# Effect of Ni-MOF derivatives on the electrochemical corrosion behavior of Sn–0.7Cu solders

**Guoge Lu [1], Bo Lin [1], Zhan Gao [1], Yingxin Li [1] and Fuxiang Wei [1,2,*]**

[1] School of Materials and physics, China University of Mining & Technology, Xuzhou 221116, PR China; 17826263672@163.com (G.L.); linbol1996@163.com (B.L.); gaozhancumt@163.com (Z.G.); li-yingxin199803@163.com (Y.L.)

[2] Jiangsu Province Engineering Laboratory of High Efficient Energy Storage Technology and Equipments, China University of Mining & Technology, Xuzhou, PR China

* Correspondence: weifuxiang2001@163.com

**Table S1.** Corrosion parameters of Sn-0.7Cu-$x$Ni@C ($x$=0, 0.04, 0.08, 0.12 Wt.%) composite solder.

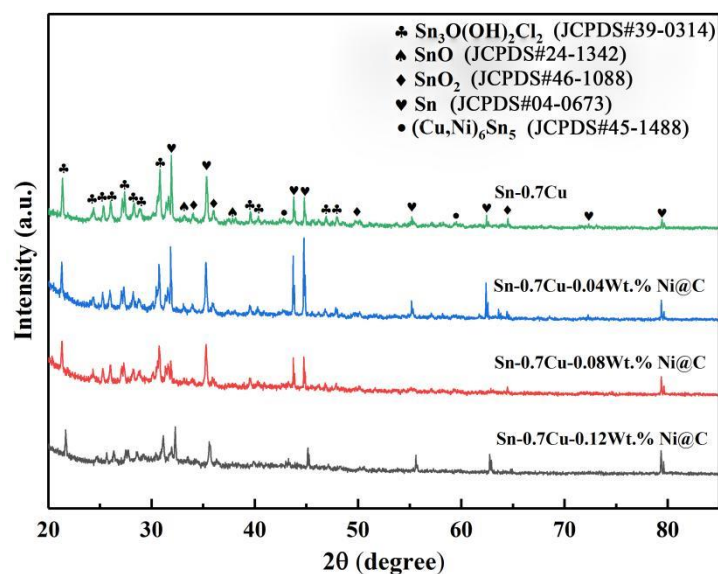| Composite solder | $E_1$ (V) | $E_2$ (V) | $E_3$ (V) | Error (%) | $i_1$ (A/cm$^2$) | $i_2$ (A/cm$^2$) | $i_3$ (A/cm$^2$) | Error (%) |
|---|---|---|---|---|---|---|---|---|
| Sn-0.7Cu | -1.003 | -1.014 | -1.006 | 0.43% | $4.16 \times 10^{-5}$ | $4.28 \times 10^{-5}$ | $4.19 \times 10^{-5}$ | 1.11% |
| Sn-0.7Cu-0.04 Wt.%Ni@C | -0.976 | -0.980 | -0.987 | 0.41% | $3.92 \times 10^{-5}$ | $3.96 \times 10^{-5}$ | $4.03 \times 10^{-5}$ | 1.01% |
| Sn-0.7Cu-0.08 Wt.%Ni@C | -0.941 | -0.930 | -0.931 | 0.50% | $1.38 \times 10^{-5}$ | $1.33 \times 10^{-5}$ | $1.34 \times 10^{-5}$ | 1.48% |
| Sn-0.7Cu-0.12 Wt.%Ni@C | -0.977 | -0.985 | -0.984 | 0.34% | $1.60 \times 10^{-5}$ | $1.66 \times 10^{-5}$ | $1.66 \times 10^{-5}$ | 1.62% |



**Figure S1.** XRD pattern of Sn-0.7Cu-xNi@C (x=0, 0.04, 0.08, 0.12 Wt.%) solder after electrochemical corrosion.