**Table 1** Binding energies for Ni 2p3/2, Cr2p3/2 and Fe 2p3/2 photoelectron peaks of the sintered NiCr2-yFeyO4 samples obtained at various sintering temperatures with a fixed Fe dosage (y=1.0) for α-Fe2O3 and Fe3O4 series.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| NiCr2-yFeyO4 | Binding Energy (eV) | | | | | |
| y=1.0 | Ni2p3/2 | | Cr2p3/2 | | Fe2p3/2 | |
| Temperature (oC) | a-Fe2O3 | Fe3O4 | a-Fe2O3 | Fe3O4 | a-Fe2O3 | Fe3O4 |
| 650 | 853.4 | 853.3 | 574.6 | 574.4 | 709.3 | 709.5 |
| 850 | 854.0 | 853.6 | 575.1 | 574.6 | 709.9 | 709.7 |
| 1050 | 853.6 | 853.7 | 574.9 | 575.0 | 709.5 | 709.8 |
| 1250 | 853.6 | 853.7 | 574.9 | 575.0 | 709.8 | 709.8 |

**Table 2** Binding energies for Ni 2p3/2, Cr2p3/2 and Fe 2p3/2 photoelectron peaks of the sintered NiCr2-yFeyO4 samples obtained at different Fe dosages (y value) for α-Fe2O3 and Fe3O4 series.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Binding Energy (eV) | | | | | |
| NiCr2-yFeyO4 | Ni2p3/2 | | Cr2p3/2 | | Fe2p3/2 | |
| y | a-Fe2O3 | Fe3O4 | a-Fe2O3 | Fe3O4 | a-Fe2O3 | Fe3O4 |
| 0 | 853.3 | 853.4 | 574.5 | 574.5 | ¾ | ¾ |
| 0.25 | 854.2 | 854.8 | 575.0 | 575.4 | 710.1 | 710.7 |
| 0.5 | 854.4 | 854.5 | 575.3 | 575.1 | 710.2 | 709.8 |
| 1.0 | 853.8 | 853.8 | 575.3 | 575.1 | 709.5 | 709.5 |
| 2.0 | 854.0 | 853.8 | ⎯ | ⎯ | 710.3 | 710.0 |