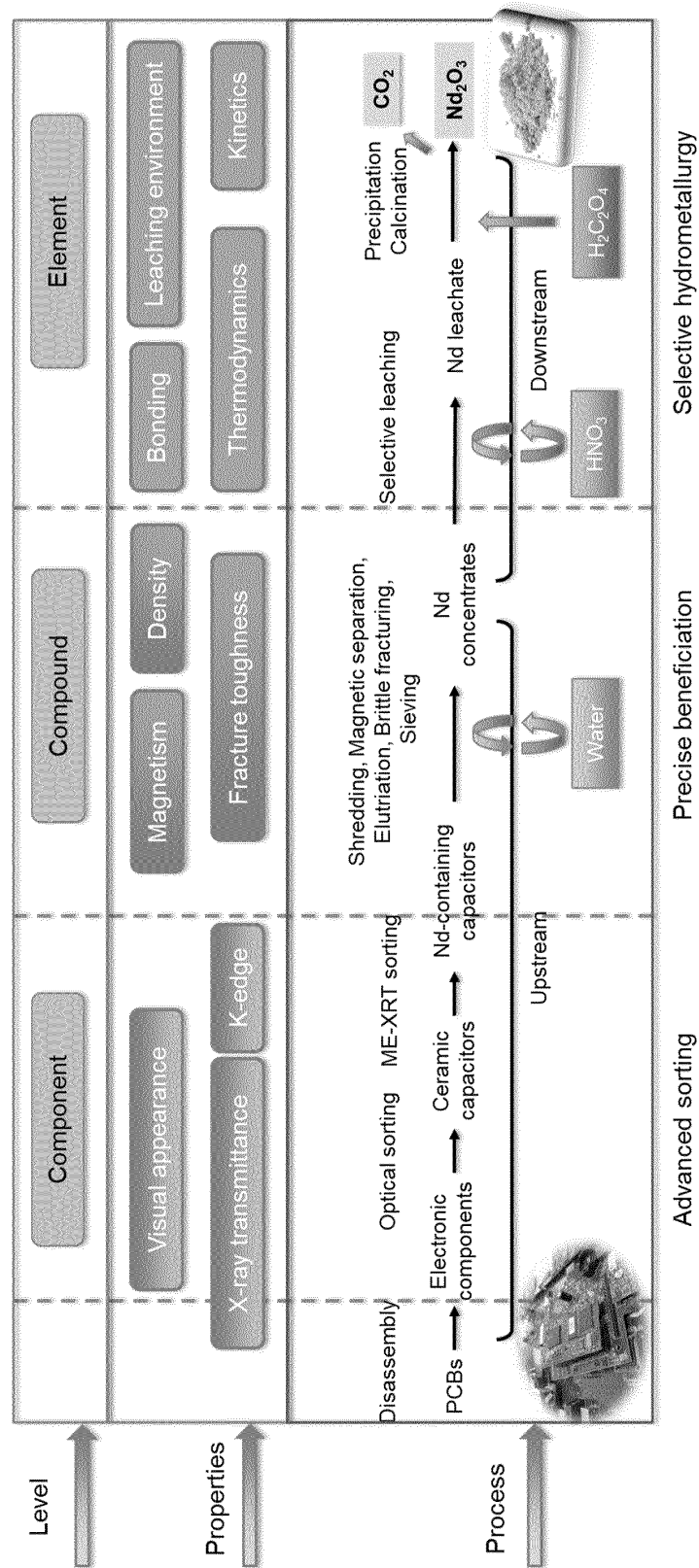
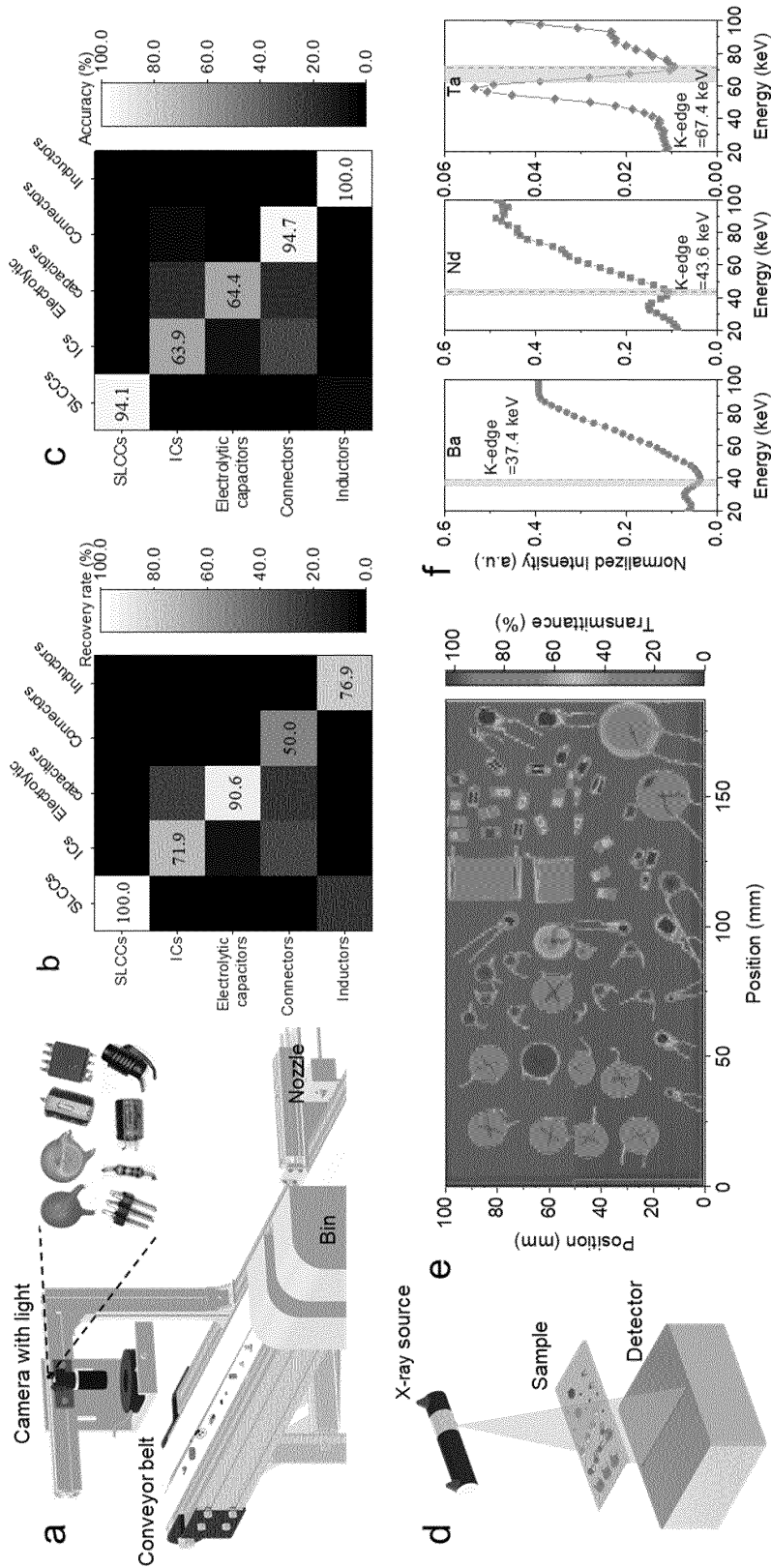


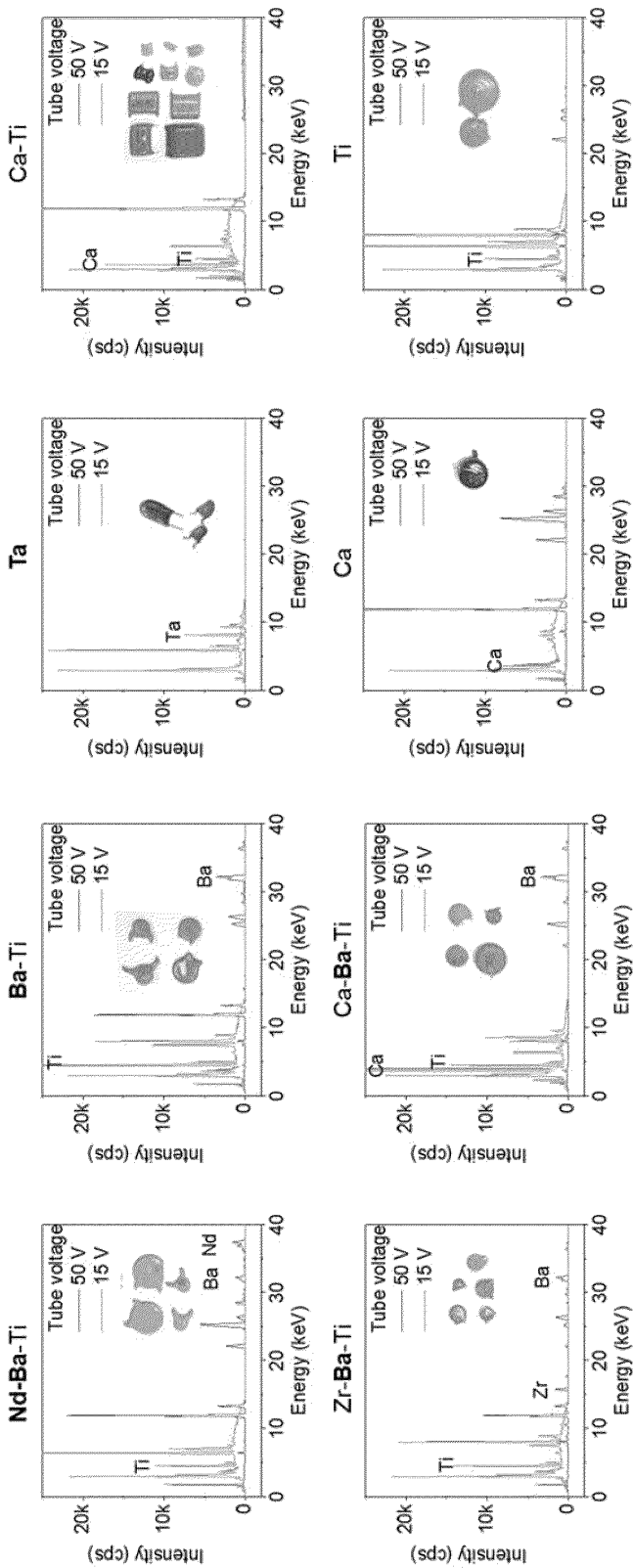
[Fig.1]



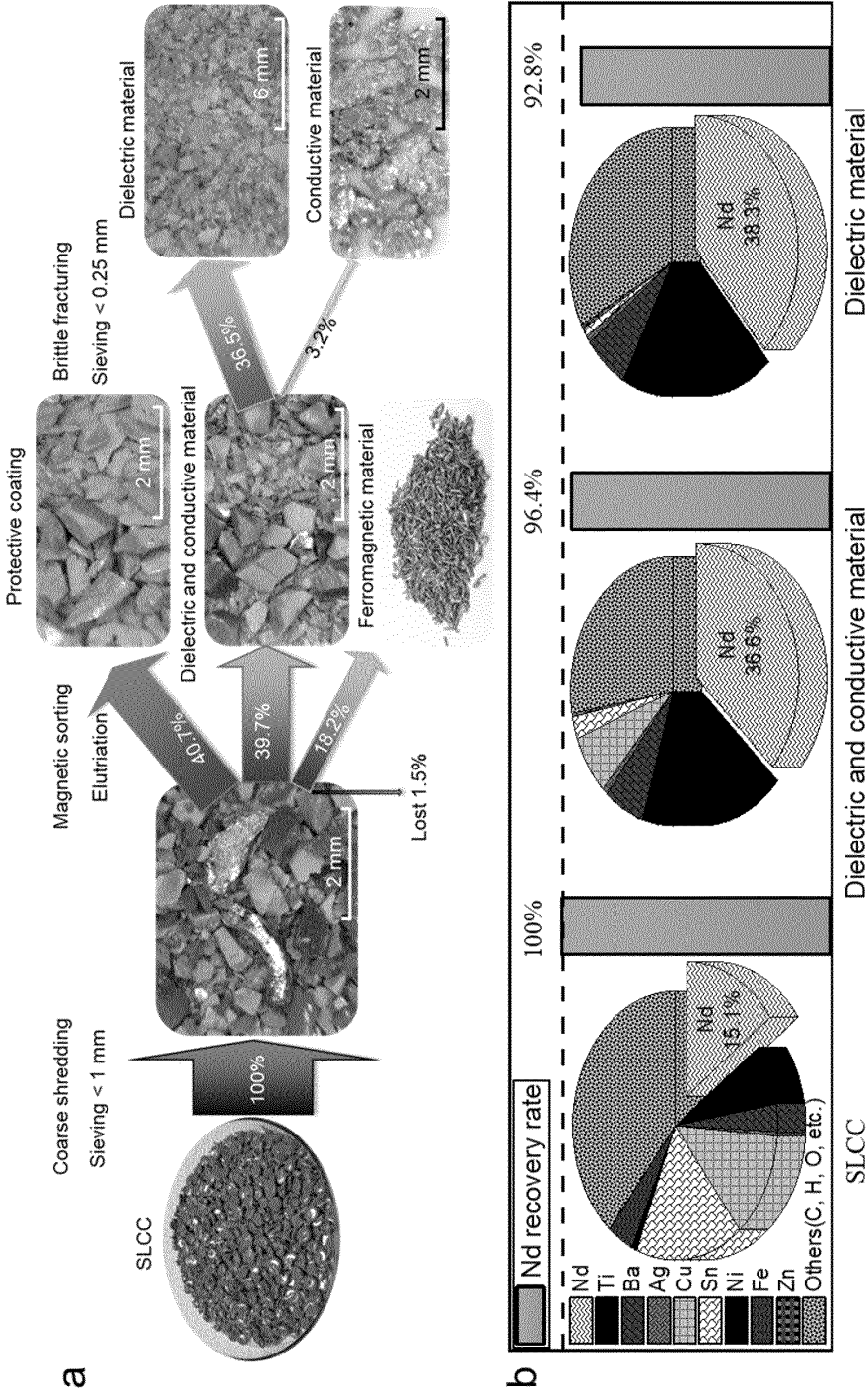
[Fig.2]



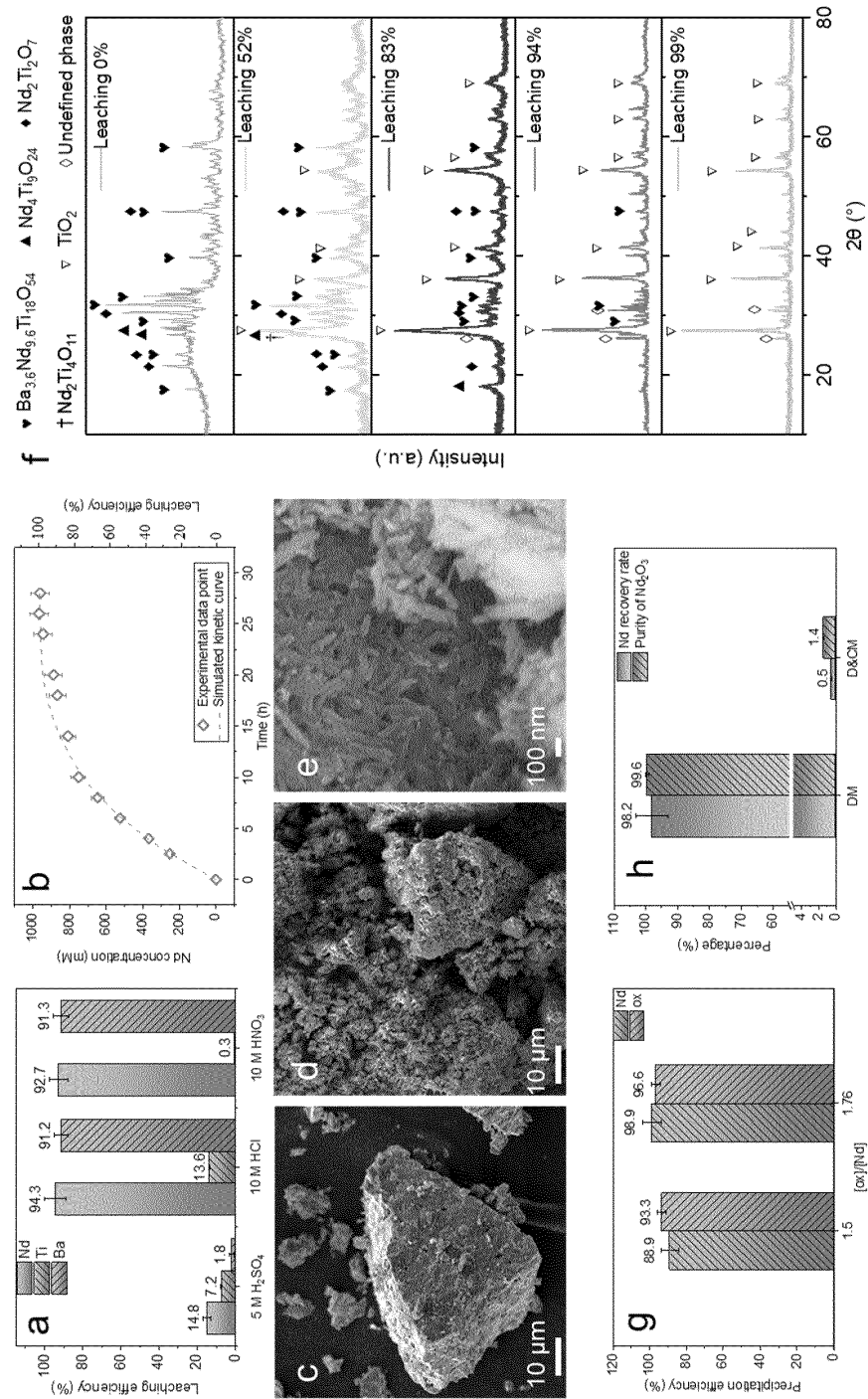
[Fig. 2 g]



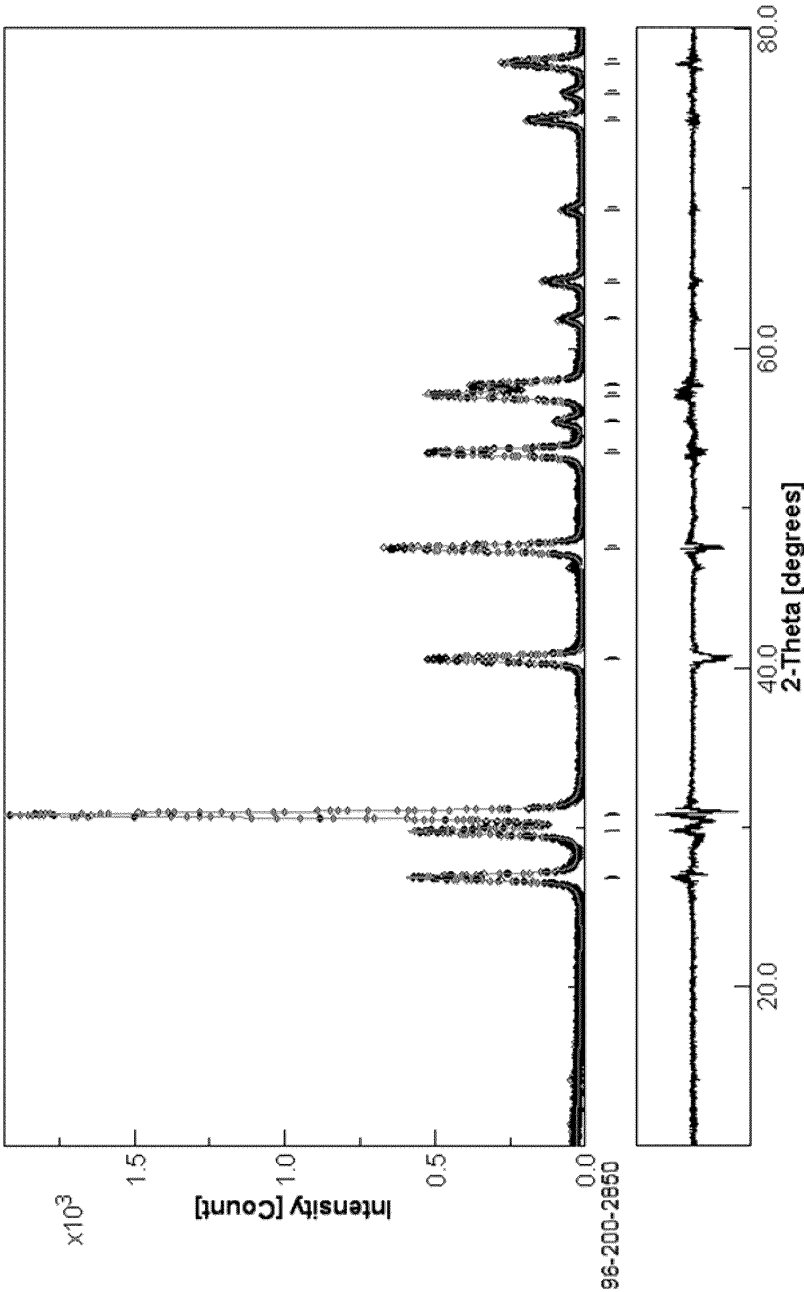
[Fig. 3]

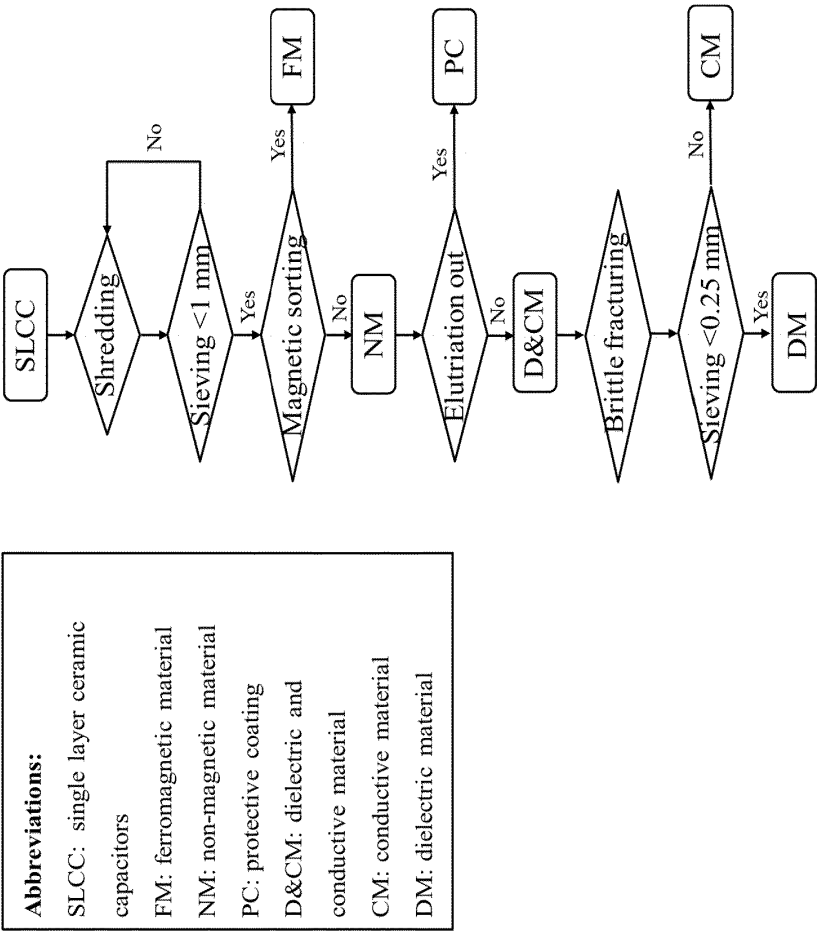


[Fig.4]



[Fig.4 i]





[Fig.5]

[Fig.6]

No.	Reaction (110 °C)	$\Delta_r G^\circ$ kJ/mol	$\Delta_r H^\circ$ kJ/mol	$\Delta_r S^\circ$ kJ/mol/K
1	$\text{Ba}_{3.6}\text{Nd}_{9.6}\text{Ti}_{18}\text{O}_{54} + 8.4\text{TiO}_2 \rightarrow 3.6\text{BaTi}_2\text{O}_5 + 4.8\text{Nd}_2\text{Ti}_4\text{O}_{11}$	81.4	91.5	0.03
2	$\text{Nd}_4\text{Ti}_9\text{O}_{24} \rightarrow 2\text{Nd}_2\text{Ti}_4\text{O}_{11} + \text{TiO}_2$	10.8	10.5	0.00
3	$\text{Ba}_{3.6}\text{Nd}_{9.6}\text{Ti}_{18}\text{O}_{54} + 72\text{H}^+ + 16.8\text{NO}_3^- \rightarrow 3.6\text{Ba}(\text{NO}_3)_2 + 9.6\text{NdNO}_3^{2+} + 18\text{TiO}^{2+} + 36\text{H}_2\text{O}$	-1453	-3122	-4.36
4	$\text{Nd}_2\text{Ti}_2\text{O}_7 + 10\text{H}^+ + 2\text{NO}_3^- \rightarrow 2\text{NdNO}_3^{2+} + 2\text{TiO}^{2+} + 5\text{H}_2\text{O}$	-227	-500	-0.71
5	$\text{Nd}_4\text{Ti}_9\text{O}_{24} + 30\text{H}^+ + 4\text{NO}_3^- \rightarrow 4\text{NdNO}_3^{2+} + 9\text{TiO}^{2+} + 15\text{H}_2\text{O}$	-2078	-1072	-2.08
6	$\text{TiO}^{2+} + \text{H}_2\text{O} \rightarrow \text{TiO}_2(\text{cr}) + 2\text{H}^+$	-33.4	15.7	0.13
7	$\text{BaNd}_{5.3}\text{Ti}_{8.2}\text{O}_{25.35} + 17.9\text{H}^+ + 7.3\text{NO}_3^- \rightarrow 5.3\text{NdNO}_3^{2+} + \text{Ba}(\text{NO}_3)_2 + 8.2\text{TiO}_2 + 8.95\text{H}_2\text{O}$	-862	-1395	-1.39