**Summary**

EuCd2As2 has been widely considered as a leading candidate of the ideal Weyl semimetal. Nevertheless, a recent study challenged this view by discovering a substantial bandgap in this system. Here we successfully synthesized highly insulating EuCd2As2, which revealed orders of magnitude decrease of the anomalous Hall conductivity (AHC) as the carrier density decreases, contradicting with the expected behavior of intrinsic AHC generated by the Weyl points. Our results suggest that EuCd2As2 is a magnetic semiconductor rather than a Weyl semimetal.

**Figure**

