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We listen and respond.

Frequently Asked Questions

Storage and Handling

Q: **Do paste containers require a certain orientation during storage?**

A: Yes. Syringes and cartridges should be stored vertically with tips facing down. Jars should be stored right side up.

Q: **Does solder paste require refrigeration?**

A: Suggested storage temperature for paste is between 40°F and 70°F (4°C to 21°C). If ambient conditions are outside this temperature range, then refrigeration is required.

Q: **What is the shelf life of solder paste?**

A: At a minimum, six months from date of shipment when stored as recommended. Paste should not be frozen. Warmer conditions will reduce shelf life and/or cause flux separation. The end user needs to determine actual shelf life if stored outside recommendations. In this case, the replacement guarantee is void.

Q: **What happens to solder paste if it is frozen?**

A: In many cases, nothing happens. However, some pastes are susceptible to damage that impairs paste performance. As a consequence, we recommend not freezing any of our solder pastes and paste fluxes. If you do "freeze" some paste, test its performance before use on live product.

Q: **Will solder paste last beyond the stated six-month shelf life?**

A: EFD guarantees that properly stored solder paste will perform properly for up to 6 months from date of shipment, or material will be replaced at no charge. Many of our solder pastes will last well beyond the warranty period. Customers wishing to use "expired" paste should re-qualify the material by running test boards or parts through the entire production process to confirm good soldering results.

Q: **Are there telltale signs of improper storage and/or handling?**

A: Aside from poor performance, the other major sign of mishandled solder paste is separation of the flux and alloy particles. Solder paste should be uniform in color and consistency.

Q: **Should solder paste be used direct from refrigeration?**

A: No. Solder paste should be used at "room temperature." This will assure intended viscosity and prevent potential condensation. Recommended warm-up time is four hours.

Q: **Can solder paste be warmed up quicker than the recommended 4 hours?**

A: We do not recommend it. However, if necessary, faster warm-up may be achieved by placing the sealed container in a water bath or similar equipment at or near ambient temperature. Syringes require approximately fifteen minutes while jars and cartridges can take up to 45 minutes. DO NOT heat paste with an oven or other environment set above "room temperature." Dry all packing completely prior to use to prevent water coming in contact with the solder paste.

Q: **Should solder paste be re-refrigerated?**

A: No. Solder paste should be used as needed. Material should be left at room temperature once removed from refrigeration. In the event that a container of solder paste would go unused after removal from refrigeration, and ambient temperature exceeds 75°F (25°C) for an extended time before use, it may be returned to cool storage.

Q: **Can excess stenciling solder paste be re-used?**

A: In general, we do not recommend reuse of solder paste remaining on the stencil. However, if paste is relatively fresh, it can be put into a jar and stored for reuse. Never put used paste back into the same container as new paste. This will contaminate the unused paste and degrade its performance.

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Process and inspection

Q: I'm getting solder balls on the sides of my chip components. How do I make them go away?

A: Solder balls on the sides of chip components are typically referred to as "solder beads" due to their large size. Two process changes may be possible to minimize or eliminate the problem.

1) Aperture reductions designed to decrease the quantity of paste trapped between the part and board solder mask. The most effective shape is a triangular shape removed from the inside edge of each aperture. Two other options in use are a home plate shape and simple aperture reduction on the inside edges. Call Technical Service for specifics.
2) Component placement accuracy relative to paste is critical. Reductions all by themselves do not guarantee elimination of solder balls if pick & place accuracy is inadequate. Tune your equipment to optimize vision recognition and placement accuracy of your chip components.

Q: What are the effects of a Nitrogen atmosphere on solder paste reflow?

A: Four effects are more significant than others.

1) Increased surface tension of molten solder alloy changes fillet shapes, improves part centering, and may increase tombstoning.
2) The low oxygen content retards oxidation, allowing for longer and hotter profiles.
3) Nitrogen transfers heat better than air so set points may be lower.
4) Evaporation of many fluid flux constituents is increased, thereby reducing the quantity of flux residue.

Q: What should my no-clean residue look and feel like?

A: No-clean residues should be colorless or nearly so to facilitate visual inspection. They should be tack free and fairly brittle, allowing for easy penetration of test probes without clogging.

Q: We want to switch to lead free solder. What do we have to worry about?

A: The issue of greatest concern is component survivability at the higher reflow temperatures required for lead free solder alloys. Both circuit board materials and components have been developed around lower temperature solders and can be damaged when processed at lead free reflow temperatures. Check your component specifications.

Q: Will our inspection criteria have to change?

A: Yes. Only Sn63/Pb37 has the mirror smooth, bright finish that inspectors are typically trained to look for. High tin, lead free alloys will look light colored and dull or grainy in comparison. This look is a function of the alloy crystal structure. EFD strongly recommends retraining and requalification of inspection and rework personnel when switching from an Sn/Pb soldering process to a lead free process.

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