Heraeus

Technical Data Sheet

Ball Dip Paste – BD42

Water Clean Ball Dipping Solder Paste

1. Description

BD42 Series paste allows BGA manufactures the ability to utilize SOP (solder on pad) substrates while maintaining outstanding yields. The traditional flux and drop process is not compatible with SOP due to the convex surface of the solder causing ball movement during reflow.

BD42 Series pastes allow the balls to be dipped in solder before placement which prevents ball movement and eliminates the need for printing of solder paste or flux. BD42 pastes are based on the outstanding ball attach flux CL84-8971 which is formulated with nonionic surfactants, tackifying agents, rheology modifiers and a blend of halide and non-halide containing activators.

BD42 series pastes feature Type 5 or Type 6 highly spherical solder powder and is available in both Pb based and Pb Free material sets. BD42 solder pastes exhibit easy cleaning in low standoff applications, resulting in high reliability in a variety of processes.

Key Benefits

- Easy cleaning in low standoff applications
- For SOP substrates
- Eliminates need for printing of solder paste or flux
- High reliablility
- Ball Dip process provides outstanding yields.

2. Product Indication

Indication:	BD42
Alloy:	Ag3 = SAC305 Ag4 = SAC405 Sn63 = Sn63/Pb37
Part Numbering System	BD42-Ag3 BD42-Ag4 BD42-Sn63 Where: BD = Ball Dip Application 42 = Flux System Ag3 = SAC305 Ag4 = SAC405 Sn63 = Sn63/Pb37

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3. Physical Properties

Metal powder:

Particle size:

Mesh Size	Microns Size	Particle Type
-500 +625	25-10	5
-625 +1250	15-5	6

Shape: Spherical

Solder Paste:

% Solids: 80.0 ± -1.0

Viscosity Range: 350-450 Kcps
Brookfield RVT, T-F Spindle at 5 RPM

Peak Tack Force: 3.5 g/mm^2
IPC TM-650-2.4.44

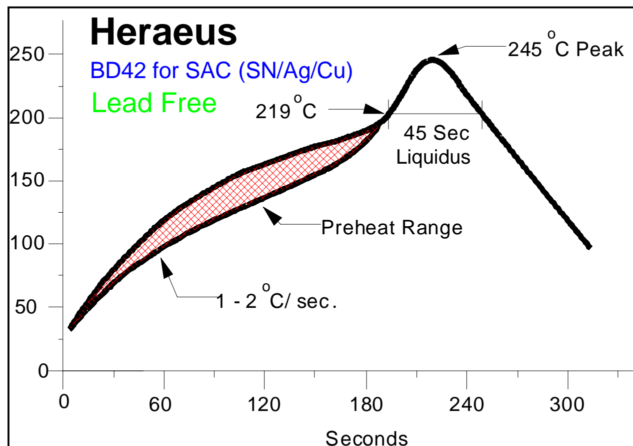
Wetting Ability: Excellent on Sn, Sn/Pb, Pb Free and oxidized Cu

SIR: >1x10^8 Ohms (after cleaning)
IPC J-STD-004

Acid Number: 20 +/- 2

4. Reflow Parameters (recommendation)

Most conventional reflow equipment can be utilized with an inert atmosphere < 200ppm O_2. A standard reflow profile for bulk soldering is adequate, with preheats that promote even temperature distribution across the substrate or component. Temperatures at least 20°C above liquidus should be achieved with the time above liquidus being maintained for 30 to 60 seconds.



5. Dip Application

Depending on the application, dip depth of the ball into the reservoir should provide 25-30% coverage of the ball surface as illustrated above.
Material in the reservoir can be replenished due to depletion for up to 8 hours of use. It is recommended to replace the material in the reservoir after 8 hours of use with fresh material.
IPA is a suitable solvent for cleanup.

6. Storage and Shelf life

Six months shelf life is guaranteed if material is stored in its original sealed container in a dry environment with temperatures between 5 and 25°C. Storage for periods longer than 2 months should be done at temperatures between 5 and 10°C to insure that minimal separation takes place in the container. Syringes should be stored tip down. To avoid contamination and shelf life issues, used material should not be returned to its original container.

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The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for a particular application.

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