

Supplementary Materials

A Study on the Interfacial Reactions between Gallium and Cu/Ni/Au(Pd) Multilayer Metallization

Byungwoo Kim ^{1,2,†}, Chang-Lae Kim ^{3,†} and Yoonchul Sohn ^{1,*}

¹ Department of Welding and Joining Science Engineering, Chosun University, Gwangju 61452, Republic of Korea

² Solder R&D Team, MK Electron Co., Ltd., Yongin 449-812, Republic of Korea

³ Department of Mechanical Engineering, Chosun University, Gwangju 61452, Republic of Korea

* Correspondence: yoonchul.son@chosun.ac.kr

† These authors contributed equally to this work.

Crystallographic information of the Cu₉Ga₄ phase (JCPDS No. 02-1253)

(copy from Springer Materials homepage: https://materials.springer.com/isp/crystallographic/docs/sd_0526925)

General Information

Phase Label(s): Cu₉Ga₄ rt

Structure Class(es): γ-brass

Classification by Properties: –

Mineral Name(s): –

Pearson Symbol: cF52

Space Group: 215

Phase Prototype: Cu₉Al₄

Measurement Detail(s): film (determination of cell parameters), X-rays, Cu Kα (determination of cell parameters)

Phase Class(es): –

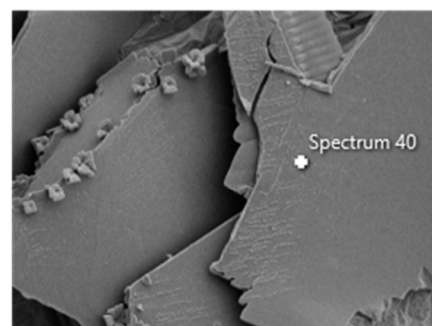
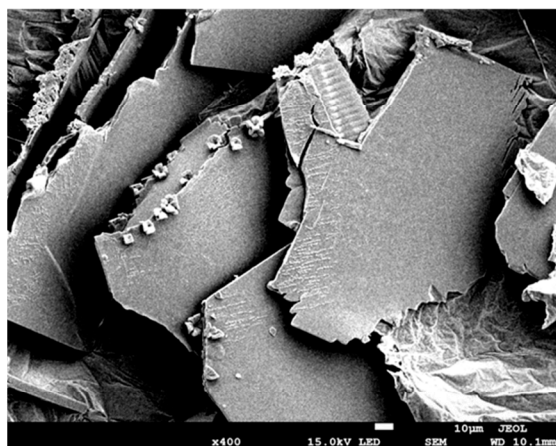
Compound Class(es): intermetallic

Interpretation Detail(s): cell parameters determined and structure type assigned; composition dependence studied

Sample Detail(s): powder (determination of cell parameters)

Large CuGa_2 plates formed in the Cu/Ni/Au-Ga specimen subjected to the reaction at 280 °C for 150 min

Electron Image 36



100µm

Spectrum 40	
Element	Atomic %
Ni	0.50
Cu	33.00
Ga	66.49
Au	0.00
Total:	100.00

Figure S1. Crystallographic information of the Cu_9Ga_4 phase and large CuGa_2 plates formed in the Cu/Ni/Au-Ga specimen.