

Electronic Supplementary Information (ESI) for RSC Advances.

This journal is © The Royal Society of Chemistry 2014

Electronic Supplementary Information

Hydrothermal Synthesis and multiferroic properties of Y_2NiMnO_6

**Chenyang Zhang,^a Tingsong Zhang,^a Lei Ge,^a Shan Wang,^b Hongming Yuan*^a, and
Shouhua Feng^a**

^aState Key Laboratory of Inorganic Synthesis and Preparative Chemistry, Jilin University, Changchun, China. Email: hmyuan@jlu.edu.cn;

^bJilin Institute of Chemical Technology, The Department of Materials Science and Engineering, Jilin, China.

Table I. Structural parameters of the as-grown Y_2NiMnO_6 with $P2_1/n$ space group. The lattice parameters are $a=5.2247(2)\text{\AA}$, $b=5.5739(2)\text{\AA}$, $c=7.4863(3)\text{\AA}$ and $\beta=89.788(3)$.

Atom	X	Y	Z
Y	-0.02073(34)	0.07427(25)	0.2502(6)
Ni	0.5	0	0.5
Mn	0.5	0	0
O1	0.1188(18)	0.4597(21)	0.2594(28)
O2	0.6726(29)	0.2737(29)	0.0589(23)
O3	0.6933(26)	0.3213(32)	0.4469(24)
Bond Length(\AA)			
Ni-O1			2.053(19)
Ni-O2			2.169(16)
Ni-O3			2.094(18)
Mn-O1			1.916(20)
Mn-O2			1.827(16)
Mn-O3			1.929(14)
Bond Angle(Degree)			
Ni-O1-Mn			141.1(5)
Ni-O2-Mn			145.7(9)
Ni-O3-Mn			143.4(9)

Table I. Structural parameters of the Y_2NiMnO_6 annealed at 1273 K with $P2_1/n$ space group. The lattice parameters are $a=5.2247(2)\text{\AA}$, $b=5.5739(2)\text{\AA}$, $c=7.4863(3)\text{\AA}$ and $\beta=89.788(3)$.

Atom	X	Y	Z
Y	-0.01850(18)	0.07087(11)	0.24956(26)
Ni	0.5	0	0.5
Mn	0.5	0	0
O1	0.1076(9)	0.4621(8)	0.2547(11)
O2	0.6875(12)	0.2815(14)	0.0542(7)
O3	0.7030(11)	0.3226(14)	0.4464(8)
Bond Length(\AA)			
Ni-O1			2.000(8)
Ni-O2			2.071(7)
Ni-O3			2.117(7)
Mn-O1			1.927(8)
Mn-O2			1.888(7)
Mn-O3			1.881(6)
Bond Angle(Degree)			
Ni-O1-Mn			144.43(26)
Ni-O2-Mn			148.31(32)
Ni-O3-Mn			144.49(32)