Electronic Supporting Information for:

Solvothermal Metal Azide Decomposition Routes to Nanocrystalline Metastable Nickel, Iron, and Manganese Nitrides

Jonglak Choi and Edward G. Gillan*

Department of Chemistry and the Nanoscience and Nanotechnology Institute University of Iowa, Iowa City, Iowa 52242. E-mail: edward-gillan@uiowa.edu

a) Solid-state transmission IR data for selected nitride products.

b) TGA graphs for nitrides in flowing argon.

c) XRD stack plot of products from sequential Fe₂N annealing experiments.

Figure S1. Transmission IR data for several washed and unwashed metal nitride samples

Figure S1a. Ni₃N samples



Figure S1b. Fe₂N samples



Figure S1c. Mn-N samples





Figure S2. Thermogravimetric analysis washed nitride products under flowing argon

Figure S3. XRD analysis of Fe₂N products after annealing in evacuated ampoules

The samples used for these annealing experiments were as-synthesized so the NaCl byproduct is still part of the product and can serve as an internal standard (see light blue vertical lines).

Annealing experiments were performed on different samples, except as noted. The small, broad * peak near 31° is agrees well with the 100% intensity peak of NaN3 (JCPDS #21-1242). The peak at ~44.7° that grows in by 350 °C, 19 hr annealing is the (110) peak for bcc Fe metal (a = 2.87 Å).

