

## microspherules with hibonite

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Microspherules containing hibonite are a distinct group of Calcium-Aluminum-rich inclusions. They show isotopic anomalies in Ca and Ti and they do not contain <sup>26</sup>Aluminum. They do not show strong isotopic fractionations. Based on these characteristics, they are considered as a member of UN inclusions. (UN stands for unknown nuclear anomalies.) But the texture and the size are quite distinct from other members of UN inclusions. In spite of these petrographic characteristics, isotopic compositions of the microspherules are diverse, suggesting that there were multiple source materials. Although the presence of hibonite is a common characteristic, its relation with the surrounding silicates are not well understood. Based on the bulk chemical compositions, the hibonite is considered to be xenocrysts rather than crystals that grew from the silicate melt. Because of the presence of large isotope anomalies, they are likely to be one of the oldest, and most primitive materials in the solar system. So far, about 10 microspherules have been reported in literatures. In this study I will show 6 new microspherules found in primitive chondrites; 2 from Murchison, 2 from Yamato 81020, one from Yamato 791717 and one from Colony. Isotopic measurements have not been completed yet, but the results obtained so far are consistent with those reported in literatures. More data will be obtained by the time of the poster presentation and the relationship between these microspherules and normal Ca-Al-rich inclusions will be discussed.