.000 (3)	0.000 (3)	0.000 (3)

Geometric parameters (Å, º)

Ru1—Mg4	2.707 (5)	Mg4—Mg2^{xxvi}	3.025 (5)
Ru1—Mg4^{i}	2.707 (5)	Mg4—Mg2^{xxvii}	3.025 (5)
Ru1—Mg9^{ii}	2.8050 (19)	Mg4—Mg5^{x}	3.160 (4)
Ru1—Mg9^{iii}	2.8050 (19)	Mg4—Mg5^{xi}	3.160 (4)
Ru1—Mg10^{iv}	2.947 (3)	Mg4—Mg4^{i}	3.373 (10)
Ru1—Mg10^{v}	2.947 (3)	Mg13—Mg2^{xxix}	3.042 (4)
Ru1—Mg6^{vi}	2.985 (5)	Mg13—Mg2^{xxiv}	3.042 (4)
Ru1—Mg6^{vii}	2.985 (5)	Mg13—Mg2^{ix}	3.042 (4)
Ru1—Mg5^{viii}	3.273 (4)	Mg13—Mg2^{xxx}	3.042 (4)
Ru1—Mg5^{ix}	3.273 (4)	Mg13—Mg2^{xxxi}	3.042 (4)

Ru1—Mg5^{x}	3.273 (4)	Mg13—Mg13^{ii}	3.38 (5)
Ru1—Mg5^{xi}	3.273 (4)	Mg13—Mg13^{xxii}	3.38 (5)
Ru2—Mg3^{xii}	2.778 (4)	Mg13—Mg13^{xxiii}	3.38 (5)
Ru2—Mg3^{xiii}	2.778 (4)	Mg13—Mg5^{xxxii}	3.58 (2)
Ru2—Mg3	2.778 (4)	Mg13—Mg5^{xxxiii}	3.58 (2)
Ru2—Mg6^{xiv}	2.976 (5)	Mg5—Mg9^{iii}	2.876 (9)
Ru2—Mg6^{xv}	2.976 (5)	Mg6—Mg12^{ii}	3.054 (7)
Ru2—Mg6^{xvi}	2.976 (5)	Mg6—Mg10^{ii}	3.075 (7)
Ru2—Mg12^{xvii}	3.042 (3)	Mg6—Mg5^{xxxiv}	3.122 (5)
Ru2—Mg12^{xviii}	3.042 (3)	Mg6—Mg5^{xxxv}	3.122 (5)
Ru2—Mg12^{xix}	3.042 (3)	Mg6—Mg4^{vi}	3.265 (5)
Ru2—Mg8	3.175 (5)	Mg6—Mg4^{vii}	3.265 (5)
Ru2—Mg8^{xii}	3.175 (5)	Mg6—Mg8^{xxxvi}	3.286 (4)
Ru2—Mg8^{xiii}	3.175 (5)	Mg6—Mg8^{xxxvii}	3.286 (4)
Ru3—Mg7^{xii}	2.8540 (19)	Mg7—Mg4^{i}	3.033 (6)
Ru3—Mg7^{xiii}	2.8540 (19)	Mg7—Mg4	3.033 (6)
Ru3—Mg7	2.8540 (19)	Mg7—Mg3^{xx}	3.066 (4)
Ru3—Mg2^{xx}	2.914 (4)	Mg7—Mg3^{xxi}	3.066 (4)
Ru3—Mg2^{xxi}	2.914 (4)	Mg7—Mg3^{xxvi}	3.066 (4)
Ru3—Mg2^{i}	2.914 (4)	Mg7—Mg3^{xxvii}	3.066 (4)
Ru3—Mg4^{xx}	2.925 (5)	Mg7—Mg7^{xxvi}	3.080 (8)
Ru3—Mg4^{i}	2.925 (5)	Mg7—Mg7^{xxxviii}	3.080 (8)
Ru3—Mg4^{xxi}	2.925 (5)	Mg7—Mg7^{xiii}	3.080 (8)
Ru3—Mg3^{i}	2.941 (4)	Mg7—Mg7^{xii}	3.080 (8)
Ru3—Mg3^{xx}	2.941 (4)	Mg8—Mg12^{xvii}	3.045 (7)
Ru3—Mg3^{xxi}	2.941 (4)	Mg8—Mg12^{xviii}	3.045 (7)
Mg1—Mg13^{xxii}	2.07 (3)	Mg8—Mg5^{xxviii}	3.272 (8)
Mg1—Mg13^{xxiii}	2.07 (3)	Mg8—Mg5^{xxxix}	3.272 (8)
Mg1—Mg13^{ii}	2.07 (3)	Mg9—Mg9^{xl}	3.60 (2)
Mg1—Mg13	2.07 (3)	Mg9—Mg9^{xli}	3.60 (2)
Mg1—Mg11^{xxiii}	2.869 (15)	Mg9—Mg9^{xlii}	3.60 (2)
Mg1—Mg11^{xxii}	2.869 (15)	Mg10—Mg9^{xlii}	3.009 (9)
Mg1—Mg11^{ii}	2.869 (15)	Mg10—Mg9^{xli}	3.009 (9)
Mg1—Mg11	2.869 (15)	Mg10—Mg9^{xl}	3.009 (9)
Mg1—Mg2^{xxi}	3.568 (5)	Mg10—Mg5^{xliii}	3.084 (5)
Mg1—Mg2^{i}	3.568 (4)	Mg10—Mg5^{xliv}	3.084 (5)
Mg1—Mg2^{xx}	3.568 (5)	Mg10—Mg5^{ii}	3.084 (5)
Mg1—Mg2^{xxiv}	3.568 (5)	Mg11—Mg5^{xxxii}	2.993 (11)
Mg2—Mg2^{xxv}	2.962 (8)	Mg11—Mg5^{xxxiii}	2.993 (11)
Mg2—Mg2^{xxvi}	3.110 (8)	Mg11—Mg5^{xlv}	2.993 (11)
Mg2—Mg2^{xxvii}	3.110 (8)	Mg11—Mg2^{viii}	3.195 (5)
Mg2—Mg5^{xxviii}	3.355 (5)	Mg11—Mg2^{xxx}	3.195 (5)
Mg3—Mg2	3.007 (6)	Mg11—Mg2^{xxix}	3.195 (5)
Mg3—Mg6^{xiv}	3.052 (4)	Mg11—Mg2^{xxiv}	3.195 (5)
Mg3—Mg6^{xv}	3.052 (4)	Mg11—Mg2^{ix}	3.195 (5)
Mg3—Mg4^{xxvi}	3.085 (3)	Mg11—Mg2^{xxxi}	3.195 (5)
Mg3—Mg4^{xxvii}	3.085 (3)	Mg12—Mg12^{xlvi}	3.205 (14)
Mg3—Mg3^{xii}	3.205 (7)	Mg12—Mg12^{xlvii}	3.205 (14)

Mg3—Mg3^{xiii}	3.205 (7)	Mg12—Mg12^{xlviii}	3.205 (14)
Mg3—Mg8	3.219 (5)	Mg13—Mg2^{viii}	3.042 (4)
Mg7^{xii}—Ru3—Mg7^{xiii}	65.3 (2)	Ru2^{xlix}—Mg6—Mg5^{xxxv}	120.91 (13)
Mg7^{xii}—Ru3—Mg7	65.3 (2)	Ru1^{vii}—Mg6—Mg5^{xxxv}	64.76 (13)
Mg7^{xiii}—Ru3—Mg7	65.3 (2)	Mg3^{xxxvii}—Mg6—Mg5^{xxxv}	87.45 (12)
Mg7^{xii}—Ru3—Mg2^{xx}	179.49 (17)	Mg3^{xxxvi}—Mg6—Mg5^{xxxv}	147.16 (15)
Mg7^{xiii}—Ru3—Mg2^{xx}	115.10 (11)	Mg12^{ii}—Mg6—Mg5^{xxxv}	96.34 (13)
Mg7—Ru3—Mg2^{xx}	115.09 (11)	Mg10^{ii}—Mg6—Mg5^{xxxv}	59.68 (12)
Mg7^{xii}—Ru3—Mg2^{xxi}	115.10 (11)	Mg5^{xxxiv}—Mg6—Mg5^{xxxv}	114.8 (2)
Mg7^{xiii}—Ru3—Mg2^{xxi}	179.49 (17)	Ru2^{xlix}—Mg6—Mg4^{vi}	112.95 (13)
Mg7—Ru3—Mg2^{xxi}	115.09 (11)	Ru1^{vii}—Mg6—Mg4^{vi}	51.09 (10)
Mg2^{xx}—Ru3—Mg2^{xxi}	64.50 (14)	Mg3^{xxxvii}—Mg6—Mg4^{vi}	58.35 (10)
Mg7^{xii}—Ru3—Mg2^{i}	115.10 (11)	Mg3^{xxxvi}—Mg6—Mg4^{vi}	91.02 (15)
Mg7^{xiii}—Ru3—Mg2^{i}	115.10 (11)	Mg12^{ii}—Mg6—Mg4^{vi}	148.82 (9)
Mg7—Ru3—Mg2^{i}	179.49 (17)	Mg10^{ii}—Mg6—Mg4^{vi}	99.40 (18)
Mg2^{xx}—Ru3—Mg2^{i}	64.50 (14)	Mg5^{xxxiv}—Mg6—Mg4^{vi}	111.05 (18)
Mg2^{xxi}—Ru3—Mg2^{i}	64.50 (14)	Mg5^{xxxv}—Mg6—Mg4^{vi}	59.26 (11)
Mg7^{xii}—Ru3—Mg4^{xx}	63.31 (14)	Ru2^{xlix}—Mg6—Mg4^{vii}	112.95 (13)
Mg7^{xiii}—Ru3—Mg4^{xx}	117.74 (9)	Ru1^{vii}—Mg6—Mg4^{vii}	51.09 (10)
Mg7—Ru3—Mg4^{xx}	117.74 (9)	Mg3^{xxxvii}—Mg6—Mg4^{vii}	91.02 (15)
Mg2^{xx}—Ru3—Mg4^{xx}	116.19 (14)	Mg3^{xxxvi}—Mg6—Mg4^{vii}	58.35 (10)
Mg2^{xxi}—Ru3—Mg4^{xx}	62.41 (8)	Mg12^{ii}—Mg6—Mg4^{vii}	148.82 (9)
Mg2^{i}—Ru3—Mg4^{xx}	62.41 (8)	Mg10^{ii}—Mg6—Mg4^{vii}	99.40 (18)
Mg7^{xii}—Ru3—Mg4^{i}	117.74 (9)	Mg5^{xxxiv}—Mg6—Mg4^{vii}	59.26 (11)
Mg7^{xiii}—Ru3—Mg4^{i}	117.74 (9)	Mg5^{xxxv}—Mg6—Mg4^{vii}	111.05 (18)
Mg7—Ru3—Mg4^{i}	63.31 (14)	Mg4^{vi}—Mg6—Mg4^{vii}	62.21 (17)
Mg2^{xx}—Ru3—Mg4^{i}	62.41 (8)	Ru2^{xlix}—Mg6—Mg8^{xxxvi}	60.69 (13)
Mg2^{xxi}—Ru3—Mg4^{i}	62.41 (8)	Ru1^{vii}—Mg6—Mg8^{xxxvi}	125.32 (15)
Mg2^{i}—Ru3—Mg4^{i}	116.19 (14)	Mg3^{xxxvii}—Mg6—Mg8^{xxxvi}	110.80 (15)
Mg4^{xx}—Ru3—Mg4^{i}	115.90 (7)	Mg3^{xxxvi}—Mg6—Mg8^{xxxvi}	60.91 (10)
Mg7^{xii}—Ru3—Mg4^{xxi}	117.74 (9)	Mg12^{ii}—Mg6—Mg8^{xxxvi}	57.26 (15)
Mg7^{xiii}—Ru3—Mg4^{xxi}	63.31 (14)	Mg10^{ii}—Mg6—Mg8^{xxxvi}	99.94 (11)
Mg7—Ru3—Mg4^{xxi}	117.74 (9)	Mg5^{xxxiv}—Mg6—Mg8^{xxxvi}	61.35 (16)
Mg2^{xx}—Ru3—Mg4^{xxi}	62.41 (8)	Mg5^{xxxv}—Mg6—Mg8^{xxxvi}	150.45 (17)
Mg2^{xxi}—Ru3—Mg4^{xxi}	116.19 (14)	Mg4^{vi}—Mg6—Mg8^{xxxvi}	150.16 (17)
Mg2^{i}—Ru3—Mg4^{xxi}	62.41 (8)	Mg4^{vii}—Mg6—Mg8^{xxxvi}	92.29 (17)
Mg4^{xx}—Ru3—Mg4^{xxi}	115.90 (7)	Ru2^{xlix}—Mg6—Mg8^{xxxvii}	60.69 (13)
Mg4^{i}—Ru3—Mg4^{xxi}	115.90 (7)	Ru1^{vii}—Mg6—Mg8^{xxxvii}	125.32 (15)
Mg7^{xii}—Ru3—Mg3^{i}	63.86 (7)	Mg3^{xxxvii}—Mg6—Mg8^{xxxvii}	60.91 (10)
Mg7^{xiii}—Ru3—Mg3^{i}	63.86 (7)	Mg3^{xxxvi}—Mg6—Mg8^{xxxvii}	110.80 (15)
Mg7—Ru3—Mg3^{i}	118.71 (17)	Mg12^{ii}—Mg6—Mg8^{xxxvii}	57.26 (15)
Mg2^{xx}—Ru3—Mg3^{i}	115.98 (8)	Mg10^{ii}—Mg6—Mg8^{xxxvii}	99.94 (11)
Mg2^{xxi}—Ru3—Mg3^{i}	115.98 (8)	Mg5^{xxxiv}—Mg6—Mg8^{xxxvii}	150.45 (17)
Mg2^{i}—Ru3—Mg3^{i}	61.80 (12)	Mg5^{xxxv}—Mg6—Mg8^{xxxvii}	61.35 (16)
Mg4^{xx}—Ru3—Mg3^{i}	63.44 (4)	Mg4^{vi}—Mg6—Mg8^{xxxvii}	92.29 (17)
Mg4^{i}—Ru3—Mg3^{i}	177.99 (15)	Mg4^{vii}—Mg6—Mg8^{xxxvii}	150.16 (17)
Mg4^{xxi}—Ru3—Mg3^{i}	63.44 (4)	Mg8^{xxxvi}—Mg6—Mg8^{xxxvii}	106.4 (3)

Mg7^{xii}—Ru3—Mg3^{xx}	118.71 (17)	Ru1^{l}—Mg10—Ru1^{li}	110.46 (15)
Mg7^{xiii}—Ru3—Mg3^{xx}	63.86 (7)	Ru1^{l}—Mg10—Ru1^{lii}	110.46 (15)
Mg7—Ru3—Mg3^{xx}	63.86 (7)	Ru1^{li}—Mg10—Ru1^{lii}	110.46 (15)
Mg2^{xx}—Ru3—Mg3^{xx}	61.80 (12)	Ru1^{l}—Mg10—Mg9^{xlii}	115.2 (3)
Mg2^{xxi}—Ru3—Mg3^{xx}	115.98 (8)	Ru1^{li}—Mg10—Mg9^{xlii}	56.17 (10)
Mg2^{i}—Ru3—Mg3^{xx}	115.98 (8)	Ru1^{lii}—Mg10—Mg9^{xlii}	56.17 (10)
Mg4^{xx}—Ru3—Mg3^{xx}	177.99 (15)	Ru1^{l}—Mg10—Mg9^{xli}	56.17 (10)
Mg4^{i}—Ru3—Mg3^{xx}	63.44 (4)	Ru1^{li}—Mg10—Mg9^{xli}	115.2 (3)
Mg4^{xxi}—Ru3—Mg3^{xx}	63.44 (4)	Ru1^{lii}—Mg10—Mg9^{xli}	56.17 (10)
Mg3^{i}—Ru3—Mg3^{xx}	117.15 (5)	Mg9^{xlii}—Mg10—Mg9^{xli}	73.5 (4)
Mg7^{xii}—Ru3—Mg3^{xxi}	63.86 (7)	Ru1^{l}—Mg10—Mg9^{xl}	56.17 (10)
Mg7^{xiii}—Ru3—Mg3^{xxi}	118.71 (17)	Ru1^{li}—Mg10—Mg9^{xl}	56.17 (10)
Mg7—Ru3—Mg3^{xxi}	63.86 (7)	Ru1^{lii}—Mg10—Mg9^{xl}	115.2 (3)
Mg2^{xx}—Ru3—Mg3^{xxi}	115.98 (8)	Mg9^{xlii}—Mg10—Mg9^{xl}	73.5 (4)
Mg2^{xxi}—Ru3—Mg3^{xxi}	61.80 (12)	Mg9^{xli}—Mg10—Mg9^{xl}	73.5 (4)
Mg2^{i}—Ru3—Mg3^{xxi}	115.98 (8)	Ru1^{l}—Mg10—Mg6^{xliii}	59.37 (10)
Mg4^{xx}—Ru3—Mg3^{xxi}	63.44 (4)	Ru1^{li}—Mg10—Mg6^{xliii}	124.46 (11)
Mg4^{i}—Ru3—Mg3^{xxi}	63.44 (4)	Ru1^{lii}—Mg10—Mg6^{xliii}	124.46 (11)
Mg4^{xxi}—Ru3—Mg3^{xxi}	177.99 (15)	Mg9^{xlii}—Mg10—Mg6^{xliii}	174.6 (3)
Mg3^{i}—Ru3—Mg3^{xxi}	117.15 (5)	Mg9^{xli}—Mg10—Mg6^{xliii}	102.25 (17)
Mg3^{xx}—Ru3—Mg3^{xxi}	117.15 (5)	Mg9^{xl}—Mg10—Mg6^{xliii}	102.25 (17)
Mg3^{xii}—Ru2—Mg3^{xiii}	70.46 (14)	Ru1^{l}—Mg10—Mg6^{xliv}	124.46 (11)
Mg3^{xii}—Ru2—Mg3	70.46 (14)	Ru1^{li}—Mg10—Mg6^{xliv}	124.46 (11)
Mg3^{xiii}—Ru2—Mg3	70.46 (14)	Ru1^{lii}—Mg10—Mg6^{xliv}	59.37 (10)
Mg3^{xii}—Ru2—Mg6^{xiv}	123.31 (13)	Mg9^{xlii}—Mg10—Mg6^{xliv}	102.25 (17)
Mg3^{xiii}—Ru2—Mg6^{xiv}	63.95 (7)	Mg9^{xli}—Mg10—Mg6^{xliv}	102.25 (17)
Mg3—Ru2—Mg6^{xiv}	63.95 (7)	Mg9^{xl}—Mg10—Mg6^{xliv}	174.6 (3)
Mg3^{xii}—Ru2—Mg6^{xv}	63.95 (7)	Mg6^{xliii}—Mg10—Mg6^{xliv}	81.8 (2)
Mg3^{xiii}—Ru2—Mg6^{xv}	123.31 (13)	Ru1^{l}—Mg10—Mg6^{ii}	124.46 (11)
Mg3—Ru2—Mg6^{xv}	63.95 (7)	Ru1^{li}—Mg10—Mg6^{ii}	59.37 (10)
Mg6^{xiv}—Ru2—Mg6^{xv}	117.88 (4)	Ru1^{lii}—Mg10—Mg6^{ii}	124.46 (11)
Mg3^{xii}—Ru2—Mg6^{xvi}	63.95 (7)	Mg9^{xlii}—Mg10—Mg6^{ii}	102.25 (17)
Mg3^{xiii}—Ru2—Mg6^{xvi}	63.95 (7)	Mg9^{xli}—Mg10—Mg6^{ii}	174.6 (3)
Mg3—Ru2—Mg6^{xvi}	123.31 (13)	Mg9^{xl}—Mg10—Mg6^{ii}	102.25 (17)
Mg6^{xiv}—Ru2—Mg6^{xvi}	117.88 (4)	Mg6^{xliii}—Mg10—Mg6^{ii}	81.8 (2)
Mg6^{xv}—Ru2—Mg6^{xvi}	117.88 (4)	Mg6^{xliv}—Mg10—Mg6^{ii}	81.8 (2)
Mg3^{xii}—Ru2—Mg12^{xvii}	112.91 (14)	Ru1^{l}—Mg10—Mg5^{xliii}	171.6 (3)
Mg3^{xiii}—Ru2—Mg12^{xvii}	175.70 (18)	Ru1^{li}—Mg10—Mg5^{xliii}	65.68 (5)
Mg3—Ru2—Mg12^{xvii}	112.91 (14)	Ru1^{lii}—Mg10—Mg5^{xliii}	65.68 (5)
Mg6^{xiv}—Ru2—Mg12^{xvii}	114.68 (9)	Mg9^{xlii}—Mg10—Mg5^{xliii}	56.3 (2)
Mg6^{xv}—Ru2—Mg12^{xvii}	60.99 (17)	Mg9^{xli}—Mg10—Mg5^{xliii}	117.78 (16)
Mg6^{xvi}—Ru2—Mg12^{xvii}	114.68 (9)	Mg9^{xl}—Mg10—Mg5^{xliii}	117.78 (16)
Mg3^{xii}—Ru2—Mg12^{xviii}	175.70 (18)	Mg6^{xliii}—Mg10—Mg5^{xliii}	129.1 (3)
Mg3^{xiii}—Ru2—Mg12^{xviii}	112.91 (14)	Mg6^{xliv}—Mg10—Mg5^{xliii}	60.92 (10)
Mg3—Ru2—Mg12^{xviii}	112.91 (14)	Mg6^{ii}—Mg10—Mg5^{xliii}	60.92 (10)
Mg6^{xiv}—Ru2—Mg12^{xviii}	60.99 (17)	Ru1^{l}—Mg10—Mg5^{xliv}	65.68 (5)
Mg6^{xv}—Ru2—Mg12^{xviii}	114.68 (9)	Ru1^{li}—Mg10—Mg5^{xliv}	65.68 (5)
Mg6^{xvi}—Ru2—Mg12^{xviii}	114.68 (9)	Ru1^{lii}—Mg10—Mg5^{xliv}	171.6 (3)

Mg12^{xvii}—Ru2—Mg12^{xviii}	63.6 (2)	Mg9^{xlii}—Mg10—Mg5^{xliv}	117.78 (16)
Mg3^{xii}—Ru2—Mg12^{xix}	112.91 (14)	Mg9^{xli}—Mg10—Mg5^{xliv}	117.78 (16)
Mg3^{xiii}—Ru2—Mg12^{xix}	112.91 (14)	Mg9^{xl}—Mg10—Mg5^{xliv}	56.3 (2)
Mg3—Ru2—Mg12^{xix}	175.70 (18)	Mg6^{xliii}—Mg10—Mg5^{xliv}	60.92 (10)
Mg6^{xiv}—Ru2—Mg12^{xix}	114.68 (9)	Mg6^{xliv}—Mg10—Mg5^{xliv}	129.1 (3)
Mg6^{xv}—Ru2—Mg12^{xix}	114.68 (9)	Mg6^{ii}—Mg10—Mg5^{xliv}	60.92 (10)
Mg6^{xvi}—Ru2—Mg12^{xix}	60.99 (17)	Mg5^{xliii}—Mg10—Mg5^{xliv}	117.04 (10)
Mg12^{xvii}—Ru2—Mg12^{xix}	63.6 (2)	Ru1^{l}—Mg10—Mg5^{ii}	65.68 (5)
Mg12^{xviii}—Ru2—Mg12^{xix}	63.6 (2)	Ru1^{li}—Mg10—Mg5^{ii}	171.6 (3)
Mg3^{xii}—Ru2—Mg8	122.33 (9)	Ru1^{lii}—Mg10—Mg5^{ii}	65.68 (5)
Mg3^{xiii}—Ru2—Mg8	122.33 (9)	Mg9^{xlii}—Mg10—Mg5^{ii}	117.78 (16)
Mg3—Ru2—Mg8	65.07 (14)	Mg9^{xli}—Mg10—Mg5^{ii}	56.3 (2)
Mg6^{xiv}—Ru2—Mg8	64.48 (5)	Mg9^{xl}—Mg10—Mg5^{ii}	117.78 (16)
Mg6^{xv}—Ru2—Mg8	64.48 (5)	Mg6^{xliii}—Mg10—Mg5^{ii}	60.92 (10)
Mg6^{xvi}—Ru2—Mg8	171.62 (15)	Mg6^{xliv}—Mg10—Mg5^{ii}	60.92 (10)
Mg12^{xvii}—Ru2—Mg8	58.60 (10)	Mg6^{ii}—Mg10—Mg5^{ii}	129.1 (3)
Mg12^{xviii}—Ru2—Mg8	58.60 (10)	Mg5^{xliii}—Mg10—Mg5^{ii}	117.04 (10)
Mg12^{xix}—Ru2—Mg8	110.63 (19)	Mg5^{xliv}—Mg10—Mg5^{ii}	117.04 (10)
Mg3^{xii}—Ru2—Mg8^{xii}	65.06 (14)	Ru1—Mg4—Ru3^{i}	164.87 (19)
Mg3^{xiii}—Ru2—Mg8^{xii}	122.33 (9)	Ru1—Mg4—Mg2^{xxvi}	132.89 (14)
Mg3—Ru2—Mg8^{xii}	122.33 (9)	Ru3^{i}—Mg4—Mg2^{xxvi}	58.61 (11)
Mg6^{xiv}—Ru2—Mg8^{xii}	171.62 (15)	Ru1—Mg4—Mg2^{xxvii}	132.89 (14)
Mg6^{xv}—Ru2—Mg8^{xii}	64.48 (5)	Ru3^{i}—Mg4—Mg2^{xxvii}	58.61 (11)
Mg6^{xvi}—Ru2—Mg8^{xii}	64.48 (5)	Mg2^{xxvi}—Mg4—Mg2^{xxvii}	61.86 (19)
Mg12^{xvii}—Ru2—Mg8^{xii}	58.60 (10)	Ru1—Mg4—Mg7	107.67 (16)
Mg12^{xviii}—Ru2—Mg8^{xii}	110.63 (19)	Ru3^{i}—Mg4—Mg7	57.20 (10)
Mg12^{xix}—Ru2—Mg8^{xii}	58.60 (10)	Mg2^{xxvi}—Mg4—Mg7	106.91 (15)
Mg8—Ru2—Mg8^{xii}	111.97 (10)	Mg2^{xxvii}—Mg4—Mg7	106.91 (15)
Mg3^{xii}—Ru2—Mg8^{xiii}	122.33 (9)	Ru1—Mg4—Mg3^{xxvi}	115.92 (13)
Mg3^{xiii}—Ru2—Mg8^{xiii}	65.06 (14)	Ru3^{i}—Mg4—Mg3^{xxvi}	58.53 (11)
Mg3—Ru2—Mg8^{xiii}	122.33 (9)	Mg2^{xxvi}—Mg4—Mg3^{xxvi}	58.96 (11)
Mg6^{xiv}—Ru2—Mg8^{xiii}	64.48 (5)	Mg2^{xxvii}—Mg4—Mg3^{xxvi}	108.70 (18)
Mg6^{xv}—Ru2—Mg8^{xiii}	171.62 (15)	Mg7—Mg4—Mg3^{xxvi}	60.14 (11)
Mg6^{xvi}—Ru2—Mg8^{xiii}	64.48 (5)	Ru1—Mg4—Mg3^{xxvii}	115.92 (13)
Mg12^{xvii}—Ru2—Mg8^{xiii}	110.63 (19)	Ru3^{i}—Mg4—Mg3^{xxvii}	58.53 (11)
Mg12^{xviii}—Ru2—Mg8^{xiii}	58.60 (10)	Mg2^{xxvi}—Mg4—Mg3^{xxvii}	108.70 (18)
Mg12^{xix}—Ru2—Mg8^{xiii}	58.60 (10)	Mg2^{xxvii}—Mg4—Mg3^{xxvii}	58.96 (11)
Mg8—Ru2—Mg8^{xiii}	111.97 (10)	Mg7—Mg4—Mg3^{xxvii}	60.14 (11)
Mg8^{xii}—Ru2—Mg8^{xiii}	111.97 (10)	Mg3^{xxvi}—Mg4—Mg3^{xxvii}	108.9 (2)
Mg4—Ru1—Mg4^{i}	77.09 (19)	Ru1—Mg4—Mg5^{x}	67.29 (13)
Mg4—Ru1—Mg9^{ii}	178.6 (3)	Ru3^{i}—Mg4—Mg5^{x}	123.54 (15)
Mg4^{i}—Ru1—Mg9^{ii}	101.5 (3)	Mg2^{xxvi}—Mg4—Mg5^{x}	65.65 (13)
Mg4—Ru1—Mg9^{iii}	101.5 (3)	Mg2^{xxvii}—Mg4—Mg5^{x}	102.60 (18)
Mg4^{i}—Ru1—Mg9^{iii}	178.6 (3)	Mg7—Mg4—Mg5^{x}	140.70 (12)
Mg9^{ii}—Ru1—Mg9^{iii}	79.9 (5)	Mg3^{xxvi}—Mg4—Mg5^{x}	86.21 (13)
Mg4—Ru1—Mg10^{iv}	117.56 (12)	Mg3^{xxvii}—Mg4—Mg5^{x}	158.72 (18)
Mg4^{i}—Ru1—Mg10^{iv}	117.56 (12)	Ru1—Mg4—Mg5^{xi}	67.29 (13)
Mg9^{ii}—Ru1—Mg10^{iv}	63.03 (17)	Ru3^{i}—Mg4—Mg5^{xi}	123.54 (15)

Mg9^{iii}—Ru1—Mg10^{iv}	63.03 (17)	Mg2^{xxvi}—Mg4—Mg5^{xi}	102.60 (18)
Mg4—Ru1—Mg10^{v}	117.56 (12)	Mg2^{xxvii}—Mg4—Mg5^{xi}	65.65 (13)
Mg4^{i}—Ru1—Mg10^{v}	117.56 (12)	Mg7—Mg4—Mg5^{xi}	140.70 (12)
Mg9^{ii}—Ru1—Mg10^{v}	63.03 (17)	Mg3^{xxvi}—Mg4—Mg5^{xi}	158.72 (18)
Mg9^{iii}—Ru1—Mg10^{v}	63.03 (17)	Mg3^{xxvii}—Mg4—Mg5^{xi}	86.21 (13)
Mg10^{iv}—Ru1—Mg10^{v}	107.5 (3)	Mg5^{x}—Mg4—Mg5^{xi}	75.6 (2)
Mg4—Ru1—Mg6^{vi}	69.82 (7)	Ru1—Mg4—Mg6^{vi}	59.10 (10)
Mg4^{i}—Ru1—Mg6^{vi}	69.82 (7)	Ru3^{i}—Mg4—Mg6^{vi}	115.48 (12)
Mg9^{ii}—Ru1—Mg6^{vi}	109.77 (10)	Mg2^{xxvi}—Mg4—Mg6^{vi}	93.39 (10)
Mg9^{iii}—Ru1—Mg6^{vi}	109.77 (10)	Mg2^{xxvii}—Mg4—Mg6^{vi}	154.48 (15)
Mg10^{iv}—Ru1—Mg6^{vi}	62.45 (17)	Mg7—Mg4—Mg6^{vi}	85.21 (12)
Mg10^{v}—Ru1—Mg6^{vi}	169.91 (18)	Mg3^{xxvi}—Mg4—Mg6^{vi}	57.37 (11)
Mg4—Ru1—Mg6^{vii}	69.82 (7)	Mg3^{xxvii}—Mg4—Mg6^{vi}	142.73 (18)
Mg4^{i}—Ru1—Mg6^{vii}	69.82 (7)	Mg5^{x}—Mg4—Mg6^{vi}	58.12 (11)
Mg9^{ii}—Ru1—Mg6^{vii}	109.77 (10)	Mg5^{xi}—Mg4—Mg6^{vi}	118.56 (18)
Mg9^{iii}—Ru1—Mg6^{vii}	109.77 (10)	Ru1—Mg4—Mg6^{vii}	59.10 (10)
Mg10^{iv}—Ru1—Mg6^{vii}	169.91 (18)	Ru3^{i}—Mg4—Mg6^{vii}	115.48 (12)
Mg10^{v}—Ru1—Mg6^{vii}	62.45 (17)	Mg2^{xxvi}—Mg4—Mg6^{vii}	154.48 (15)
Mg6^{vi}—Ru1—Mg6^{vii}	127.65 (17)	Mg2^{xxvii}—Mg4—Mg6^{vii}	93.39 (10)
Mg4—Ru1—Mg5^{viii}	123.17 (11)	Mg7—Mg4—Mg6^{vii}	85.21 (12)
Mg4^{i}—Ru1—Mg5^{viii}	62.98 (10)	Mg3^{xxvi}—Mg4—Mg6^{vii}	142.73 (18)
Mg9^{ii}—Ru1—Mg5^{viii}	55.85 (19)	Mg3^{xxvii}—Mg4—Mg6^{vii}	57.37 (11)
Mg9^{iii}—Ru1—Mg5^{viii}	118.1 (2)	Mg5^{x}—Mg4—Mg6^{vii}	118.56 (18)
Mg10^{iv}—Ru1—Mg5^{viii}	116.25 (12)	Mg5^{xi}—Mg4—Mg6^{vii}	58.12 (11)
Mg10^{v}—Ru1—Mg5^{viii}	59.17 (9)	Mg6^{vi}—Mg4—Mg6^{vii}	110.25 (18)
Mg6^{vi}—Ru1—Mg5^{viii}	123.89 (8)	Ru1—Mg4—Mg4^{i}	51.46 (9)
Mg6^{vii}—Ru1—Mg5^{viii}	59.65 (10)	Ru3^{i}—Mg4—Mg4^{i}	113.42 (10)
Mg4—Ru1—Mg5^{ix}	123.17 (11)	Mg2^{xxvi}—Mg4—Mg4^{i}	146.35 (9)
Mg4^{i}—Ru1—Mg5^{ix}	62.98 (10)	Mg2^{xxvii}—Mg4—Mg4^{i}	146.35 (9)
Mg9^{ii}—Ru1—Mg5^{ix}	55.85 (19)	Mg7—Mg4—Mg4^{i}	56.22 (11)
Mg9^{iii}—Ru1—Mg5^{ix}	118.1 (2)	Mg3^{xxvi}—Mg4—Mg4^{i}	88.44 (11)
Mg10^{iv}—Ru1—Mg5^{ix}	59.17 (9)	Mg3^{xxvii}—Mg4—Mg4^{i}	88.44 (11)
Mg10^{v}—Ru1—Mg5^{ix}	116.25 (12)	Mg5^{x}—Mg4—Mg4^{i}	107.37 (12)
Mg6^{vi}—Ru1—Mg5^{ix}	59.65 (10)	Mg5^{xi}—Mg4—Mg4^{i}	107.37 (12)
Mg6^{vii}—Ru1—Mg5^{ix}	123.89 (8)	Mg6^{vi}—Mg4—Mg4^{i}	58.90 (9)
Mg5^{viii}—Ru1—Mg5^{ix}	72.62 (18)	Mg6^{vii}—Mg4—Mg4^{i}	58.90 (9)
Mg4—Ru1—Mg5^{x}	62.97 (10)	Ru3^{i}—Mg2—Mg2^{xxv}	177.23 (9)
Mg4^{i}—Ru1—Mg5^{x}	123.17 (11)	Ru3^{i}—Mg2—Mg3	59.54 (11)
Mg9^{ii}—Ru1—Mg5^{x}	118.1 (2)	Mg2^{xxv}—Mg2—Mg3	123.23 (11)
Mg9^{iii}—Ru1—Mg5^{x}	55.85 (19)	Ru3^{i}—Mg2—Mg4^{xxvii}	58.98 (10)
Mg10^{iv}—Ru1—Mg5^{x}	59.17 (9)	Mg2^{xxv}—Mg2—Mg4^{xxvii}	121.79 (11)
Mg10^{v}—Ru1—Mg5^{x}	116.25 (12)	Mg3—Mg2—Mg4^{xxvii}	61.51 (10)
Mg6^{vi}—Ru1—Mg5^{x}	59.65 (10)	Ru3^{i}—Mg2—Mg4^{xxvi}	58.98 (10)
Mg6^{vii}—Ru1—Mg5^{x}	123.89 (8)	Mg2^{xxv}—Mg2—Mg4^{xxvi}	121.79 (11)
Mg5^{viii}—Ru1—Mg5^{x}	173.20 (15)	Mg3—Mg2—Mg4^{xxvi}	61.51 (10)
Mg5^{ix}—Ru1—Mg5^{x}	106.96 (17)	Mg4^{xxvii}—Mg2—Mg4^{xxvi}	110.1 (2)
Mg4—Ru1—Mg5^{xi}	62.97 (10)	Ru3^{i}—Mg2—Mg13^{liii}	116.98 (12)
Mg4^{i}—Ru1—Mg5^{xi}	123.17 (11)	Mg2^{xxv}—Mg2—Mg13^{liii}	60.87 (8)

Mg9^{ii}—Ru1—Mg5^{xi}	118.1 (2)	Mg3—Mg2—Mg13^{liii}	146.2 (6)
Mg9^{iii}—Ru1—Mg5^{xi}	55.85 (19)	Mg4^{xxvii}—Mg2—Mg13^{liii}	149.7 (6)
Mg10^{iv}—Ru1—Mg5^{xi}	116.25 (12)	Mg4^{xxvi}—Mg2—Mg13^{liii}	87.3 (5)
Mg10^{v}—Ru1—Mg5^{xi}	59.17 (9)	Ru3^{i}—Mg2—Mg13^{liv}	116.98 (12)
Mg6^{vi}—Ru1—Mg5^{xi}	123.89 (8)	Mg2^{xxv}—Mg2—Mg13^{liv}	60.87 (8)
Mg6^{vii}—Ru1—Mg5^{xi}	59.65 (10)	Mg3—Mg2—Mg13^{liv}	146.2 (6)
Mg5^{viii}—Ru1—Mg5^{xi}	106.96 (17)	Mg4^{xxvii}—Mg2—Mg13^{liv}	87.3 (5)
Mg5^{ix}—Ru1—Mg5^{xi}	173.20 (15)	Mg4^{xxvi}—Mg2—Mg13^{liv}	149.7 (6)
Mg5^{x}—Ru1—Mg5^{xi}	72.62 (18)	Ru3^{i}—Mg2—Mg2^{xxvi}	57.75 (7)
Mg13^{xxii}—Mg1—Mg13	109.471 (6)	Mg2^{xxv}—Mg2—Mg2^{xxvi}	120.0
Mg13^{xxiii}—Mg1—Mg13	109.471 (6)	Mg3—Mg2—Mg2^{xxvi}	108.51 (10)
Mg13^{ii}—Mg1—Mg13	109.471 (3)	Mg4^{xxvii}—Mg2—Mg2^{xxvi}	59.07 (9)
Mg11^{xxiii}—Mg1—Mg11^{xxii}	109.5	Mg4^{xxvi}—Mg2—Mg2^{xxvi}	107.79 (10)
Mg11^{xxiii}—Mg1—Mg11^{ii}	109.471 (1)	Mg13^{liii}—Mg2—Mg2^{xxvi}	92.5 (5)
Mg11^{xxii}—Mg1—Mg11^{ii}	109.5	Mg13^{liv}—Mg2—Mg2^{xxvi}	59.26 (8)
Mg11^{xxiii}—Mg1—Mg11	109.471 (2)	Ru3^{i}—Mg2—Mg2^{xxvii}	57.75 (7)
Mg11^{xxii}—Mg1—Mg11	109.471 (2)	Mg2^{xxv}—Mg2—Mg2^{xxvii}	120.0
Mg11^{ii}—Mg1—Mg11	109.471 (1)	Mg3—Mg2—Mg2^{xxvii}	108.51 (10)
Mg13^{xxii}—Mg1—Mg2^{xxi}	100.74 (7)	Mg4^{xxvii}—Mg2—Mg2^{xxvii}	107.79 (10)
Mg13^{xxiii}—Mg1—Mg2^{xxi}	58.314 (19)	Mg4^{xxvi}—Mg2—Mg2^{xxvii}	59.07 (10)
Mg13^{ii}—Mg1—Mg2^{xxi}	58.314 (19)	Mg13^{liii}—Mg2—Mg2^{xxvii}	59.26 (8)
Mg13—Mg1—Mg2^{xxi}	149.79 (7)	Mg13^{liv}—Mg2—Mg2^{xxvii}	92.5 (5)
Mg11^{xxiii}—Mg1—Mg2^{xxi}	58.314 (19)	Mg2^{xxvi}—Mg2—Mg2^{xxvii}	60.0
Mg11^{xxii}—Mg1—Mg2^{xxi}	100.74 (7)	Ru3^{i}—Mg2—Mg11^{liii}	116.04 (10)
Mg11^{ii}—Mg1—Mg2^{xxi}	58.314 (19)	Mg2^{xxv}—Mg2—Mg11^{liii}	62.38 (8)
Mg11—Mg1—Mg2^{xxi}	149.79 (7)	Mg3—Mg2—Mg11^{liii}	132.1 (3)
Mg11^{xxiii}—Mg1—Mg2^{i}	58.314 (19)	Mg4^{xxvii}—Mg2—Mg11^{liii}	163.2 (3)
Mg11^{xxii}—Mg1—Mg2^{i}	58.314 (19)	Mg4^{xxvi}—Mg2—Mg11^{liii}	75.8 (2)
Mg11^{ii}—Mg1—Mg2^{i}	100.74 (7)	Mg2^{xxvi}—Mg2—Mg11^{liii}	104.3 (2)
Mg11—Mg1—Mg2^{i}	149.79 (7)	Mg2^{xxvii}—Mg2—Mg11^{liii}	60.88 (9)
Mg2^{xxi}—Mg1—Mg2^{i}	51.67 (11)	Ru3^{i}—Mg2—Mg11^{liv}	116.04 (10)
Mg13^{xxii}—Mg1—Mg2^{xx}	58.314 (19)	Mg2^{xxv}—Mg2—Mg11^{liv}	62.38 (8)
Mg13^{xxiii}—Mg1—Mg2^{xx}	100.74 (7)	Mg3—Mg2—Mg11^{liv}	132.1 (3)
Mg13^{ii}—Mg1—Mg2^{xx}	58.314 (19)	Mg4^{xxvii}—Mg2—Mg11^{liv}	75.8 (2)
Mg13—Mg1—Mg2^{xx}	149.79 (7)	Mg4^{xxvi}—Mg2—Mg11^{liv}	163.2 (3)
Mg11^{xxiii}—Mg1—Mg2^{xx}	100.74 (7)	Mg2^{xxvi}—Mg2—Mg11^{liv}	60.88 (9)
Mg11^{xxii}—Mg1—Mg2^{xx}	58.314 (19)	Mg2^{xxvii}—Mg2—Mg11^{liv}	104.3 (2)
Mg11^{ii}—Mg1—Mg2^{xx}	58.314 (19)	Mg11^{liii}—Mg2—Mg11^{liv}	94.3 (5)
Mg11—Mg1—Mg2^{xx}	149.79 (7)	Ru3^{i}—Mg2—Mg5^{xxviii}	117.44 (9)
Mg2^{xxi}—Mg1—Mg2^{xx}	51.67 (11)	Mg2^{xxv}—Mg2—Mg5^{xxviii}	63.81 (7)
Mg2^{i}—Mg1—Mg2^{xx}	51.67 (11)	Mg3—Mg2—Mg5^{xxviii}	84.07 (12)
Mg13^{xxii}—Mg1—Mg2^{xxiv}	58.314 (19)	Mg4^{xxvii}—Mg2—Mg5^{xxviii}	142.43 (18)
Mg13^{xxiii}—Mg1—Mg2^{xxiv}	100.74 (7)	Mg4^{xxvi}—Mg2—Mg5^{xxviii}	59.11 (9)
Mg13^{ii}—Mg1—Mg2^{xxiv}	149.79 (7)	Mg13^{liii}—Mg2—Mg5^{xxviii}	67.7 (5)
Mg13—Mg1—Mg2^{xxiv}	58.314 (19)	Mg13^{liv}—Mg2—Mg5^{xxviii}	120.4 (3)
Mg11^{xxiii}—Mg1—Mg2^{xxiv}	100.74 (7)	Mg2^{xxvi}—Mg2—Mg5^{xxviii}	155.63 (11)
Mg11^{xxii}—Mg1—Mg2^{xxiv}	58.314 (19)	Mg2^{xxvii}—Mg2—Mg5^{xxviii}	96.55 (10)
Mg11^{ii}—Mg1—Mg2^{xxiv}	149.79 (7)	Mg11^{liii}—Mg2—Mg5^{xxviii}	54.3 (2)

Mg11—Mg1—Mg2^{xxiv}	58.314 (19)	Mg11^{liv}—Mg2—Mg5^{xxviii}	125.80 (16)
Mg2^{xxi}—Mg1—Mg2^{xxiv}	145.86 (9)	Mg12^{xvii}—Mg8—Mg12^{xviii}	63.5 (4)
Mg2^{i}—Mg1—Mg2^{xxiv}	94.94 (3)	Mg12^{xvii}—Mg8—Ru2	58.51 (14)
Mg2^{xx}—Mg1—Mg2^{xxiv}	116.61 (4)	Mg12^{xviii}—Mg8—Ru2	58.51 (14)
Mg1—Mg11—Mg5^{xxxii}	131.6 (2)	Mg12^{xvii}—Mg8—Ru2^{xxv}	58.51 (14)
Mg1—Mg11—Mg5^{xxxiii}	131.6 (2)	Mg12^{xviii}—Mg8—Ru2^{xxv}	58.51 (14)
Mg5^{xxxii}—Mg11—Mg5^{xxxiii}	80.7 (4)	Ru2—Mg8—Ru2^{xxv}	104.2 (2)
Mg1—Mg11—Mg5^{xlv}	131.6 (2)	Mg12^{xvii}—Mg8—Mg3^{xxv}	101.53 (14)
Mg5^{xxxii}—Mg11—Mg5^{xlv}	80.7 (4)	Mg12^{xviii}—Mg8—Mg3^{xxv}	101.53 (14)
Mg5^{xxxiii}—Mg11—Mg5^{xlv}	80.7 (4)	Ru2—Mg8—Mg3^{xxv}	155.7 (3)
Mg1—Mg11—Mg2^{viii}	71.9 (3)	Ru2^{xxv}—Mg8—Mg3^{xxv}	51.49 (9)
Mg5^{xxxii}—Mg11—Mg2^{viii}	65.57 (12)	Mg12^{xvii}—Mg8—Mg3	101.53 (14)
Mg5^{xxxiii}—Mg11—Mg2^{viii}	144.8 (3)	Mg12^{xviii}—Mg8—Mg3	101.53 (14)
Mg5^{xlv}—Mg11—Mg2^{viii}	102.52 (13)	Ru2—Mg8—Mg3	51.50 (9)
Mg1—Mg11—Mg2^{xxx}	71.9 (3)	Ru2^{xxv}—Mg8—Mg3	155.7 (3)
Mg5^{xxxii}—Mg11—Mg2^{xxx}	102.52 (13)	Mg3^{xxv}—Mg8—Mg3	152.8 (3)
Mg5^{xxxiii}—Mg11—Mg2^{xxx}	144.8 (3)	Mg12^{xvii}—Mg8—Mg5^{xxviii}	157.0 (3)
Mg5^{xlv}—Mg11—Mg2^{xxx}	65.57 (12)	Mg12^{xviii}—Mg8—Mg5^{xxviii}	93.47 (18)
Mg2^{viii}—Mg11—Mg2^{xxx}	58.24 (17)	Ru2—Mg8—Mg5^{xxviii}	110.75 (5)
Mg1—Mg11—Mg2^{xxix}	71.9 (3)	Ru2^{xxv}—Mg8—Mg5^{xxviii}	110.75 (5)
Mg5^{xxxii}—Mg11—Mg2^{xxix}	65.57 (12)	Mg3^{xxv}—Mg8—Mg5^{xxviii}	82.21 (12)
Mg5^{xxxiii}—Mg11—Mg2^{xxix}	102.52 (13)	Mg3—Mg8—Mg5^{xxviii}	82.21 (12)
Mg5^{xlv}—Mg11—Mg2^{xxix}	144.8 (3)	Mg12^{xvii}—Mg8—Mg5^{xxxix}	93.47 (18)
Mg2^{viii}—Mg11—Mg2^{xxix}	55.23 (17)	Mg12^{xviii}—Mg8—Mg5^{xxxix}	157.0 (3)
Mg2^{xxx}—Mg11—Mg2^{xxix}	110.8 (2)	Ru2—Mg8—Mg5^{xxxix}	110.75 (5)
Mg1—Mg11—Mg2^{xxiv}	71.9 (3)	Ru2^{xxv}—Mg8—Mg5^{xxxix}	110.75 (5)
Mg5^{xxxii}—Mg11—Mg2^{xxiv}	102.52 (13)	Mg3^{xxv}—Mg8—Mg5^{xxxix}	82.21 (12)
Mg5^{xxxiii}—Mg11—Mg2^{xxiv}	65.57 (12)	Mg3—Mg8—Mg5^{xxxix}	82.21 (12)
Mg5^{xlv}—Mg11—Mg2^{xxiv}	144.8 (3)	Mg5^{xxviii}—Mg8—Mg5^{xxxix}	109.5 (3)
Mg2^{viii}—Mg11—Mg2^{xxiv}	110.8 (2)	Mg12^{xvii}—Mg8—Mg6^{lv}	57.54 (14)
Mg2^{xxx}—Mg11—Mg2^{xxiv}	143.7 (5)	Mg12^{xviii}—Mg8—Mg6^{lv}	106.3 (3)
Mg2^{xxix}—Mg11—Mg2^{xxiv}	58.24 (17)	Ru2—Mg8—Mg6^{lv}	113.00 (18)
Mg1—Mg11—Mg2^{ix}	71.9 (3)	Ru2^{xxv}—Mg8—Mg6^{lv}	54.82 (9)
Mg5^{xxxii}—Mg11—Mg2^{ix}	144.8 (3)	Mg3^{xxv}—Mg8—Mg6^{lv}	55.95 (7)
Mg5^{xxxiii}—Mg11—Mg2^{ix}	65.57 (12)	Mg3—Mg8—Mg6^{lv}	129.12 (8)
Mg5^{xlv}—Mg11—Mg2^{ix}	102.52 (13)	Mg5^{xxviii}—Mg8—Mg6^{lv}	136.12 (17)
Mg2^{viii}—Mg11—Mg2^{ix}	143.7 (5)	Mg5^{xxxix}—Mg8—Mg6^{lv}	56.86 (9)
Mg2^{xxx}—Mg11—Mg2^{ix}	110.8 (2)	Mg12^{xvii}—Mg8—Mg6^{lvi}	106.3 (3)
Mg2^{xxix}—Mg11—Mg2^{ix}	110.8 (2)	Mg12^{xviii}—Mg8—Mg6^{lvi}	57.54 (14)
Mg2^{xxiv}—Mg11—Mg2^{ix}	55.23 (17)	Ru2—Mg8—Mg6^{lvi}	113.00 (18)
Mg1—Mg11—Mg2^{xxxi}	71.9 (3)	Ru2^{xxv}—Mg8—Mg6^{lvi}	54.82 (9)
Mg5^{xxxii}—Mg11—Mg2^{xxxi}	144.8 (3)	Mg3^{xxv}—Mg8—Mg6^{lvi}	55.95 (7)
Mg5^{xxxiii}—Mg11—Mg2^{xxxi}	102.52 (13)	Mg3—Mg8—Mg6^{lvi}	129.12 (8)
Mg5^{xlv}—Mg11—Mg2^{xxxi}	65.57 (12)	Mg5^{xxviii}—Mg8—Mg6^{lvi}	56.86 (9)
Mg2^{viii}—Mg11—Mg2^{xxxi}	110.8 (2)	Mg5^{xxxix}—Mg8—Mg6^{lvi}	136.12 (17)
Mg2^{xxx}—Mg11—Mg2^{xxxi}	55.23 (17)	Mg6^{lv}—Mg8—Mg6^{lvi}	101.77 (15)
Mg2^{xxix}—Mg11—Mg2^{xxxi}	143.7 (5)	Mg12^{xvii}—Mg8—Mg6^{xiv}	106.3 (3)
Mg2^{xxiv}—Mg11—Mg2^{xxxi}	110.8 (2)	Mg12^{xviii}—Mg8—Mg6^{xiv}	57.54 (14)

Mg2^{ix}—Mg11—Mg2^{xxxi}	58.24 (17)
Mg1—Mg13—Mg2^{viii}	86.3 (6)
Mg1—Mg13—Mg2^{xxix}	86.3 (6)
Mg2^{viii}—Mg13—Mg2^{xxix}	58.26 (16)
Mg1—Mg13—Mg2^{xxiv}	86.3 (6)
Mg2^{viii}—Mg13—Mg2^{xxiv}	119.60 (13)
Mg2^{xxix}—Mg13—Mg2^{xxiv}	61.47 (16)
Mg1—Mg13—Mg2^{ix}	86.3 (6)
Mg2^{viii}—Mg13—Mg2^{ix}	172.5 (12)
Mg2^{xxix}—Mg13—Mg2^{ix}	119.60 (13)
Mg2^{xxiv}—Mg13—Mg2^{ix}	58.26 (16)
Mg1—Mg13—Mg2^{xxx}	86.3 (6)
Mg2^{viii}—Mg13—Mg2^{xxx}	61.47 (16)
Mg2^{xxix}—Mg13—Mg2^{xxx}	119.60 (13)
Mg2^{xxiv}—Mg13—Mg2^{xxx}	172.5 (12)
Mg2^{ix}—Mg13—Mg2^{xxx}	119.60 (13)
Mg1—Mg13—Mg2^{xxxi}	86.3 (6)
Mg2^{viii}—Mg13—Mg2^{xxxi}	119.60 (13)
Mg2^{xxix}—Mg13—Mg2^{xxxi}	172.5 (12)
Mg2^{xxiv}—Mg13—Mg2^{xxxi}	119.60 (13)
Mg2^{ix}—Mg13—Mg2^{xxxi}	61.47 (16)
Mg2^{xxx}—Mg13—Mg2^{xxxi}	58.26 (16)
Mg1—Mg13—Mg13^{ii}	35.263 (2)
Mg2^{viii}—Mg13—Mg13^{ii}	87.5 (5)
Mg2^{xxix}—Mg13—Mg13^{ii}	116.3 (6)
Mg2^{xxiv}—Mg13—Mg13^{ii}	116.3 (6)
Mg2^{ix}—Mg13—Mg13^{ii}	87.5 (5)
Mg2^{xxx}—Mg13—Mg13^{ii}	56.3 (6)
Mg2^{xxxi}—Mg13—Mg13^{ii}	56.3 (6)
Mg1—Mg13—Mg13^{xxii}	35.263 (1)
Mg2^{viii}—Mg13—Mg13^{xxii}	116.3 (6)
Mg2^{xxix}—Mg13—Mg13^{xxii}	87.5 (5)
Mg2^{xxiv}—Mg13—Mg13^{xxii}	56.3 (6)
Mg2^{ix}—Mg13—Mg13^{xxii}	56.3 (6)
Mg2^{xxx}—Mg13—Mg13^{xxii}	116.3 (6)
Mg2^{xxxi}—Mg13—Mg13^{xxii}	87.5 (5)
Mg1—Mg13—Mg13^{xxiii}	35.263 (2)
Mg2^{viii}—Mg13—Mg13^{xxiii}	56.3 (6)
Mg2^{xxix}—Mg13—Mg13^{xxiii}	56.3 (6)
Mg2^{xxiv}—Mg13—Mg13^{xxiii}	87.5 (5)
Mg2^{ix}—Mg13—Mg13^{xxiii}	116.3 (6)
Mg2^{xxx}—Mg13—Mg13^{xxiii}	87.5 (5)
Mg2^{xxxi}—Mg13—Mg13^{xxiii}	116.3 (6)
Mg1—Mg13—Mg5^{xxxii}	141.3 (3)
Mg2^{viii}—Mg13—Mg5^{xxxii}	60.3 (3)
Mg2^{xxix}—Mg13—Mg5^{xxxii}	60.3 (3)
Mg2^{xxiv}—Mg13—Mg5^{xxxii}	93.4 (5)
Mg2^{ix}—Mg13—Mg5^{xxxii}	125.9 (8)
Ru2—Mg8—Mg6^{xiv}	54.82 (9)
Ru2^{xxv}—Mg8—Mg6^{xiv}	113.00 (18)
Mg3^{xxv}—Mg8—Mg6^{xiv}	129.12 (8)
Mg3—Mg8—Mg6^{xiv}	55.95 (7)
Mg5^{xxviii}—Mg8—Mg6^{xiv}	56.86 (9)
Mg5^{xxxix}—Mg8—Mg6^{xiv}	136.12 (17)
Mg6^{lv}—Mg8—Mg6^{xiv}	162.6 (3)
Mg6^{lvi}—Mg8—Mg6^{xiv}	75.55 (14)
Mg12^{xvii}—Mg8—Mg6^{xv}	57.54 (14)
Mg12^{xviii}—Mg8—Mg6^{xv}	106.3 (3)
Ru2—Mg8—Mg6^{xv}	54.82 (9)
Ru2^{xxv}—Mg8—Mg6^{xv}	113.00 (18)
Mg3^{xxv}—Mg8—Mg6^{xv}	129.12 (8)
Mg3—Mg8—Mg6^{xv}	55.95 (7)
Mg5^{xxviii}—Mg8—Mg6^{xv}	136.12 (17)
Mg5^{xxxix}—Mg8—Mg6^{xv}	56.86 (9)
Mg6^{lv}—Mg8—Mg6^{xv}	75.55 (14)
Mg6^{lvi}—Mg8—Mg6^{xv}	162.6 (3)
Mg6^{xiv}—Mg8—Mg6^{xv}	101.77 (15)
Ru2^{lvii}—Mg12—Ru2^{lviii}	110.90 (14)
Ru2^{lvii}—Mg12—Ru2^{lix}	110.90 (14)
Ru2^{lviii}—Mg12—Ru2^{lix}	110.90 (14)
Ru2^{lvii}—Mg12—Mg8^{lx}	62.89 (4)
Ru2^{lviii}—Mg12—Mg8^{lx}	62.89 (4)
Ru2^{lix}—Mg12—Mg8^{lx}	165.5 (3)
Ru2^{lvii}—Mg12—Mg8^{lxi}	165.5 (3)
Ru2^{lviii}—Mg12—Mg8^{lxi}	62.89 (4)
Ru2^{lix}—Mg12—Mg8^{lxi}	62.89 (4)
Mg8^{lx}—Mg12—Mg8^{lxi}	119.63 (4)
Ru2^{lvii}—Mg12—Mg8^{lix}	62.89 (4)
Ru2^{lviii}—Mg12—Mg8^{lix}	165.5 (3)
Ru2^{lix}—Mg12—Mg8^{lix}	62.89 (4)
Mg8^{lx}—Mg12—Mg8^{lix}	119.63 (4)
Mg8^{lxi}—Mg12—Mg8^{lix}	119.63 (4)
Ru2^{lvii}—Mg12—Mg6^{xliv}	58.45 (9)
Ru2^{lviii}—Mg12—Mg6^{xliv}	124.22 (10)
Ru2^{lix}—Mg12—Mg6^{xliv}	124.22 (10)
Mg8^{lx}—Mg12—Mg6^{xliv}	65.20 (10)
Mg8^{lxi}—Mg12—Mg6^{xliv}	136.1 (3)
Mg8^{lix}—Mg12—Mg6^{xliv}	65.20 (10)
Ru2^{lvii}—Mg12—Mg6^{xliii}	124.22 (10)
Ru2^{lviii}—Mg12—Mg6^{xliii}	124.22 (10)
Ru2^{lix}—Mg12—Mg6^{xliii}	58.45 (9)
Mg8^{lx}—Mg12—Mg6^{xliii}	136.1 (3)
Mg8^{lxi}—Mg12—Mg6^{xliii}	65.20 (10)
Mg8^{lix}—Mg12—Mg6^{xliii}	65.20 (10)
Mg6^{xliv}—Mg12—Mg6^{xliii}	82.5 (2)
Ru2^{lvii}—Mg12—Mg6^{ii}	124.22 (10)

Mg2^{xxx}—Mg13—Mg5^{xxxii}	93.4 (5)
Mg2^{xxxi}—Mg13—Mg5^{xxxii}	125.9 (8)
Mg13^{ii}—Mg13—Mg5^{xxxii}	144.83 (16)
Mg13^{xxii}—Mg13—Mg5^{xxxii}	144.83 (16)
Mg13^{xxiii}—Mg13—Mg5^{xxxii}	106.0 (3)
Mg1—Mg13—Mg5^{xxxiii}	141.3 (3)
Mg2^{viii}—Mg13—Mg5^{xxxiii}	125.9 (8)
Mg2^{xxix}—Mg13—Mg5^{xxxiii}	93.4 (5)
Mg2^{xxiv}—Mg13—Mg5^{xxxiii}	60.3 (3)
Mg2^{ix}—Mg13—Mg5^{xxxiii}	60.3 (3)
Mg2^{xxx}—Mg13—Mg5^{xxxiii}	125.9 (8)
Mg2^{xxxi}—Mg13—Mg5^{xxxiii}	93.4 (5)
Mg13^{ii}—Mg13—Mg5^{xxxiii}	144.83 (16)
Mg13^{xxii}—Mg13—Mg5^{xxxiii}	106.0 (3)
Mg13^{xxiii}—Mg13—Mg5^{xxxiii}	144.83 (16)
Mg5^{xxxii}—Mg13—Mg5^{xxxiii}	65.6 (5)
Ru3^{i}—Mg7—Ru3	173.4 (2)
Ru3^{i}—Mg7—Mg4^{i}	127.1 (2)
Ru3—Mg7—Mg4^{i}	59.49 (11)
Ru3^{i}—Mg7—Mg4	59.50 (11)
Ru3—Mg7—Mg4	127.1 (2)
Mg4^{i}—Mg7—Mg4	67.6 (2)
Ru3^{i}—Mg7—Mg3^{xx}	122.37 (9)
Ru3—Mg7—Mg3^{xx}	59.46 (8)
Mg4^{i}—Mg7—Mg3^{xx}	60.76 (9)
Mg4—Mg7—Mg3^{xx}	95.32 (14)
Ru3^{i}—Mg7—Mg3^{xxi}	122.37 (9)
Ru3—Mg7—Mg3^{xxi}	59.46 (8)
Mg4^{i}—Mg7—Mg3^{xxi}	60.76 (9)
Mg4—Mg7—Mg3^{xxi}	95.32 (14)
Mg3^{xx}—Mg7—Mg3^{xxi}	109.89 (17)
Ru3^{i}—Mg7—Mg3^{xxvi}	59.46 (8)
Ru3—Mg7—Mg3^{xxvi}	122.37 (8)
Mg4^{i}—Mg7—Mg3^{xxvi}	95.32 (14)
Mg4—Mg7—Mg3^{xxvi}	60.76 (9)
Mg3^{xx}—Mg7—Mg3^{xxvi}	152.5 (2)
Mg3^{xxi}—Mg7—Mg3^{xxvi}	63.02 (15)
Ru3^{i}—Mg7—Mg3^{xxvii}	59.46 (8)
Ru3—Mg7—Mg3^{xxvii}	122.37 (9)
Mg4^{i}—Mg7—Mg3^{xxvii}	95.32 (14)
Mg4—Mg7—Mg3^{xxvii}	60.76 (9)
Mg3^{xx}—Mg7—Mg3^{xxvii}	63.02 (15)
Mg3^{xxi}—Mg7—Mg3^{xxvii}	152.5 (2)
Mg3^{xxvi}—Mg7—Mg3^{xxvii}	109.89 (17)
Ru3^{i}—Mg7—Mg7^{xxvi}	57.34 (10)
Ru3—Mg7—Mg7^{xxvi}	117.31 (10)
Mg4^{i}—Mg7—Mg7^{xxvi}	149.967 (5)
Mg4—Mg7—Mg7^{xxvi}	108.04 (9)
Ru2^{lviii}—Mg12—Mg6^{ii}	58.45 (9)
Ru2^{lix}—Mg12—Mg6^{ii}	124.22 (10)
Mg8^{lx}—Mg12—Mg6^{ii}	65.20 (10)
Mg8^{lxi}—Mg12—Mg6^{ii}	65.20 (10)
Mg8^{lix}—Mg12—Mg6^{ii}	136.1 (3)
Mg6^{xliv}—Mg12—Mg6^{ii}	82.5 (2)
Mg6^{xliii}—Mg12—Mg6^{ii}	82.5 (2)
Ru2^{lvii}—Mg12—Mg12^{xlvi}	107.26 (15)
Ru2^{lviii}—Mg12—Mg12^{xlvi}	58.21 (12)
Ru2^{lix}—Mg12—Mg12^{xlvi}	58.21 (12)
Mg8^{lx}—Mg12—Mg12^{xlvi}	109.76 (15)
Mg8^{lxi}—Mg12—Mg12^{xlvi}	58.24 (18)
Mg8^{lix}—Mg12—Mg12^{xlvi}	109.76 (15)
Mg6^{xliv}—Mg12—Mg12^{xlvi}	165.71 (14)
Mg6^{xliii}—Mg12—Mg12^{xlvi}	108.06 (12)
Mg6^{ii}—Mg12—Mg12^{xlvi}	108.06 (12)
Ru2^{lvii}—Mg12—Mg12^{xlvii}	58.21 (12)
Ru2^{lviii}—Mg12—Mg12^{xlvii}	107.26 (15)
Ru2^{lix}—Mg12—Mg12^{xlvii}	58.21 (12)
Mg8^{lx}—Mg12—Mg12^{xlvii}	109.76 (15)
Mg8^{lxi}—Mg12—Mg12^{xlvii}	109.76 (15)
Mg8^{lix}—Mg12—Mg12^{xlvii}	58.24 (18)
Mg6^{xliv}—Mg12—Mg12^{xlvii}	108.06 (12)
Mg6^{xliii}—Mg12—Mg12^{xlvii}	108.06 (12)
Mg6^{ii}—Mg12—Mg12^{xlvii}	165.71 (14)
Mg12^{xlvi}—Mg12—Mg12^{xlvii}	59.998 (1)
Ru2^{lvii}—Mg12—Mg12^{xlviii}	58.21 (12)
Ru2^{lviii}—Mg12—Mg12^{xlviii}	58.21 (12)
Ru2^{lix}—Mg12—Mg12^{xlviii}	107.26 (15)
Mg8^{lx}—Mg12—Mg12^{xlviii}	58.24 (18)
Mg8^{lxi}—Mg12—Mg12^{xlviii}	109.76 (15)
Mg8^{lix}—Mg12—Mg12^{xlviii}	109.76 (15)
Mg6^{xliv}—Mg12—Mg12^{xlviii}	108.06 (12)
Mg6^{xliii}—Mg12—Mg12^{xlviii}	165.71 (14)
Mg6^{ii}—Mg12—Mg12^{xlviii}	108.06 (12)
Mg12^{xlvi}—Mg12—Mg12^{xlviii}	59.998 (1)
Mg12^{xlvii}—Mg12—Mg12^{xlviii}	59.998 (1)
Mg9^{iii}—Mg5—Mg11^{iii}	80.5 (3)
Mg9^{iii}—Mg5—Mg10^{ii}	60.5 (3)
Mg11^{iii}—Mg5—Mg10^{ii}	141.1 (3)
Mg9^{iii}—Mg5—Mg6^{xxxv}	104.3 (2)
Mg11^{iii}—Mg5—Mg6^{xxxv}	138.97 (10)
Mg10^{ii}—Mg5—Mg6^{xxxv}	59.41 (15)
Mg9^{iii}—Mg5—Mg6^{xxxiv}	104.3 (2)
Mg11^{iii}—Mg5—Mg6^{xxxiv}	138.97 (10)
Mg10^{ii}—Mg5—Mg6^{xxxiv}	59.41 (15)
Mg6^{xxxv}—Mg5—Mg6^{xxxiv}	80.3 (2)
Mg9^{iii}—Mg5—Mg4^{x}	89.90 (13)

Mg3^{xx}—Mg7—Mg7^{xxvi}	91.17 (10)	Mg11^{iii}—Mg5—Mg4^{x}	76.82 (12)
Mg3^{xxi}—Mg7—Mg7^{xxvi}	147.03 (11)	Mg10^{ii}—Mg5—Mg4^{x}	101.54 (12)
Mg3^{xxvi}—Mg7—Mg7^{xxvi}	108.44 (9)	Mg6^{xxxv}—Mg5—Mg4^{x}	62.62 (11)
Mg3^{xxvii}—Mg7—Mg7^{xxvi}	59.85 (11)	Mg6^{xxxiv}—Mg5—Mg4^{x}	142.63 (19)
Ru3^{i}—Mg7—Mg7^{xxxviii}	57.34 (10)	Mg9^{iii}—Mg5—Mg4^{xi}	89.90 (13)
Ru3—Mg7—Mg7^{xxxviii}	117.31 (10)	Mg11^{iii}—Mg5—Mg4^{xi}	76.82 (12)
Mg4^{i}—Mg7—Mg7^{xxxviii}	149.967 (5)	Mg10^{ii}—Mg5—Mg4^{xi}	101.54 (12)
Mg4—Mg7—Mg7^{xxxviii}	108.04 (9)	Mg6^{xxxv}—Mg5—Mg4^{xi}	142.63 (19)
Mg3^{xx}—Mg7—Mg7^{xxxviii}	147.03 (11)	Mg6^{xxxiv}—Mg5—Mg4^{xi}	62.62 (11)
Mg3^{xxi}—Mg7—Mg7^{xxxviii}	91.17 (10)	Mg4^{x}—Mg5—Mg4^{xi}	153.3 (2)
Mg3^{xxvi}—Mg7—Mg7^{xxxviii}	59.85 (11)	Mg9^{iii}—Mg5—Mg8^{xxxix}	160.6 (3)
Mg3^{xxvii}—Mg7—Mg7^{xxxviii}	108.44 (9)	Mg11^{iii}—Mg5—Mg8^{xxxix}	118.9 (3)
Mg7^{xxvi}—Mg7—Mg7^{xxxviii}	60.000 (1)	Mg10^{ii}—Mg5—Mg8^{xxxix}	100.1 (2)
Ru3^{i}—Mg7—Mg7^{xiii}	117.31 (10)	Mg6^{xxxv}—Mg5—Mg8^{xxxix}	61.79 (16)
Ru3—Mg7—Mg7^{xiii}	57.34 (10)	Mg6^{xxxiv}—Mg5—Mg8^{xxxix}	61.79 (16)
Mg4^{i}—Mg7—Mg7^{xiii}	108.04 (9)	Mg4^{x}—Mg5—Mg8^{xxxix}	94.49 (11)
Mg4—Mg7—Mg7^{xiii}	149.967 (5)	Mg4^{xi}—Mg5—Mg8^{xxxix}	94.49 (11)
Mg3^{xx}—Mg7—Mg7^{xiii}	59.85 (11)	Mg9^{iii}—Mg5—Ru1^{xi}	53.82 (11)
Mg3^{xxi}—Mg7—Mg7^{xiii}	108.44 (9)	Mg11^{iii}—Mg5—Ru1^{xi}	102.8 (2)
Mg3^{xxvi}—Mg7—Mg7^{xiii}	147.03 (11)	Mg10^{ii}—Mg5—Ru1^{xi}	55.15 (10)
Mg3^{xxvii}—Mg7—Mg7^{xiii}	91.17 (10)	Mg6^{xxxv}—Mg5—Ru1^{xi}	112.88 (16)
Mg7^{xxvi}—Mg7—Mg7^{xiii}	60.0	Mg6^{xxxiv}—Mg5—Ru1^{xi}	55.59 (10)
Mg7^{xxxviii}—Mg7—Mg7^{xiii}	90.0	Mg4^{x}—Mg5—Ru1^{xi}	142.50 (18)
Ru3^{i}—Mg7—Mg7^{xii}	117.31 (10)	Mg4^{xi}—Mg5—Ru1^{xi}	49.73 (9)
Ru3—Mg7—Mg7^{xii}	57.34 (10)	Mg8^{xxxix}—Mg5—Ru1^{xi}	116.72 (13)
Mg4^{i}—Mg7—Mg7^{xii}	108.04 (9)	Mg9^{iii}—Mg5—Ru1^{x}	53.82 (11)
Mg4—Mg7—Mg7^{xii}	149.967 (5)	Mg11^{iii}—Mg5—Ru1^{x}	102.8 (2)
Mg3^{xx}—Mg7—Mg7^{xii}	108.44 (9)	Mg10^{ii}—Mg5—Ru1^{x}	55.15 (10)
Mg3^{xxi}—Mg7—Mg7^{xii}	59.85 (11)	Mg6^{xxxv}—Mg5—Ru1^{x}	55.59 (10)
Mg3^{xxvi}—Mg7—Mg7^{xii}	91.17 (10)	Mg6^{xxxiv}—Mg5—Ru1^{x}	112.88 (16)
Mg3^{xxvii}—Mg7—Mg7^{xii}	147.03 (11)	Mg4^{x}—Mg5—Ru1^{x}	49.73 (9)
Mg7^{xxvi}—Mg7—Mg7^{xii}	90.0	Mg4^{xi}—Mg5—Ru1^{x}	142.50 (18)
Mg7^{xxxviii}—Mg7—Mg7^{xii}	60.0	Mg8^{xxxix}—Mg5—Ru1^{x}	116.72 (13)
Mg7^{xiii}—Mg7—Mg7^{xii}	60.0	Ru1^{xi}—Mg5—Ru1^{x}	95.43 (15)
Ru2—Mg3—Ru3^{i}	167.54 (17)	Mg9^{iii}—Mg5—Mg2^{xxxix}	130.9 (2)
Ru2—Mg3—Mg2	133.81 (17)	Mg11^{iii}—Mg5—Mg2^{xxxix}	60.1 (2)
Ru3^{i}—Mg3—Mg2	58.66 (11)	Mg10^{ii}—Mg5—Mg2^{xxxix}	148.93 (15)
Ru2—Mg3—Mg6^{xiv}	61.18 (11)	Mg6^{xxxv}—Mg5—Mg2^{xxxix}	124.6 (2)
Ru3^{i}—Mg3—Mg6^{xiv}	121.85 (11)	Mg6^{xxxiv}—Mg5—Mg2^{xxxix}	89.94 (13)
Mg2—Mg3—Mg6^{xiv}	98.22 (11)	Mg4^{x}—Mg5—Mg2^{xxxix}	106.79 (16)
Ru2—Mg3—Mg6^{xv}	61.18 (11)	Mg4^{xi}—Mg5—Mg2^{xxxix}	55.24 (12)
Ru3^{i}—Mg3—Mg6^{xv}	121.85 (11)	Mg8^{xxxix}—Mg5—Mg2^{xxxix}	65.62 (15)
Mg2—Mg3—Mg6^{xv}	98.22 (11)	Ru1^{xi}—Mg5—Mg2^{xxxix}	104.94 (7)
Mg6^{xiv}—Mg3—Mg6^{xv}	113.3 (2)	Ru1^{x}—Mg5—Mg2^{xxxix}	155.64 (14)
Ru2—Mg3—Mg7^{xxxviii}	113.09 (12)	Mg9^{iii}—Mg5—Mg2^{xxviii}	130.9 (2)
Ru3^{i}—Mg3—Mg7^{xxxviii}	56.68 (8)	Mg11^{iii}—Mg5—Mg2^{xxviii}	60.1 (2)
Mg2—Mg3—Mg7^{xxxviii}	106.54 (14)	Mg10^{ii}—Mg5—Mg2^{xxviii}	148.93 (15)
Mg6^{xiv}—Mg3—Mg7^{xxxviii}	144.32 (16)	Mg6^{xxxv}—Mg5—Mg2^{xxviii}	89.94 (13)

Mg6^{xv}—Mg3—Mg7^{xxxviii}	88.45 (13)
Ru2—Mg3—Mg7^{xxvi}	113.09 (12)
Ru3^{i}—Mg3—Mg7^{xxvi}	56.68 (8)
Mg2—Mg3—Mg7^{xxvi}	106.54 (14)
Mg6^{xiv}—Mg3—Mg7^{xxvi}	88.45 (13)
Mg6^{xv}—Mg3—Mg7^{xxvi}	144.32 (16)
Mg7^{xxxviii}—Mg3—Mg7^{xxvi}	60.3 (2)
Ru2—Mg3—Mg4^{xxvi}	125.14 (12)
Ru3^{i}—Mg3—Mg4^{xxvi}	58.03 (11)
Mg2—Mg3—Mg4^{xxvi}	59.54 (11)
Mg6^{xiv}—Mg3—Mg4^{xxvi}	64.29 (12)
Mg6^{xv}—Mg3—Mg4^{xxvi}	155.39 (16)
Mg7^{xxxviii}—Mg3—Mg4^{xxvi}	107.10 (16)
Mg7^{xxvi}—Mg3—Mg4^{xxvi}	59.10 (13)
Ru2—Mg3—Mg4^{xxvii}	125.14 (12)
Ru3^{i}—Mg3—Mg4^{xxvii}	58.03 (11)
Mg2—Mg3—Mg4^{xxvii}	59.54 (11)
Mg6^{xiv}—Mg3—Mg4^{xxvii}	155.39 (16)
Mg6^{xv}—Mg3—Mg4^{xxvii}	64.29 (12)
Mg7^{xxxviii}—Mg3—Mg4^{xxvii}	59.10 (13)
Mg7^{xxvi}—Mg3—Mg4^{xxvii}	107.10 (16)
Mg4^{xxvi}—Mg3—Mg4^{xxvii}	107.0 (2)
Ru2—Mg3—Mg3^{xii}	54.77 (7)
Ru3^{i}—Mg3—Mg3^{xii}	115.08 (7)
Mg2—Mg3—Mg3^{xii}	149.937 (7)
Mg6^{xiv}—Mg3—Mg3^{xii}	108.08 (9)
Mg6^{xv}—Mg3—Mg3^{xii}	58.32 (8)
Mg7^{xxxviii}—Mg3—Mg3^{xii}	58.49 (8)
Mg7^{xxvi}—Mg3—Mg3^{xii}	88.83 (10)
Mg4^{xxvi}—Mg3—Mg3^{xii}	146.21 (10)
Mg4^{xxvii}—Mg3—Mg3^{xii}	91.56 (11)
Ru2—Mg3—Mg3^{xiii}	54.77 (7)
Ru3^{i}—Mg3—Mg3^{xiii}	115.08 (7)
Mg2—Mg3—Mg3^{xiii}	149.937 (7)
Mg6^{xiv}—Mg3—Mg3^{xiii}	58.32 (8)
Mg6^{xv}—Mg3—Mg3^{xiii}	108.08 (9)
Mg7^{xxxviii}—Mg3—Mg3^{xiii}	88.83 (10)
Mg7^{xxvi}—Mg3—Mg3^{xiii}	58.49 (8)
Mg4^{xxvi}—Mg3—Mg3^{xiii}	91.56 (11)
Mg4^{xxvii}—Mg3—Mg3^{xiii}	146.21 (10)
Mg3^{xii}—Mg3—Mg3^{xiii}	60.0
Ru2—Mg3—Mg8	63.44 (18)
Ru3^{i}—Mg3—Mg8	129.0 (2)
Mg2—Mg3—Mg8	70.37 (19)
Mg6^{xiv}—Mg3—Mg8	63.14 (11)
Mg6^{xv}—Mg3—Mg8	63.14 (11)
Mg7^{xxxviii}—Mg3—Mg8	149.85 (11)
Mg7^{xxvi}—Mg3—Mg8	149.85 (11)
Mg6^{xxxiv}—Mg5—Mg2^{xxviii}	124.6 (2)
Mg4^{x}—Mg5—Mg2^{xxviii}	55.24 (12)
Mg4^{xi}—Mg5—Mg2^{xxviii}	106.79 (16)
Mg8^{xxxix}—Mg5—Mg2^{xxviii}	65.62 (15)
Ru1^{xi}—Mg5—Mg2^{xxviii}	155.64 (14)
Ru1^{x}—Mg5—Mg2^{xxviii}	104.94 (7)
Mg2^{xxxix}—Mg5—Mg2^{xxviii}	52.39 (15)
Ru1^{xlv}—Mg9—Ru1^{xxxii}	119.34 (7)
Ru1^{xlv}—Mg9—Ru1^{xxxiii}	119.34 (7)
Ru1^{xxxii}—Mg9—Ru1^{xxxiii}	119.34 (7)
Ru1^{xlv}—Mg9—Mg5^{xxxii}	70.34 (11)
Ru1^{xxxii}—Mg9—Mg5^{xxxii}	145.8 (5)
Ru1^{xxxiii}—Mg9—Mg5^{xxxii}	70.34 (11)
Ru1^{xlv}—Mg9—Mg5^{xlv}	145.8 (5)
Ru1^{xxxii}—Mg9—Mg5^{xlv}	70.34 (11)
Ru1^{xxxiii}—Mg9—Mg5^{xlv}	70.34 (11)
Mg5^{xxxii}—Mg9—Mg5^{xlv}	84.7 (3)
Ru1^{xlv}—Mg9—Mg5^{xxxiii}	70.34 (11)
Ru1^{xxxii}—Mg9—Mg5^{xxxiii}	70.34 (11)
Ru1^{xxxiii}—Mg9—Mg5^{xxxiii}	145.8 (5)
Mg5^{xxxii}—Mg9—Mg5^{xxxiii}	84.7 (3)
Mg5^{xlv}—Mg9—Mg5^{xxxiii}	84.7 (3)
Ru1^{xlv}—Mg9—Mg10^{xli}	151.1 (5)
Ru1^{xxxii}—Mg9—Mg10^{xli}	60.80 (8)
Ru1^{xxxiii}—Mg9—Mg10^{xli}	60.80 (8)
Mg5^{xxxii}—Mg9—Mg10^{xli}	127.78 (12)
Mg5^{xlv}—Mg9—Mg10^{xli}	63.15 (15)
Mg5^{xxxiii}—Mg9—Mg10^{xli}	127.78 (12)
Ru1^{xlv}—Mg9—Mg10^{xlii}	60.80 (8)
Ru1^{xxxii}—Mg9—Mg10^{xlii}	151.1 (5)
Ru1^{xxxiii}—Mg9—Mg10^{xlii}	60.80 (8)
Mg5^{xxxii}—Mg9—Mg10^{xlii}	63.15 (15)
Mg5^{xlv}—Mg9—Mg10^{xlii}	127.78 (12)
Mg5^{xxxiii}—Mg9—Mg10^{xlii}	127.78 (12)
Mg10^{xli}—Mg9—Mg10^{xlii}	104.3 (3)
Ru1^{xlv}—Mg9—Mg10^{xl}	60.80 (8)
Ru1^{xxxii}—Mg9—Mg10^{xl}	60.80 (8)
Ru1^{xxxiii}—Mg9—Mg10^{xl}	151.1 (5)
Mg5^{xxxii}—Mg9—Mg10^{xl}	127.78 (12)
Mg5^{xlv}—Mg9—Mg10^{xl}	127.78 (12)
Mg5^{xxxiii}—Mg9—Mg10^{xl}	63.15 (15)
Mg10^{xli}—Mg9—Mg10^{xl}	104.3 (3)
Mg10^{xlii}—Mg9—Mg10^{xl}	104.3 (3)
Ru1^{xlv}—Mg9—Mg9^{xl}	102.8 (2)
Ru1^{xxxii}—Mg9—Mg9^{xl}	102.8 (2)
Ru1^{xxxiii}—Mg9—Mg9^{xl}	50.1 (3)
Mg5^{xxxii}—Mg9—Mg9^{xl}	106.76 (18)
Mg5^{xlv}—Mg9—Mg9^{xl}	106.76 (18)

Mg4^{xxvi}—Mg3—Mg8	97.05 (14)	Mg5^{xxxiii}—Mg9—Mg9^{xl}	164.2 (2)
Mg4^{xxvii}—Mg3—Mg8	97.05 (14)	Mg10^{xli}—Mg9—Mg9^{xl}	53.24 (18)
Mg3^{xii}—Mg3—Mg8	108.65 (15)	Mg10^{xlii}—Mg9—Mg9^{xl}	53.24 (18)
Mg3^{xiii}—Mg3—Mg8	108.65 (15)	Mg10^{xl}—Mg9—Mg9^{xl}	101.0 (2)
Ru2^{xlix}—Mg6—Ru1^{vii}	159.90 (16)	Ru1^{xlv}—Mg9—Mg9^{xli}	50.1 (3)
Ru2^{xlix}—Mg6—Mg3^{xxxvii}	54.86 (10)	Ru1^{xxxii}—Mg9—Mg9^{xli}	102.8 (2)
Ru1^{vii}—Mg6—Mg3^{xxxvii}	108.97 (14)	Ru1^{xxxiii}—Mg9—Mg9^{xli}	102.8 (2)
Ru2^{xlix}—Mg6—Mg3^{xxxvi}	54.86 (10)	Mg5^{xxxii}—Mg9—Mg9^{xli}	106.76 (18)
Ru1^{vii}—Mg6—Mg3^{xxxvi}	108.97 (14)	Mg5^{xlv}—Mg9—Mg9^{xli}	164.2 (2)
Mg3^{xxxvii}—Mg6—Mg3^{xxxvi}	63.35 (17)	Mg5^{xxxiii}—Mg9—Mg9^{xli}	106.76 (18)
Ru2^{xlix}—Mg6—Mg12^{ii}	60.57 (15)	Mg10^{xli}—Mg9—Mg9^{xli}	101.0 (2)
Ru1^{vii}—Mg6—Mg12^{ii}	139.53 (18)	Mg10^{xlii}—Mg9—Mg9^{xli}	53.24 (18)
Mg3^{xxxvii}—Mg6—Mg12^{ii}	105.26 (17)	Mg10^{xl}—Mg9—Mg9^{xli}	53.24 (18)
Mg3^{xxxvi}—Mg6—Mg12^{ii}	105.26 (17)	Mg9^{xl}—Mg9—Mg9^{xli}	59.998 (1)
Ru2^{xlix}—Mg6—Mg10^{ii}	141.9 (2)	Ru1^{xlv}—Mg9—Mg9^{xlii}	102.8 (2)
Ru1^{vii}—Mg6—Mg10^{ii}	58.18 (15)	Ru1^{xxxii}—Mg9—Mg9^{xlii}	50.1 (3)
Mg3^{xxxvii}—Mg6—Mg10^{ii}	147.11 (10)	Ru1^{xxxiii}—Mg9—Mg9^{xlii}	102.8 (2)
Mg3^{xxxvi}—Mg6—Mg10^{ii}	147.11 (10)	Mg5^{xxxii}—Mg9—Mg9^{xlii}	164.2 (2)
Mg12^{ii}—Mg6—Mg10^{ii}	81.4 (2)	Mg5^{xlv}—Mg9—Mg9^{xlii}	106.76 (18)
Ru2^{xlix}—Mg6—Mg5^{xxxiv}	120.91 (13)	Mg5^{xxxiii}—Mg9—Mg9^{xlii}	106.76 (18)
Ru1^{vii}—Mg6—Mg5^{xxxiv}	64.76 (13)	Mg10^{xli}—Mg9—Mg9^{xlii}	53.24 (18)
Mg3^{xxxvii}—Mg6—Mg5^{xxxiv}	147.16 (15)	Mg10^{xlii}—Mg9—Mg9^{xlii}	101.0 (2)
Mg3^{xxxvi}—Mg6—Mg5^{xxxiv}	87.45 (12)	Mg10^{xl}—Mg9—Mg9^{xlii}	53.24 (18)
Mg12^{ii}—Mg6—Mg5^{xxxiv}	96.34 (13)	Mg9^{xl}—Mg9—Mg9^{xlii}	59.998 (1)
Mg10^{ii}—Mg6—Mg5^{xxxiv}	59.68 (12)	Mg9^{xli}—Mg9—Mg9^{xlii}	59.998 (1)

Symmetry codes: (i) $-x+1/2, -y+1/2, z$; (ii) $-x+1, -y+1, z$; (iii) $x-1/2, y-1/2, z$; (iv) $-x+1, y-1/2, -z+3/2$; (v) $x-1/2, -y+1, -z+3/2$; (vi) $x, -y+1/2, -z+3/2$; (vii) $-x+1/2, y, -z+3/2$; (viii) $-y+1/2, -z+1, x+1/2$; (ix) $-z+1, -x+1/2, y+1/2$; (x) $y, z-1/2, x+1/2$; (xi) $z-1/2, x, y+1/2$; (xii) y, z, x; (xiii) z, x, y; (xiv) $y, z-1, x$; (xv) $z-1, x, y$; (xvi) $x, y, z-1$; (xvii) $x-1, -y+1, -z+1$; (xviii) $-x+1, y-1, -z+1$; (xix) $-x+1, -y+1, z-1$; (xx) $-y+1/2, z, -x+1/2$; (xxi) $z, -x+1/2, -y+1/2$; (xxii) $x, -y+1, -z+1$; (xxiii) $-x+1, y, -z+1$; (xxiv) $-z+1, x+1/2, -y+1/2$; (xxv) $-x, -y, z$; (xxvi) $y, -z+1/2, -x+1/2$; (xxvii) $-z+1/2, x, -y+1/2$; (xxviii) $x, -y, -z+1$; (xxix) $y+1/2, -z+1, -x+1/2$; (xxx) $-x+1/2, y+1/2, -z+1$; (xxxi) $x+1/2, -y+1/2, -z+1$; (xxxii) $y+1/2, z, x+1/2$; (xxxiii) $z, x+1/2, y+1/2$; (xxxiv) $-z+1, x, -y+1$; (xxxv) $y, -z+1, -x+1$; (xxxvi) $z, x, y+1$; (xxxvii) $y, z, x+1$; (xxxviii) $-z+1/2, -x+1/2, y$; (xxxix) $-x, y, -z+1$; (xl) $x, -y+3/2, -z+3/2$; (xli) $-x+3/2, -y+3/2, z$; (xlii) $-x+3/2, y, -z+3/2$; (xliii) $-y+1, z, -x+1$; (xliv) $z, -x+1, -y+1$; (xlv) $x+1/2, y+1/2, z$; (xlvi) $x, -y+2, -z+2$; (xlvii) $-x+2, -y+2, z$; (xlviii) $-x+2, y, -z+2$; (xlix) $x, y, z+1$; (l) $y+1/2, -z+3/2, -x+1$; (li) $-x+1, y+1/2, -z+3/2$; (lii) $-z+3/2, -x+1, y+1/2$; (liii) $x-1/2, -y+1/2, -z+1$; (liv) $-x+1/2, y-1/2, -z+1$; (lv) $-y, -z+1, x$; (lvi) $-z+1, -x, y$; (lvii) $x+1, -y+1, -z+1$; (lviii) $-x+1, -y+1, z+1$; (lix) $-x+1, y+1, -z+1$; (lx) $y+1, -z+1, -x+1$; (lxi) $-z+1, -x+1, y+1$.