

data\_vii

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\_chemical\_name\_systematic  
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\_chemical\_melting\_point       ?  
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'Al16.60 As0.30 B0.20 Bi0.20 Ca38 Cl0.26 Fe2 Mg5.60 Mn3.40 O2156 Si36'  
\_chemical\_formula\_weight       5988.34

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'O' 'O2-' 0.0080 0.0060  
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'  
'Mg' 'Mg' 0.0486 0.0363  
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'  
'Al' 'Al' 0.0645 0.0514  
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'  
'Si' 'Si' 0.0817 0.0704  
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'  
'Ca' 'Ca' 0.2262 0.3064  
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'Fe' 'Fe' 0.3463 0.8444  
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'Mn' 'Mn' 0.3368 0.7283  
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'Bi' 'Bi' -4.1077 10.2566  
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'As' 'As' 0.0499 2.0058  
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'Cl' 'Cl' 0.1484 0.1585  
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'B' 'B' 0.0013 0.0007  
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'y, -x+1/2, z'

'-x+1/2, y, -z+1/2'  
'x, -y+1/2, -z+1/2'  
'y, x, -z+1/2'  
'-y+1/2, -x+1/2, -z+1/2'  
'-x, -y, -z'  
'x-1/2, y-1/2, -z'  
'y-1/2, -x, -z'  
'-y, x-1/2, -z'  
'x-1/2, -y, z-1/2'  
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\_diffn\_ambient\_temperature 296(2)  
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_diffrn_reflms_limit_l_min      -16
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_computing_structure_refinement  'SHELXL-97 (Sheldrick, 2008)'
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_computing_publication_material ?

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\_refine\_special\_details

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Refinement of  $F^2$  against ALL reflections. The weighted R-factor wR and goodness of fit S are based on  $F^2$ , conventional R-factors R are based on F, with F set to zero for negative  $F^2$ . The threshold expression of  $F^2 > 2\sigma(F^2)$  is used only for calculating R-factors(gt) etc. and is not relevant to the choice of reflections for refinement. R-factors based on  $F^2$  are statistically about twice as large as those based on F, and R-factors based on ALL data will be even larger.

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'calc w=1/[\s^2(Fo^2)+(0.0164P)^2+2.2719P] where P=(Fo^2+2Fc^2)/3'
_atom_sites_solution_primary     direct
_atom_sites_solution_secondary   difmap
_atom_sites_solution_hydrogens   geom
_refine_ls_hydrogen_treatment    mixed
_refine_ls_extinction_method      SHELXL
_refine_ls_extinction_coef        0.00000(4)
_refine_ls_extinction_expression
'Fc^*=kFc[1+0.001xFc^2\l^3/sin(2\q)]^-1/4'
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\_atom\_site\_adp\_type  
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X1MN Mn 0.7500 0.2500 0.2500 0.01045(10) Uani 0.121(7) 4 d SP . .  
X2CA Ca 0.810436(14) 0.045686(14) 0.379089(18) 0.00884(6) Uani 0.961(4) 1 d P . .  
X2MN Mn 0.810436(14) 0.045686(14) 0.379089(18) 0.00884(6) Uani 0.039(4) 1 d P . .  
X3 Ca 0.90003(5) 0.82040(9) 0.8937(2) 0.0151(2) Uani 0.982(10) 1 d P . .  
Bi3 Bi 0.9100(8) 0.8368(11) 0.8658(12) 0.010(2) Uani 0.015(2) 1 d P . .  
X4 Ca 0.7500 0.7500 0.14124(8) 0.0116(3) Uani 0.505(3) 4 d SP . .  
Y1A Mn 0.7500 0.7500 0.06105(16) 0.0075(2) Uiso 0.2229(10) 4 d SP . .  
Y1 Fe 0.7500 0.7500 0.04018(15) 0.0075(2) Uiso 0.2229(10) 4 d SP . .  
Y2 Al 0.0000 0.0000 0.0000 0.00788(9) Uani 1 2 d S . .  
Y3AL Al 0.88896(2) 0.12004(2) 0.12631(3) 0.00786(10) Uani 0.909(2) 1 d P . .  
Y3MN Mn 0.88896(2) 0.12004(2) 0.12631(3) 0.00786(10) Uani 0.091(2) 1 d P . .  
Z1 Si 0.2500 0.7500 0.0000 0.00688(10) Uani 1 4 d S . .  
Z2 Si 0.820208(19) 0.040952(19) 0.87104(2) 0.00628(6) Uani 1 1 d . . .  
Z3 Si 0.91611(2) 0.84959(2) 0.36419(3) 0.00809(7) Uani 1 1 d . . .  
T1 As 0.0565(2) 0.0565(2) 0.2500 0.0100(14) Uani 0.0334(10) 2 d SP . .  
O1 O2- 0.78047(5) 0.17284(5) 0.08561(7) 0.00983(15) Uani 1 1 d . . .  
O2 O2- 0.88172(5) 0.16035(5) 0.28043(7) 0.00970(14) Uani 1 1 d . . .  
O3 O2- 0.95478(6) 0.22343(5) 0.07585(7) 0.01054(15) Uani 1 1 d . . .  
O4 O2- 0.93917(5) 0.10559(5) 0.46983(7) 0.00873(14) Uani 1 1 d . . .  
O5 O2- 0.82863(5) 0.01285(6) 0.17928(7) 0.01184(15) Uani 1 1 d . . .  
O6 O2- 0.87897(7) 0.72567(6) 0.05563(8) 0.01579(17) Uani 1 1 d . . .  
O7A O2- 0.8233(3) 0.94365(12) 0.8213(2) 0.0093(2) Uiso 0.564(12) 1 d P . .  
O7B O2- 0.8421(3) 0.94761(16) 0.8110(3) 0.0093(2) Uiso 0.436(12) 1 d P . .  
O8 O2- 0.93986(5) 0.90809(5) 0.06794(7) 0.00873(14) Uani 1 1 d . . .  
O9 O2- 0.85352(5) 0.85352(5) 0.2500 0.0117(2) Uani 1 2 d S . .  
O10 O2- 0.7500 0.7500 0.8669(5) 0.0183(6) Uiso 1.01(2) 4 d SP . .  
Cl Cl 0.7500 0.7500 0.831(2) 0.020(5) Uiso 0.064(11) 4 d SP . .  
O11 O2- 0.99715(5) 0.06086(5) 0.13716(7) 0.00907(15) Uani 1 1 d . . .

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X2CA 0.00763(10) 0.01038(10) 0.00850(10) 0.00018(7) -0.00083(6) 0.00081(7)
X2MN 0.00763(10) 0.01038(10) 0.00850(10) 0.00018(7) -0.00083(6) 0.00081(7)
X3 0.01199(15) 0.0113(2) 0.0220(5) -0.0019(3) -0.00401(19) 0.00113(15)
Bi3 0.013(2) 0.010(3) 0.006(3) 0.006(2) 0.0006(18) 0.0047(17)
X4 0.0080(3) 0.0080(3) 0.0188(5) 0.000 0.000 0.000
Y2 0.00621(19) 0.00660(19) 0.0108(2) 0.00066(15) 0.00014(15) 0.00034(14)
Y3AL 0.00754(15) 0.00825(15) 0.00779(16) -0.00004(10) 0.00032(10) 0.00017(10)
Y3MN 0.00754(15) 0.00825(15) 0.00779(16) -0.00004(10) 0.00032(10) 0.00017(10)
Z1 0.00709(15) 0.00709(15) 0.0065(2) 0.000 0.000 0.000
Z2 0.00611(12) 0.00632(12) 0.00642(13) 0.00046(9) -0.00092(9) 0.00004(9)
Z3 0.01169(14) 0.00593(12) 0.00664(12) -0.00001(9) 0.00051(10) 0.00025(10)
T1 0.0102(16) 0.0102(16) 0.010(2) 0.0008(11) -0.0008(11) 0.0012(15)
O1 0.0124(4) 0.0074(3) 0.0097(3) 0.0008(3) -0.0005(3) 0.0003(3)
O2 0.0094(3) 0.0092(3) 0.0105(3) 0.0008(3) -0.0030(3) -0.0006(3)
O3 0.0129(4) 0.0086(3) 0.0101(3) 0.0005(3) 0.0014(3) 0.0027(3)
O4 0.0100(3) 0.0070(3) 0.0092(3) 0.0017(3) -0.0011(3) -0.0001(3)
O5 0.0110(4) 0.0148(4) 0.0097(3) -0.0010(3) 0.0011(3) 0.0052(3)
O6 0.0246(5) 0.0108(4) 0.0121(4) 0.0047(3) 0.0023(3) 0.0035(3)
O8 0.0073(3) 0.0082(3) 0.0107(3) 0.0010(3) 0.0025(3) 0.0006(3)
O9 0.0137(3) 0.0137(3) 0.0078(5) 0.0012(3) -0.0012(3) -0.0038(4)
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\_geom\_special\_details

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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.

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loop\_

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X1CA O1 2.3282(8) 5_655 ?
X1CA O1 2.3283(8) . ?
X1CA O2 2.5090(8) . ?
X1CA O2 2.5090(8) 5_655 ?
X1CA O2 2.5090(8) 6 ?
X1CA O2 2.5090(8) 2_655 ?
X1CA Z1 2.94455(18) 13_666 ?
X1CA Z1 2.94455(18) 9_665 ?
X1CA Y3AL 3.3038(4) . ?

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X1CA Y3MN 3.3038(4) 6 ?  
X1CA Y3AL 3.3038(4) 6 ?  
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X1CA Y3AL 3.3038(4) 5\_655 ?  
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X1CA Y3MN 3.3038(4) 2\_655 ?  
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X2CA O8 2.3294(8) 7\_545 ?  
X2CA O5 2.3306(9) 5\_655 ?  
X2CA O3 2.3769(9) 15\_666 ?  
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X2CA O5 2.4250(9) . ?  
X2CA O4 2.4575(9) . ?  
X2CA O1 2.4713(9) 5\_655 ?  
X2CA O6 3.0145(11) 7\_545 ?  
X2CA Z2 3.1212(4) 15\_665 ?  
X2CA Z3 3.2140(4) 3\_645 ?  
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X2CA X3 3.5131(15) 7\_546 ?  
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X3 O7B 2.544(4) 7\_556 ?  
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O7B O7A O7B 107.48(17) 7\_556 5\_656 ?  
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X3 O7B Bi3 96.0(5) . 3\_655 ?  
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O4 O7B Bi3 105.44(19) 15\_676 3\_655 ?  
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