Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Fundamental Understanding of the Synthesis of Well-Defined Supported Non-noble Metal Intermetallic Compounds Nanoparticles

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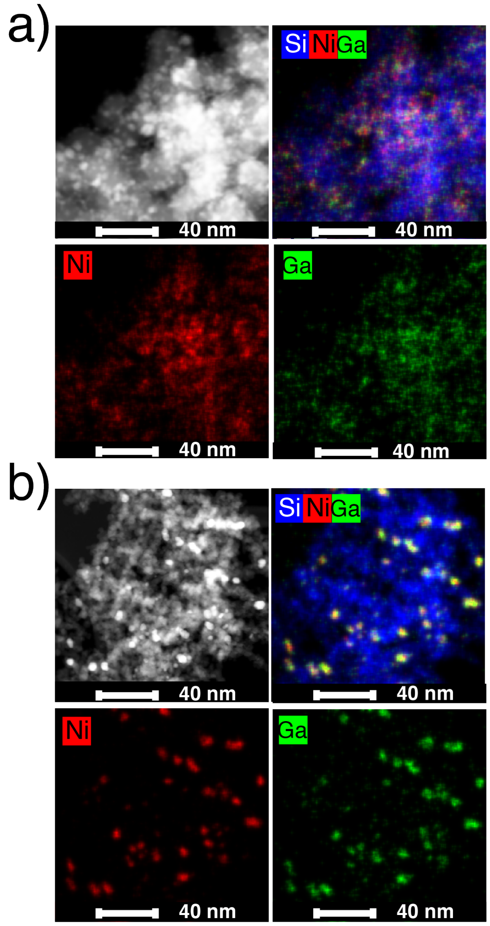
Figure S1. EDX-mappings of SiO_2 supported a) Ni_3Ga and b) Ni_5Ga_3 (nominal loadings of Ni:Ga were 3:1 and 5:3 respectively), which were synthesized using incipient wetness impregnation method and reduced at 700°C with pure H_2 for 2hrs. The elements were color coded as: Ni (red), Ga (green), and Si (blue).

Figure S2. Phase pure supported IMCs synthesized in this study: a) SiO_2 supported Ni_3Ga, Ni_5Ga_3, NiGa, and Ni_2Ga_3; b) Al_2O_3 supported Ni_3Ga, Ni_5Ga_3, NiGa, and Ni_2Ga_3; c) SiO_2 supported CoGa; and d) SiO_2 supported Ni_2In and Ni_2In_3.

Table S1. Summary of percentage of targeted phase (NiGa) of reduced 1:1 Ni:Ga/C, 1:1 Ni:Ga/SiO_2, and 1:1 Ni:Ga/Al_2O_3 with different H_2 chemical potential. The minimum required H_2 chemical potential to produce pure NiGa phase for each catalyst is highlighted with red color.



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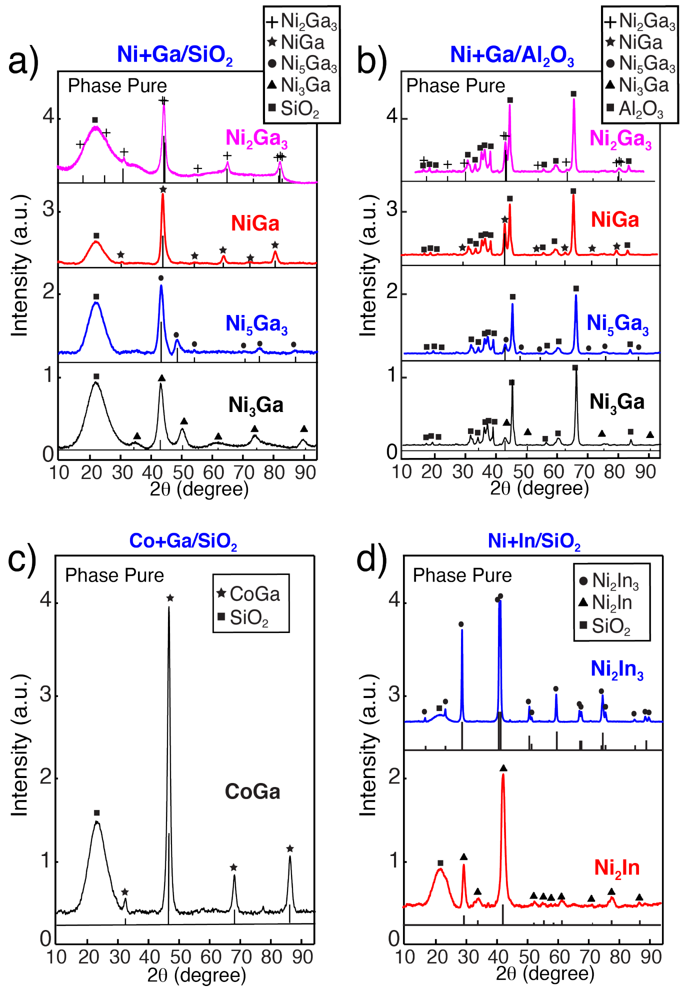

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Catalyst	H_2 Chemical Potential					
	2%	5%	10%	30%	50%	100%
1:1 NiGa/C	68%	100%	NA	NA	NA	100%
1:1 NiGa/SiO_2	0	55%	100%	NA	NA	100%
1:1 NiGa/Al_2O_3	0	0	0	0	100%	100%