

Table 2 Theoretical weight loss

The theoretical weight loss was calculated as follows

- 1- First we calculate the molecular weight including the adsorbed polyol molecules (Table below)
- 2- The theoretical weight loss is calculated taking into account that the final product is NiO as established by X-Ray diffraction analysis. The employed equation is:
Weight loss = [(MW including DEG) – MW (NiO)]/(MW including DEG) where MW(NiO) is equal to 74.7 g/Mol
Example of calculation: LHS-Ni-OAc
%Weight loss = (127.91- 74.7)/127.91

Compound	Chemical formula	DEG	MW including DEG (g/Mol)	Calculated Weight loss (%)
LHS-Ni-OAc	$\text{Ni}(\text{OH})_{1.49}(\text{CH}_3\text{CO}_2)_{0.51} \cdot 0.46\text{H}_2\text{O}$	0.052	127.91	41.6
LHS-Ni-I	$\text{Ni}(\text{OH})_{1.83}\text{I}_{0.17} \cdot 0.64\text{H}_2\text{O}$	0.041	127.25	41.3
LHS-Ni-Br	$\text{Ni}(\text{OH})_{1.84}\text{Br}_{0.16} \cdot 0.68\text{H}_2\text{O}$	0.046	119.88	37.7
LHS-Ni-Cl	$\text{Ni}(\text{OH})_{1.83}\text{Cl}_{0.17} \cdot 0.40\text{H}_2\text{O}$	0.035	106.76	30.0