

## **Magnetization of Iron- and Nickel-bearing Phases**

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The Solar System includes four major chemical constituents of light gas (H and He), ice (water, ammonia, methane), rocks (silicates), and metallic alloys (Fe, Fe-Ni, and others). Most metallic alloys contribute to the formation of metallic cores of planetary bodies. Meteorites often contain metallic phases rich in Fe-Ni in a form of kamacite, taenite, and taetrataenite. Under stable conditions, metallic phases rich in Fe-Ni solidifies into kamacite or ordered taetrataenite. However, taenite is produced when taetrataenite experiences structural modification on exposure to high temperatures of several hundred degrees. When total metallic concentration was compared with the amount of Fe, Ni, and Co, only Co showed an inverse correlation with the total metallic concentration. Temperature dependence of magnetic moment indicates that stable taenite converts into unstable taetrataenite on lab-induced heating above 600 K.