

ac products, inc.

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PRODUCT DATA BULLETIN AC-972-WB MASKANT (JW4-66)

PRODUCT DESCRIPTION

AC-972-WB MASKANT is a water based hand peelable coating designed specifically for processing aircraft fuselage skins and structural components. This version of AC-972-WB Maskant can be spray or dip applied and offers reduced adhesion for use on Alodine 1500 treated aluminum, deoxidized aluminum, grit blasted steel, and grit blasted titanium.

PRODUCT PERFORMANCE

AC-972-WB MASKANT provides excellent performance through the following processes:

- 1) Chemical Milling - Acid etchants for titanium and various steel alloys.
- 2) Chemical Milling - Basic etchants for various aluminum alloys.
- 3) Chemical Processing - Metal bonding and various anodizing acids. Use with AC-950-WB Topcoat.
- 4) Physical protection during forming, transportation, and storage.

PRODUCT CHARACTERISTICS - AS SHIPPED (Typical)

AC-972-WB-BASECOAT:

APPEARANCE	Tan Viscous Liquid
SOLIDS CONTENT (% BY WEIGHT).....	43.7 ± 2.0
SOLIDS CONTENT (% BY VOLUME).....	35.4 ± 2.0
COVERAGE (Square feet/mil, dry film/gallon).....	566
POUNDS PER GALLON.....	9.50 ± 0.2
FLASH POINT	None
pH	9.2 - 9.5
STORAGE LIFE (AT 70°F. - 80°F.).....	2 Years
STORAGE TEMPERATURE MINIMUM	45°F.
STORAGE TEMPERATURE MAXIMUM	100°F.
TOTAL V.O.C. (less water).....	70 g/l
ACTUAL COATING V.O.C.....	28 g/l
VISCOSITY (BROOKFIELD #4 @ 20 RPM @ 75°F.).....	20 - 30 poise

AC-950-WB TOPCOAT:

APPEARANCE	White Viscous Liquid
SOLIDS CONTENT (% by weight).....	48.0 ± 2.0
SOLIDS CONTENT (% by volume).....	48.0 ± 2.0
COVERAGE (Square feet/mil dry film/gallon).....	770
POUNDS PER GALLON.....	8.40 ± 0.2
FLASH POINT	None
STORAGE LIFE (at 70° - 80°F.).....	2 Years
STORAGE TEMPERATURE MINIMUM	40°F. (4°C.)
STORAGE TEMPERATURE MAXIMUM	100°F. (38°C.)
TOTAL VOC (less water).....	2 g/l
ACTUAL COATING V.O.C.....	1 g/l
pH	8.5 ± 1.0

DIP APPLICATION

1st Coat:

1. The maskant should be thoroughly mixed and air free.
2. The optimum environment at the dip tank should be 75 - 100°F. (24 - 38°C.), 40 - 70% relative humidity.
3. Air movement should be mild and dust free.
4. Parts may enter the dip tank immediately after the pumps/mixer (agitation) have been stopped.
5. Parts should enter/exit the dip tank at a rate of 1 - 5 ft./minute (30 - 150 cm/minute).
6. Flash the coated part for 15 minutes at room temperature; then
7. Dry the coated part for 1 hour @ 140 - 150°F. (60 - 65°C.); then
8. Bake the coated part for 1 hour @ 190 - 200°F. (88 - 93°C.).

2nd Coat:

Rotate the part 180° and apply the second coat as per Steps 1 - 8 above.

3rd Coat:

As necessary, apply a third coat as per Steps 1 - 8 above.

The part is now ready for chemical milling. Apply AC-950-WB Topcoat if the part is to be acid anodized (See Page 6).

PRODUCT USE INSTRUCTIONS - DIP

DIP TANK DESIGN - Contact AC Products, Inc.

RECOMMENDED DRY FILM THICKNESS: 15-25 mils (380-635 microns), depending on process requirements, 2-3 dip coats (one rotation).

The film thickness of AC-972-WB Maskant is a function of the following parameters:

- A) The weight solids of the maskant
- B) The viscosity of the maskant
- C) The number of dip coats applied

Mixing of the maskant is necessary for entrapped air (bubbles) to escape and to prevent skinning at the surface. The mixing should provide mild but constant movement. Violent mixing will induce air into the maskant. **Entrapped air in the maskant will cause film defects and maskant failure.** The pumps and/or mixers should be stopped only during the dip application process. The pumps and/or mixers may be stopped during non-use time; i.e., evenings, weekends, holidays, etc. Ensure that the tank is covered during this time.

Physically remove any/all dried maskant skins. Dried maskant skins do not redissolve, they break up into particles of grit. The grit particles clog filters and cause film defects.

Remove the dip tank cover **only** during the dip application process to reduce water evaporation and prevent maskant skinning.

Maskant Tank Maintenance:

- 1) Viscosity: The viscosity of the maskant can be maintained at 20 - 45 poise @ 75°F. (24°C.) The viscosity should be measured using a Brookfield viscometer, #4 spindle @ 20 RPM. Measure the viscosity 0.5 - 2 minutes after mixing thoroughly. On a daily basis, plot the viscosity measurements on an SPC chart to observe any trends.
- 2) pH: The pH of the maskant should be maintained @ 9.0 - 9.2. On a daily basis, plot the pH measurements on an SPC chart to observe any trends.
- 3) Solids: The weight solids of the maskant should be maintained @ 44.0 - 47.0%. On a weekly basis, plot the weight solids on an SPC chart to observe any trends.
- 4) Maskant additions: Maskant additions should be gently and thoroughly mixed before they are added to the tank. Add to the tank without inducing air.
- 5) To maintain the recommended ranges regarding viscosity and weight solids, replace water lost by evaporation with deionized water. The viscosity and weight solids will rise as water is lost due to evaporation.
- 6) pH is **vital** to the stability of the maskant and should never be allowed to fall below pH = 9.0. The pH will slowly fall as the bath ages due to the evaporation of ammonia. To maintain pH, add ammonia (28% in water) as needed.
- 7) The dip tank should be adjusted for pH **before** viscosity or weight solids adjustments are conducted.

SPRAY APPLICATION

AC-972-WB MASKANT APPLICATION PROCEDURE

Airless Spray Application

Step 1. First Coat - Apply **AC-972-WB MASKANT** (Review the recommended equipment and spray conditions on Page 5.)

- A. Apply maskant (one application) over the surface area of the part to be coated.
 - 1) Apply using a 75 - 85% overlap.
 - 2) Gun speed should be 3 - 4 feet/second for optimum coating quality.
 - 3) Gun distance from the part should be 12 - 14 inches (305 - 356 mm) for optimum quality.
 - 4) Resultant wet film thickness should be 6 - 7 mils (152 - 178 microns).
- B. Repeat (A) immediately on the opposite side of the part.

Note: If only one side of the part is to be coated, continue (A) until the wet film build is 12-14 mils (305-356 mm), then dry as per (E) below.

- C. Immediately return to the first side sprayed and repeat (A) until the total wet film build is 12 - 14 mils (305 - 356 microns).
- D. Immediately return to the second side and repeat (B) until the total wet film build is 12 - 14 mils (305 - 356 microns).
- E. DRY and cure the applied film. The recommended procedure is:
 - A) Flash the coated part at room temperature for 4-6 minutes; then
 - B) Dry the coated part at 125-130°F. (52-54°C.) for 1 hour; then
 - C) Bake the coated part at 190-200°F. (88-93°C.) for 1 hour.

Step 2. Second Coat - Apply **AC-972-WB MASKANT**

- A. Repeat Step 1 above.
- B. Total dry film thickness should be 10 - 12 mils (254 - 305 microns).

Step 3. Third Coat - Apply **AC-972-WB MASKANT**.

- A. Repeat Step 1 above.
- B. Total dry film thickness should be 15 - 18 mils (381 - 457 microns).

Step 4. Fourth Coat - Apply **AC-972-WB MASKANT**.

- A. Repeat Step 1 above.
- B. Total dry film thickness should be 20 - 24 mils (508 - 610 microns).

The part is now ready for chemical milling. Apply AC-950-WB Topcoat if the part is to be acid anodized (See Page 6).

AC-972-WB MASKANT or AC-950-WB TOPCOAT APPLICATION EQUIPMENT

Airless Spray Application

<u>PART NO.</u>	<u>ITEM DESCRIPTION</u>
	30:1 heavy duty airless spray pump, teflon packings with 100 mesh filter. <u>Stainless steel wetted surfaces recommended.</u>
217-593	Contractor's gun with 100 mesh filter in handle
220-424	RAC IV dripless guard and switch tip
221-511	511 Tip
223-540	25' 1/4" Airless or Equivalent hose in length required
204-940	Swivel

Spray Conditions:

1. Air Pressure - 70# on 30:1 unit with 25 ft. 1/4" hose
80# on 30:1 unit with 50 ft. 1/4" hose
2. Fluid Pressure - 2,100# - 2,200# at tip
3. Tip - 511
4. Maskant Temperature - 70°F.(21°C.) minimum.

GENERAL PRODUCT USE INSTRUCTIONS - SPRAY OR DIP APPLICATION

AC-972-WB MASKANT:

MIXING - If separation has occurred, mix slowly and gently until uniform. Do not mix air into the product.

THINNING - Use as received for application by dip or airless spray. Thin as necessary with D.I. water to apply by HVLP spray or conventional spray.

RECOMMENDED DRY FILM THICKNESS - 18 - 24 mils (457 - 610 microns) depending on process requirements.

AC-950-WB TOPCOAT:

MIXING - If separation has occurred, mix slowly and gently until uniform. Do not mix air into the product.

THINNING - Use as received for application by airless spray, roller, or brush. Thin as necessary with D.I. water to apply by HVLP spray or conventional spray.

RECOMMENDED DRY FILM THICKNESS - 3 - 6 mils (76 - 152 microns) depending on process requirements.

PRODUCT PACKAGING

AC-972-WB MASKANT and **AC-950-WB TOPCOAT** are supplied in 5 gallon plastic pails, 55 gallon drums, and bulk.

IF THE MASKANT MUST RESIST AN ACID ANODIZING PROCESS, AC-950-WB TOPCOAT MUST BE APPLIED OVER THE AC-972-WB MASKANT FILM TO ENSURE SATISFACTORY PERFORMANCE.

- Step 1. Apply a uniform wet film of AC-950-WB Topcoat, 10 - 12 mils (250 - 300 microns) over the baked AC-972-WB Maskant film as described on Page 2 or Page 4. The film will dry to 5 - 6 mils (125 - 150 microns). The AC-950-WB Topcoat is required only over the

specific maskant area where resistance to the acid anodizing process is necessary.

The application can be done by airless spray, HVLP spray, conventional spray, roller, or brush. For airless spray application, use a #511 airless spray tip at 2100 - 2200 psi fluid pressure. For roller application, use a short nap roller cover. For brush application, use a suitable width foam brush. For conventional spray and HVLP spray application, reduce with D.I. water as needed.

Step 2. Flash the coated part at room temperature for 4-6 minutes; then

Step 3. Dry the coated part at 125-130°F. (52-54°C.) for 1 hour.

The part is now ready for acid anodizing or chemical milling and then acid anodizing.

PRODUCT PRECAUTIONS

WARNING! CONTAINS MODIFIED LATEX. DO NOT ALLOW PRODUCT TO FREEZE! KEEP OUT OF REACH OF CHILDREN. Use with adequate ventilation. **DO NOT TAKE INTERNALLY.** Avoid prolonged contact with skin. While spraying, wear a suitable respirator with an ammonia cartridge (American Optical respirator, model #S-5500, Cartridge #R-54A for ammonia or equivalent) to prevent inhalation of overspray and vapors. Keep container closed when not in use. **CONSULT MATERIAL SAFETY DATA SHEET FOR HANDLING AND SAFETY INFORMATION.**

STORE BETWEEN 40°F.(4°C.) AND 80°F.(27°C.) FOR OPTIMUM SHELF LIFE.

AVOID RINSE CYCLES IN EXCESS OF TWO MINUTES BETWEEN STEP CUTS WHEN CHEMICAL MILLING.

WEAR CLEAN CLOTH GLOVES WHEN HANDLING PARTS PRIOR TO MASKING.

USE SHARP BLADES WHEN SCRIBING.

DO NOT ALLOW DRY OVERSPRAY TO ACCUMULATE ON THE UNMASKED PART. EXCESSIVE DRY OVERSPRAY WILL CAUSE FAILURES.

DO NOT ALLOW MASKANT OVERSPRAY TO DRY ON ADJACENT PARTS.

THE USE OF A DOWNDRAFT SPRAY BOOTH IS RECOMMENDED TO MINIMIZE OVERSPRAY.

DO NOT SPRAY TOPCOAT ON METAL NOT PREVIOUSLY COATED WITH AC-972-WB MASKANT.

DO NOT ATTEMPT TO DRY WATER BASED MASKANTS BELOW 70°F.(21°C.)

THE PEEL STRENGTH OF AC-972-WB MASKANT CAN BE EXCESSIVELY HIGH IF IT IS APPLIED TO ANY OF THE FOLLOWING SURFACES:

A) ALODINED (HEAVILY) - 1000, 1200, ETC.

B) ANODIZED - CHROMIC, PHOSPHORIC, BORIC/SULFURIC, ETC.

C) CORRODED - HIGH OXIDE CONTENT

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