



## Instructions for using your Fusion Brazing/Soldering Paste

Enclosed is the Fusion Brazing/Soldering Paste you ordered. It has been carefully formulated to meet the demands of your application. Before opening and testing the sample, take a few minutes to review the testing recommendations below. They will help you in the proper use of this time-saving product.



1. When not using the paste, make sure the lid is sealed on the container. This will keep air from drying out the sample. Store the paste at 55-75°F. If your sample is packed in a cartridge or syringe, always replace the plastic tip on the dispensing end to seal off air when not in use.
2. If your sample comes in a jar, you may see a thin liquid film on the top of the paste. Whether or not that film is present, vigorously stir the paste for at least one minute. This will make sure the paste is uniform throughout.

3. After thoroughly mixing the paste, transfer it to the hand syringe provided. **(Photo 1)** Ensure the paste is free from air pockets by tapping the outlet of the syringe on a table. As you replace the plunger, slowly extrude a small quantity of paste back into the jar. This should force out any trapped air. You are now ready to apply the paste onto your part.



4. In general, the paste deposit(s) should touch both parts to be joined. Apply the paste in one or more "dots", or deposits **(Photo 2)** at the joint area. Depending on the joint design, you may wish to dispense a complete bead, or stripe of paste, around the joint area.



5. Some brazing/soldering joint designs may not have much of a "ledge" on which to deposit the paste. During heating of the part - and with gravity at work - the paste may run over the edge of the area on which it was placed. If this happens, use multiple deposits or apply a bead of paste to the part. You may also want to tilt the part slightly to direct the filler metal flow.
6. Please note that the paste may fume, or even show a slight flame, within a few seconds after heat is applied. This is normal, so don't be alarmed. **All brazing/soldering work, even hand testing, needs to be well ventilated to keep fumes away from the operator.**

Fusion pastes perform well using a wide range of heat sources. If you are using open flame to do the testing, please note the following:

- Unlike solid forms of alloy, heat is conducted to the paste through the parts being joined. Make sure the flame is *not*



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3

*directly applied onto the paste*, particularly in the early stages of heating. (Photo 3) Directly heating the paste may burn out the active flux materials, thus impacting both the capillary flow and cleaning properties of the paste. Total heating time to complete the joint should range from 10 seconds to one minute, depending upon the base metals being joined and their mass.

- Begin by applying heat first to the larger mass of the parts being joined. Move the flame back and forth (keeping it off the paste) as required to evenly heat both of the metals you are joining.
- A color change may be observed around the paste, or near the joint, as the flux reaches activation temperature to clean the joint surfaces. At this point, the filler metal is getting ready to melt. As you see the paste deposit melting, you may then bring the flame to bear directly on the joint area. If the parts have been evenly heated, capillary attraction will move the molten filler metal around and throughout the joint.
- After the joint has been completed, wait a few seconds before moving or cooling the joined parts. This is particularly important with soft solder products which melt below 800°F. After the filler metal has melted and flowed into the joint, there is still residual heat in the part. This heat can keep the filler metal in its liquid state for 3-10 seconds. Moving or cooling the parts too soon will damage the joint. Don't touch the part until it is completely cooled as described in the next section.
- After you are sure the filler metal is completely solidified, you may direct a stream of compressed air for 30 seconds onto both of the metals being joined. If the part can accept water cooling, flood the part with water to bring the part to room temperature. The cooling water will remove much of the oxidation (discoloration) from the joined parts, and also much of the flux residue.

**IMPORTANT: ALL BRAZING ALLOYS AND MANY SOFT SOLDERING ALLOYS USED IN OPEN AIR CONTAIN FLUXES WHICH HAVE RESIDUES THAT MUST BE REMOVED FROM THE PART AFTER COOLING. FAILURE TO REMOVE THESE RESIDUES MAY RESULT IN DAMAGE TO THE JOINED PARTS OR TO THE JOINT ITSELF. CONTACT SRA FOR A RECOMMENDATION ON FLUX REMOVAL SOLUTIONS.**

Heating your parts to joining temperature with non-flame methods (induction, hot air) provides equally satisfactory joints. As with flame, heat the parts within the recommended time, and make sure they are heated evenly.

Following these instructions should give you good results. If you are unable to produce satisfactory parts, please contact



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