

Abstract

A tin-based solder alloy powder in the form of 2 to 38 μm small spherical tin-based solder alloy particles having an inorganic surface and a thin outer surface layer of stressed castor oil, wherein the inorganic surface plus the thin outer surface layer of stressed castor oil together form a surface region of the spherical tin-based solder alloy particles, and wherein the surface region, when subjected to a ToF-SIMS analysis carried out with Ga^+ primary ions having an energy of 15 keV and with a total scan time of 5 minutes, exhibits a secondary ion mass spectrum the negatively charged secondary ion fragments 113 amu with a relative signal intensity in the range of 0.7 to 3.1, 127 amu with a relative signal intensity in the range of 0.9 to 4.4, 136 amu with a relative signal intensity in the range of 1.4 to 6.7, 137 amu with a relative signal intensity in the range of 0.6 to 3.9, 152 amu with a relative signal intensity in the range of 1.3 to 12, 153 amu with a relative signal intensity in the range of 2.3 to 20, 183 amu with a relative signal intensity in the range of 0.6 to 16, 279 amu with a relative signal intensity in the range of 0.5 to 12, and 297 amu with a signal intensity of 1.