

鉛高温はんだ代替・耐熱接合材料の特性

加藤 力弥*, 山形 咲枝*, 岡本 正英**, 池田 靖**

Features of Heat-Resistant Jointing Material That Replaces High-Temperature Lead Solder

Rikiya KATO*, Sakie YAMAGATA*, Masahide OKAMOTO** and Osamu IKEDA**

* 千住金属工業株式会社田口研究所 (〒120-8555 東京都足立区千住橋戸町23)

** 株式会社日立製作所生産技術研究所 (〒244-0817 神奈川県横浜市戸塚区吉田町292)

* Taguchi Laboratory, Senju Metal Industry Co., Ltd. (23 Senju Hashido-cho, Adachi-ku, Tokyo 120-8555)

** Production Engineering Research Laboratory, Hitachi, Ltd. (292 Yoshida-cho, Totsuka-ku, Yokohama-shi, Kanagawa 244-0817)

Abstract

At present, heat-resistance is given to a soldered joint by using a Pb-based single-alloy solder. In order to achieve Pb-free soldering, a reliability test was conducted using a composite type solder paste to solder joints. From this test it was found that joints made using a composite-type solder paste were equal to or stronger than joints made using the Pb-free single-alloy solder. It was also confirmed that the high-melting-point intermetallic compounds (IMC) were bonded continuously, forming a heat-resistant joint. The composite-type paste was prepared by mixing solder powder, Cu powder, and flux. This paper reports on the strength of the formed IMC of the joint after it is allowed to stand at a high temperature, the strength after a temperature cycle test, and the features observed in the structure of the soldered part before and after the test.

Key Words: Heat Proof Joint, Compound Material, SnAgCu Solder, Cu Powder