

Observation of Solder Wires by Real View TG Measurements

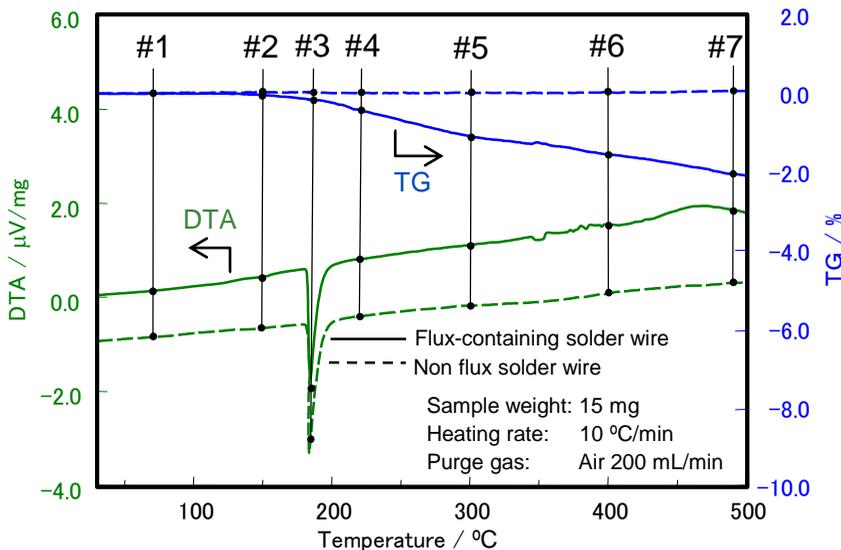
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- In the case of conventional STA (Simultaneous Thermogravimetric Analysis) , because the sample is placed inside an opaque furnace, the sample inside cannot be observed during analysis.
- A newly-designed sample observation system allows the user to observe the sample during STA measurements.
- This report presents STA data, corresponding to flux-containing and non flux-solder wire samples, obtained using the STA7200RV+RV-2TG system featuring a sample observation unit.



Simultaneous Thermogravimetric Analyzer with Sample observation unit STA7200RV+RV-2TG

Results



As shown in the Figure, both DTA curves exhibited endothermic peaks caused by eutectic melting near 180 °C. However, the TG curve of flux-containing solder decreased due to thermal decomposition of the flux, while the TG curve of non flux-solder hardly changed.

As shown in the images below, flux flows out from the solder wire before the melting temperature of the solder is reached (#2 in top row). The liquid flux increases the wettability of the solder. Therefore, the solder forms a droplet after melting (#3 in top row).

Note: Typically, flux liquefies before the melting temperature of the solder. The liquefied flux covers the surface of the solder and prevents oxidation.

Real view image of flux-containing solder wire



Flux flowed out of the right-side end of the wire.

The wire melted and formed a droplet.

Flux decomposed gradually. #3->#7

Flux did not flow out.

The wire changed little even beyond the melting point.



Real view images of non flux solder wire