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APV ENGINEERED COATINGS M-10/M-13 MASKING SYSTEM FOR DIFFUSION COATING PROCESS (TEMPERATURES ABOVE 1500°F)

APV Engineered Coatings has developed masking procedures and compounds to offer protection from coating formation on portions of superalloy parts and assemblies, during high temperature metal diffusion processing.

The M-10/M-13 Masking System contains dry powders, binder and diluent. The System components are mixed at the customer's location on an as required basis. All components are tested for satisfactory performance prior to being shipped.

The components are:

M-10 Maskant — A base metal powder mask used as an undercoating for the other materials in the system. It can be used as a dry powder or mixed with the **B-4 Binder** to produce a slurry mask. M-10 is relatively inert to superalloy base metals. Its function is to act as a "getter" for diffusion coating metals such as aluminum, thereby preventing aluminum coating metals on this surface.
After processing, the M-10 is a soft powder and is readily removed from the surface by an air blast. No grit blasting or wire brushing is required.

M-13 Maskant — An overcoating powder which when combined with the **B-4 Binder** provides a top coating to the M-10. M-13 forms a tight envelope over the M-10. After processing, the envelope is hard and retains the M-10 and itself intact. The M-13 envelope is cracked open by striking with a wooden, plastic or rubber implement. The easily removable, soft M-10 is readily evident under the M-13 envelope.

B-4 Binder — A highly effective and unique mixture containing organic binders and a non-explosive, non-flammable solvent which completely volatilizes during the diffusion coating cycle. There is no contamination of the pack mix during this volatilization.

D-4 Diluent — An organic mixture used to replace room temperature volatilized components of the M-10/M-13 slurries. The diluent is used as needed to maintain the viscosity of the slurries.

*The APV Engineered Coatings Masking System provides excellent self-retention features during the packing and coating phases. When particles of the masking compound were intentionally intermixed with the coating pack, no harmful effects were observed. This feature provides the possibility of reusing pack mixes which previously had to be discarded.

The following mixing instructions and applications are a *suggested guide* for applying the maskants. You may want to add more or less than the number of dips recommended. The diffusion coating process and the alloy used should be the guide in determining the amount of masking powder needed for proper protection.

M-10/M-13

-Mix 2000 grams of M-10 powder with approx. 1,000 – 1,100g of B-4Binder.

-Mix 3000 grams of M-13 powder with approx. 1,000 – 1,200g of B-4 Binder.

-Apply two (2) dips of M-10 slurry, allow a short drying period between dips (approx. 15-20 min.); then apply two (2) dips of M-13 slurry.

CAUTION! KEEP THE M-13 APPROXIMATELY TWO (2) MILLIMETERS BELOW THE TOP OF THE M-10 DEPOSITION LINE. KEEP THE M-13 FROM TOUCHING THE BARE BASE METAL TO AVOID DAMAGING THE SURFACE OF THE PART.

For PWA-273 type coating on nickel based alloys at 1800-1900^{o}F, use the M-10/M-13 Masking System. Prepare the M-10/M-13 as instructed above and apply three (3) dips of M-10 and three (3) dips of M-13.

For additional information, pricing and availability of the M-10/M-13 Masking System materials, please contact our Sales Department toll-free at 1-866-859-3670.