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^{180}W anomalies in iron meteorites and the distribution of p-process isotopes in meteorites

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A recent report [1] found excesses of ^{180}W in several magmatic iron meteorite groups which were interpreted to reflect a heterogeneous distribution of p-process W isotopes in the early solar nebula. We have measured W isotopes in IIAB, IID, IVA, and IVB magmatic irons, as well as one ungrouped iron and metal from the CB chondrite Gujba. We find resolvable ^{180}W excesses only in IVB irons. These excesses are variable; thus, they are inconsistent with a nucleosynthetic origin. The results for IID irons are consistent with the possible effects on ^{180}W from secondary neutron capture effects. We also confirm the presence of the previously reported [2] small deficit in ^{184}W in IVB irons, consistent with an s-deficit in W isotopes in this group. This s-deficit causes a small positive shift in ^{180}W , but the magnitude is insufficient to explain the observed variations. The origin of the ^{180}W variations in IVB irons remains enigmatic but must be related to processes on the IVB parent body.

[1] Schulz T. & Münker C. (2010) 73rd Met. Soc. #5116.

[2] Qin et al. (2008) ApJ 674, 1234-1241.

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