

General Solder Paste Handling Guidelines- Americas Edition

INTRODUCTION

Below are the general guidelines to be used for handling ALPHA® Solder Pastes. The product Technical Bulletin should always be referred to for verification of any specific recommendations or conditions.

SHIPPING

- ALPHA solder paste products are engineered to be shipped between 0-29°C (32-84°F). In the Americas, the shipping containers are designed to remain below 25°C (77°F) under normal shipping, handling and delivery conditions.
- According to tests using standard ALPHA® packaging (foam insulation with Ice gel-packs), solder paste remains below 25°C (77°F) for 48 hours, even when shipped on days that reach 32°C (90°F). (See Figure 1).
- Melted ice-gel packs are not necessarily an indication of exposure above 25°C. Temperature indicator strips may be included in packaging, upon request, to verify the maximum temperature at which the solder paste has been exposed. There may be an additional charge for the inclusion of temperature indicators. Contact your authorized Alpha® paste representative for a quotation.
- Our distributor partners take active responsibility during final transport and delivery to customers for maintaining the integrity of ALPHA® solder pastes. Every care should be taken to use completely frozen gel packs and sealed cartons with the original foam insulation when re-shipping paste to customers if the outside temperature will be over 25°C (77°F).
- 2nd day shipping should be used if the ambient temperature is above 30°C (86°F). Keep in mind that air shipments can be better for solder paste, as air cargo holds are extremely cold, even in the summer months.

STORAGE

- Long term storage of solder paste is best achieved by refrigeration 0-10°C (32-50°F). The material should be placed in a storage area designed to maintain this temperature range (refrigerator or cold room) immediately upon receipt.
- Paste that has been exposed to 25°C (77°F) for 4 days can be refrigerated and expected to perform per product bulletins.
- Solder paste should never be stored at room temperature 19-25°C (66-77°F) for prolonged periods of time. Room temperature stability is intended to provide manufacturing flexibility after storing the product and prior to use.
- Exposure to temperatures above 29°C (84°F) will decrease the useful life of paste. Exposure to 32°C (90°F for up to 7 hours) is an extreme condition that should be avoided. However, OM-338 series and OM-5100 series pastes have been used successfully if the paste is refrigerated and used within 5 days of this extreme temperature exposure. (See Figure 2).
- Typical solder paste shelf life is 6 months in a refrigerated environment if the paste has not been exposed to temperatures above 29°C (84°F). Verify product Technical Bulletin for exceptions.
- Cartridges are best stored vertically, tip down. If stored horizontally, best practice is to turn cartridges 180° once every week.

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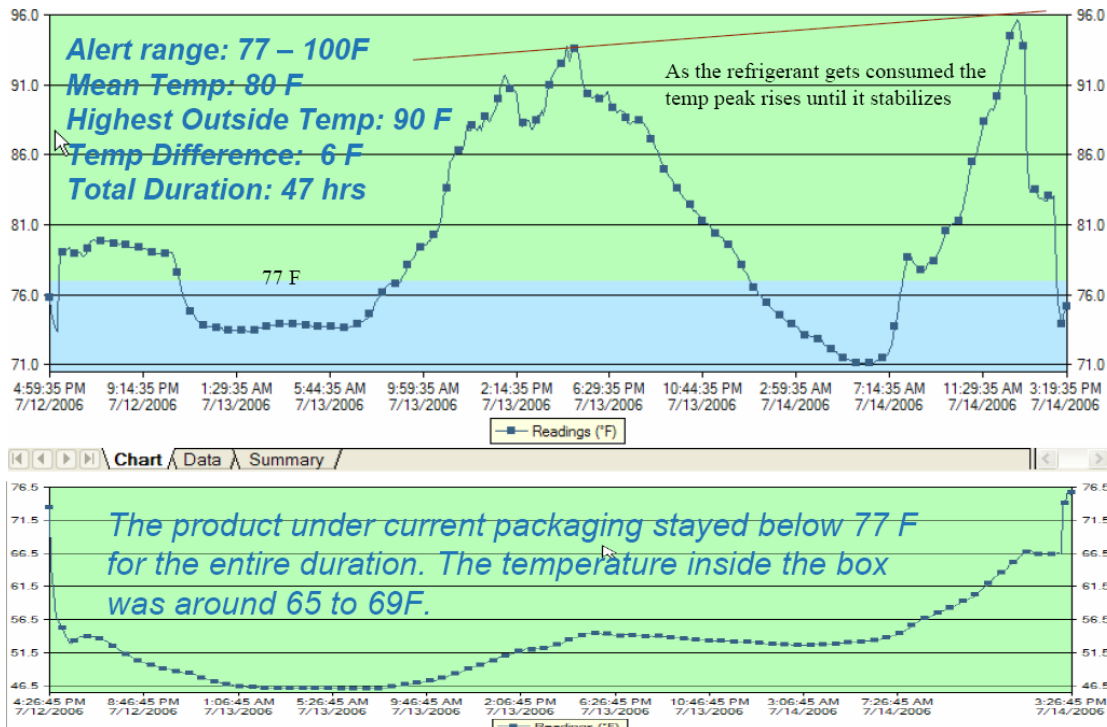




USAGE

- Paste should always be used on a First-In-First-Out (FIFO) basis. To maintain optimum performance, paste should not be stored outside the refrigerator any longer than necessary (never more than four (4) days).
- Solder paste should be allowed to reach room temperature, 19-25°C (66-77°F), without forced heating. A period of 3-4 hours out of refrigeration before the paste is used is recommended. The specified viscosity of each paste is based on measurement at 25°C (77°F).
- Stirring or folding the solder paste is recommended for material packaged in jars, prior to use.
- Apply an even paste bead on the stencil over the width of the squeegee/image with a diameter of approximately 12 mm (1/2"). Replenish when paste bead is <12 mm (1/2") and replace the material when it exceeds stencil life or has been exposed to high temperatures inside the printer >29°C (84°F). If the solder paste is designed for printing at temperatures over 29°C, it will be indicated on the technical bulletin.
- Refer to product Technical Bulletin for room temperature stability life.
- If containers are unopened, they may be returned to the refrigerator to stop further degradation of the product; opened containers are subject to condensation when refrigerated. Do not return open jars to refrigeration.
- Do not remove worked paste from stencil and mix with unused paste in jar. This will alter the rheology and possibly the moisture content of the unused paste and, potentially, negatively affect paste performance.
- Failure to follow these guidelines will result in reduced shelf life and diminished printing performance and may make the product unsuitable for use.
- **Paste performance properties do not undergo a sudden dramatic change after any given period; they change slowly, with time. These changes are accelerated at higher temperatures. Shelf life issues are mostly related to printing or dispensing the product. If solder joint coalescence after reflow is good, solder joint integrity has been achieved.**
- Careful consideration of upgrading solder paste technology to ALPHA® OM-series no-clean or WS-800 series water-soluble pastes may also significantly improve the shelf life of your solder paste.
- Always dispose of solder paste residues in accordance with local environmental legislation.

Figure 1-Data Log Record: ALPHA Paste Shipping in North America



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Figure 2- Viscosity of solder paste exposed to 32°C (90°F). Paste still at working viscosity after being returned to a refrigerator for 5 days. This practice is not recommended, but is an illustration of paste performance.

