

Unbreccitated and crystalline eucrite 1115 composed of porphyritic silica mineral, plagioclase and subhedral pyroxene grains

KEIZO YANAI. Faculty of Engineering, Iwate University,
4-3-5, Ueda, Morioka 020-8551, Japan

The specimen 1115 is rounded stone and seems almost complete one, but it's shiny-black fusion crust remains under 1% of all. Exterior shows nearly homogeneous of relatively coarse-grained plagioclases(white), granular pyroxenes(yellowish-pale brown) and translucent minerals with fine opaques.

Eucrite 1115 is characterized by porphyritic plagioclase with lots of inclusions and elongated euhedral silica minerals in the groundmass of fine-grained pyroxene-plagioclase(without inclusion) -SiO₂ with troilite, ilmenite, and apatite. Pyroxene is dominant as plagioclase. It is colorless to pale brown and occurs subhedral grains(0.1-0.5mm) showing exsolution in some grains. The pyroxene has almost uniform composition En₃₂₋₃₅Fs₅₁₋₆₁Wo₃₋₁₄ and En₃₀Fs₃₀Wo₄₀. Plagioclase appears as porphyritic(1.5-2mm) and fine grains (0.1-0.3mm) in groundmass, in which composition vary An₈₃₋₉₀. Silica mineral is possible cristobalite for their low refractive index and weak birefringence. Some crystals elongated up to 2mm and they often cut cross porphyritic-plagioclases and pyroxene. Bulk composition gives 46%SiO₂, 14%Al₂O₃, 18%FeO, 6%MgO and 10%CaO. Al and Fe are high, but Si and Mg are poor compare with those of cumulate eucrites.

Meteorite specimen 1115 might be one of unique eucrite with crystalline texture, because it is characterized by the some large SiO₂ crystals.