

APV®

ENGINEERED COATINGS

BRINGING THE CHEMISTRY

SINCE 1878

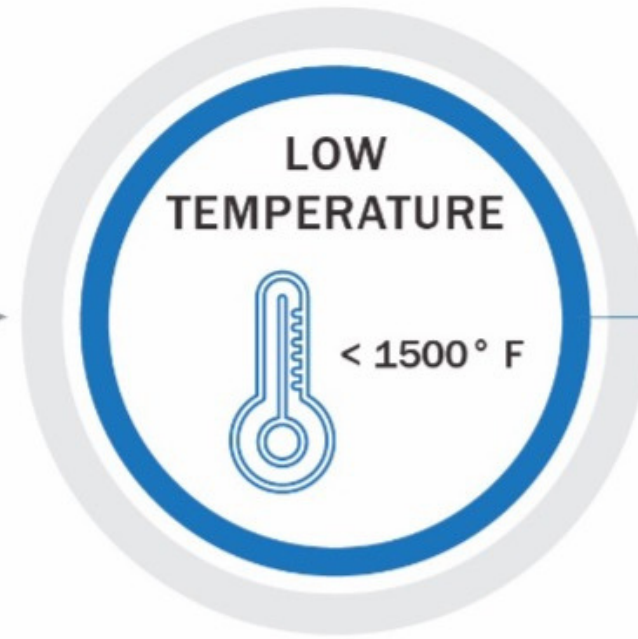
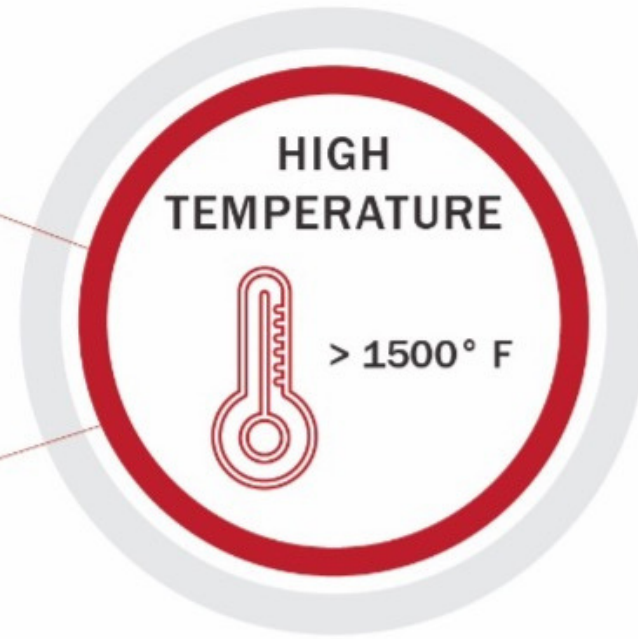
MASKANT MATERIALS

MASKANT SYSTEM COMPONENTS

- ▶ Dry Powders
- ▶ Binders
- ▶ Putty
- ▶ Stripper
- ▶ Tapes

THE MASKANT SYSTEM & MATERIALS OVERVIEW

DRY POWDERS
M-1, M-10, or M-17
Mix in masking box and
lightly densify.



SLURRIES
Powder + Binder
Single Layer of M-8

SLURRIES
Powder + Binder
Mix on site in
contained maskant
box or dip/spray
apply.



M-10 + M-7 = M-107
OR
M-1 + M-7 = M-17

M-1 or M-10 = 1st coat
+
M-7 or M-13 = 2nd coat



NOTE: As adjuncts or additional aids to dry and slurry maskant coatings, APV also offers the following products:

- M-10 Masking Putty
- M-1 Masking Tape
- ASC-2N Coatings Stripper
- B-4 Binder
- B-100 Binder
- B-200 Binder

1

Place part to be masked into part-specific masking box.

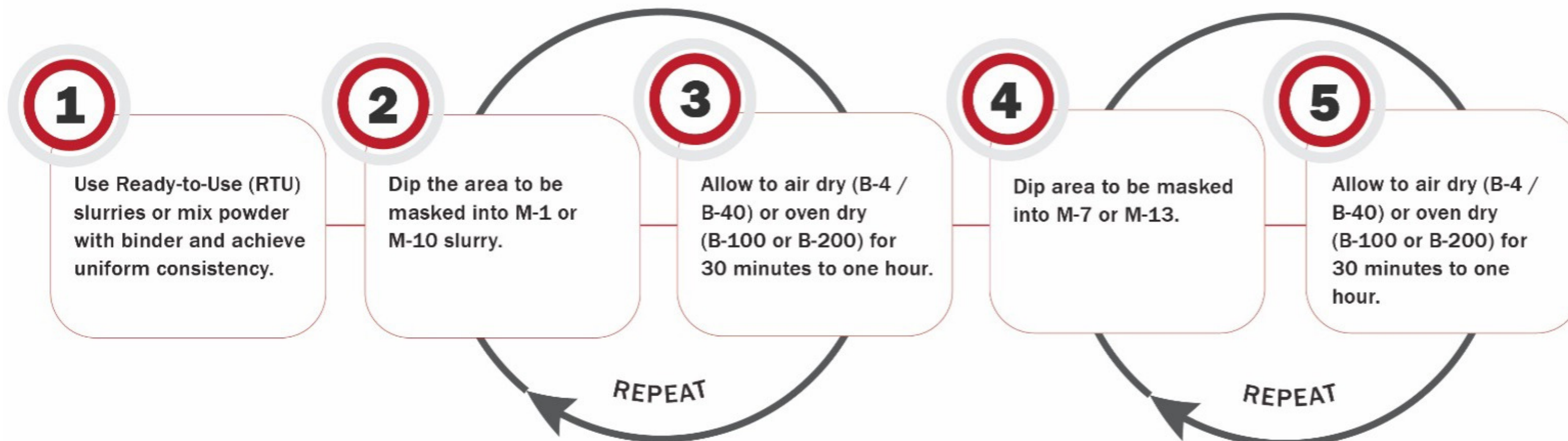
2

Ram/vibrate M-1, M-10, or M-17 powder lightly to densify.

3

Load masked part into masking box and load it into coating furnace/retort

DRY POWDER MASKANT PROCEDURE



MASKANT SLURRY PROCEDURE

DRY POWDER MATERIALS

M-1 Maskant | Base Metal Powder Maskant

USAGE

- As undercoating for other materials in the APV masking system or as a dry powder
- When used as a slurry it is combined with B-4, B-40, B-100, B-200 or B-315 Binders and topcoated with M-7 Slurry

FUNCTION

- Acts as a “getter” for diffusion coating metals
- Prevents the coating from developing on unwanted surfaces
- Metallographic examination shows alloy depletion of approximately 0.0003-0.0005 inches with coating processing of ~ 2000°F (1095°C)
- Green color is available to distinguish it from the part to be coated.



M-10 Maskant | Base Metal Masking Powder

Same Material Chemically as M-1 but Finer Particle (Mesh) Size- approx. 50% reduction in particle [mesh] size)

USAGE + FUNCTION

- Primarily for diffusion coating processes above 1500°F
- Gives a sharper demarcation between the coating and masked surfaces (coat-no coat-zone)



M-7 Maskant | Overcoating Powder Maskant

USAGE + FUNCTION

- During aluminum diffusion coating (usually combined with APV Binder) provides a top coating to the M-1
- May also be used in combination with M-1 as a mixture
- Forms an “envelope/cocoon” over the M-1 retaining both products intact (avoids contamination) after coating when used in slurry form
- Removes easily by “cracking” open



M-17 + M-107 Maskant

USAGE + FUNCTION

- Primarily for diffusion coating processes above 1500°F
- Can be used in slurry or as a dry mask
- When used in slurry form, does not require separate coats of M-1 or M-10 and M-7



M-8 Maskant | Masking Powder

USAGE + FUNCTION

- Primarily for diffusion coating processes below 1500°F
- Hardened M-8 can be easily removed with a wooden, plastic or rubber implement
- M-8 is available in green or red if required by user.



BINDERS | Water-Based

B-100 Binder

- Water-based binder system
- Oven drying is required

B-200 Binder

- Higher viscosity water-based binder
- Oven drying is required

B-315 Binder

- Low-VOC Binder
- Water-based



BINDERS | Solvent-Based

B-4 Binder

USAGE + FEATURES

- To prepare slurries with APV masking powders
- Volatilizes during the diffusion coating cycle
- There is no contamination of the pack or coating nugget mixes
- Oven-drying is typically not required

B-40 Binder

- Solvent-based binder system
- Oven drying is typically not required
- Quick Drying



READY TO USE (RTU) SLURRIES

RTU Slurries | M-1, M-10, M-7, M-8, M-107, M-18

USAGE + FUNCTION

- Same as slurry masking
- Available with water and solvent-based binders

FEATURES

- Simple to use and implement
- Cost effective
- Eliminates operator involvement from weighing, measuring, and slurry preparation
- Ready-to-Use-Slurries remain in suspension for significantly longer periods of time than on-site prepared slurries.



TAPE

M-1 Masking Tape

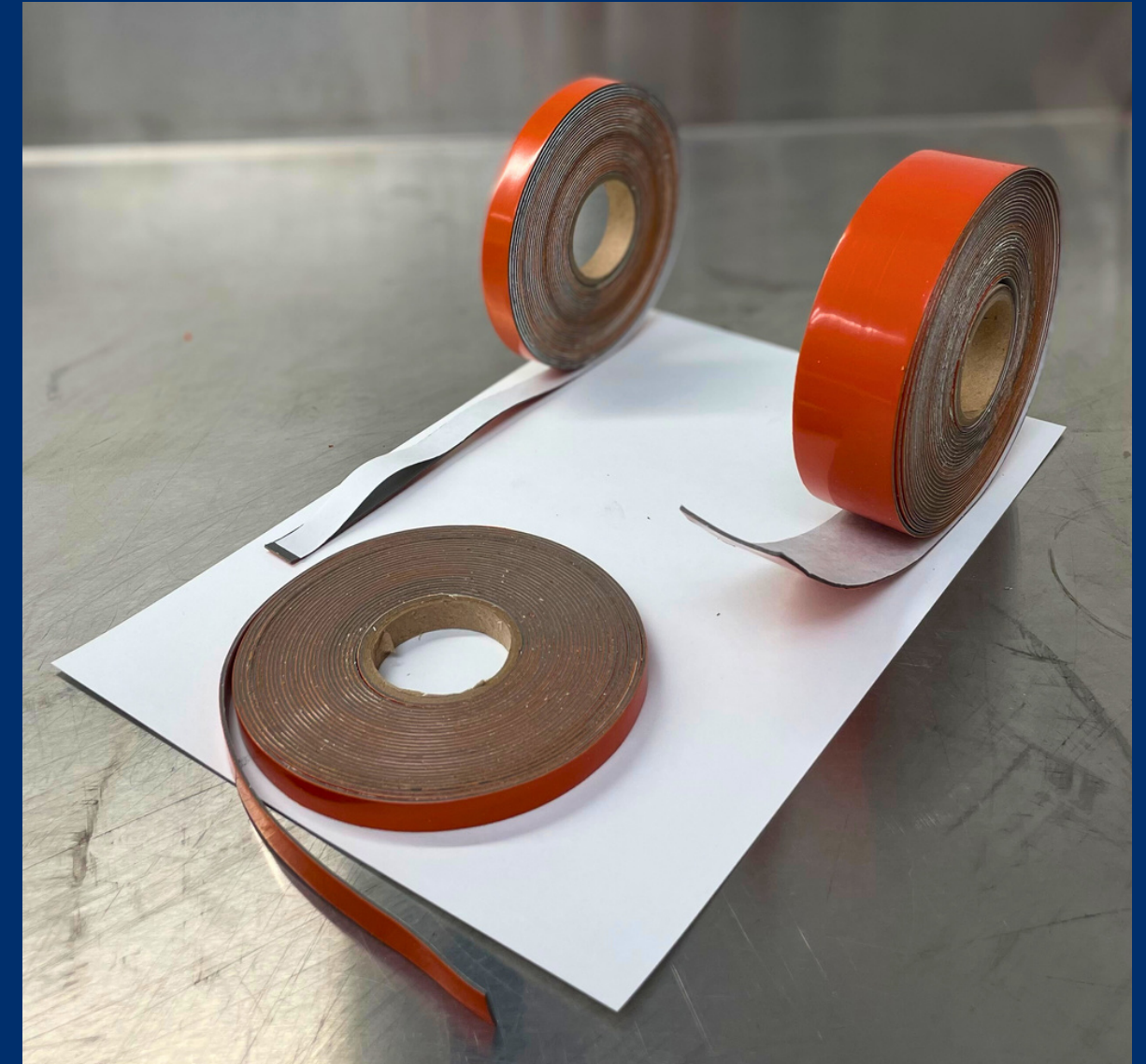
Flexible masking tape consisting of M-1 and a clean burning organic binder.

USAGE + FUNCTION

- Effective as a “gasket” material between turbine blade root bottoms and manifold.
- As an adjunct to other APV masking products
- Prevents coating gases from “leaking out” onto “no-coat” surfaces

FEATURES

- .040 in thickness
- Flexible
- Available in 25-foot rolls, several widths (1/2”, 3/8” & 1 1/4”)
- Adhesive backing (one-or-two-sided)



PUTTY

M-10 Masking Putty

Putty containing M-10 material.

USAGE + FUNCTION

- Used as an adjunct to masking with dry and/or slurry mask
- Has shown maximum alloy depletion of 0.0003 to 0.0005 inches

FEATURES

- Moldable
- Supplied in pieces- standard size is
- 4 x 4 inches
- No parting layer is required to prevent sintering (and/or “stick-on”)
- Leaves no ash or other deposits



STRIPPER

ASC 2-N Stripper

Blue crystalline compound, soluble in water

USAGE + FUNCTION

- Use in water solution with nitric acid
- Effectively removes freshly prepared Aluminide coatings and/or coatings on nickel and cobalt superalloys that have experienced engine exposure.

FEATURES

- Dry
- Granular
- Water-soluble
- Used at room temperature- No solution heating required



PROCESS POWDER

P-1 Powder

Pack aluminizing powder

USAGE + FUNCTION

- Used on cobalt and nickel alloys
- PWA-approved (PWA 252 Specification) high temperature coating

P-1 Tape

Aluminizing tape

USAGE + FUNCTION

- Used on cobalt and nickel alloys
- PWA-approved (PWA 252 Specification) high temperature coating



CUSTOMIZED PREFORMS

M-1 Masking Preforms

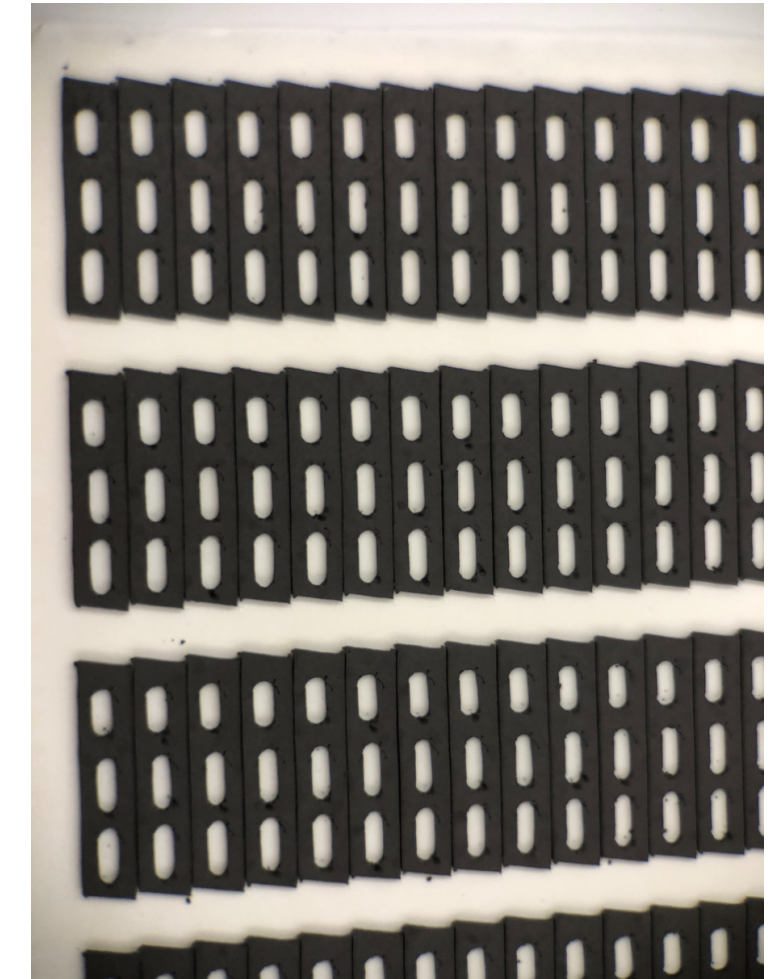
Flexible masking preforms consisting of M-1 and a clean burning organic binder

USAGE + FUNCTION

- Effective for difficult to mask areas (i.e. turbine blade platforms and manifolds)
- As an adjunct to other APV masking products
- Prevents coating gases from “leaking out” onto “no-coat” surfaces
- Protects imprecise manifolds

FEATURES

- Can be custom designed to fit unique measurements
- Moldable and flexible
- .050 in thickness
- Available in 10x10 sheets
- Adhesive backing (one-or-two-sided)



THE FUTURE OF MASKANT

- Improvement of RTU slurries for more effective end use
- Development in rejuvenation of used Maskant slurry material
- Continued engineering of slurry dispensing equipment
- Development of primer to improve removal of Maskant material from blade



Thank You!

Website:
apvcoatings.com

Email:
sales@apvcoatings.com