AC-®130
Metal Alloy Surface Preparation for Bonding

SIN #834-100

Description

AC-®130 and AC-®130-2 are a high-performance surface preparation for adhesive bonding. Testing on aluminum substrates shows that AC-®130 performs comparatively to the grit-blast silane procedure in the wedge test. The grit-blast AC-®130 sol-gel process has also been shown to perform similarly on the wedge test results as when PAA (Phosphoric Acid Anodize) is applied. The process also provided acceptable wedge test results on titanium, stainless steel and nickel alloys when compared to standard controls.

AC-®130 also performs similarly to PAA in tensile lap shear and floating roller peel tests at a variety of temperatures. The grit-blast process has been shown to provide a more durable bond than the nylon pad process in the wedge test at 60°C and 95-100% RH. However, the nylon pad process provides end-users with a process that exceeds the performance of the grit-blast silane surface preparation, is quicker to perform in the field, and does not require the painstaking containment and subsequent cleaning of residual grit.

A sol-gel preparation, AC-®130 promotes enhanced adhesion as a result of the chemical interaction at the interfaces between the metal and the AC-®130 (sol-gel) and the AC-®130 and the primer.

Currently, surface preparation techniques such as phosphoric acid anodize (PAA) or sulfuric acid-sodium dichromate etchings are used to provide acceptable surfaces for bonding. These hazardous materials and waste produced by these procedures are both environmentally and economically unacceptable. AC-®130 provides an excellent environmentally friendly alternative to achieve the high performance required.

When used with the leading adhesive primers and adhesives, AC-®130 provides an economical and environmentally superior alternative to more costly and hazardous processes. The product may be applied by brush, spray, or dip. Long-term durability of adhesion to metal has been demonstrated. Data reveals AC-®130 may provide equivalent or better moisture durability than many of the currently used surface preparations for on-aircraft repairs.

Simply, AC-®130 may be applied to surfaces either by brush or spray-on at ambient drying conditions and then primed prior to bonding.

Specifications

BMS5-162	Qualified
BMS10-128	Qualified
BSMS-25-001	Qualified
NRM 1-7	Qualified
HMS 16-1295	Qualified

Surface Preparation

AC-®130 may be applied to surfaces after manually deoxidizing the surface by either 1) grit blasting; 2) sanding with #180 or finer sandpaper, or 3) Scotch-Brite pad abrasion. The success of the bonding operation relies on the thorough de-oxidation and preparation of the metal surface.

Patents

One or more of the following US Patents represents AC-®130:

5,958,578	5,939,197	5,869,140
5,869,141	5,849,110	5,814,137
6,037,060		

Physical and Application Properties

Color	As mixed it is slightly cloudy un-tinted
Induction Time	30 minutes
Pot Life	10 Hours after mixing

Standard Package Sizes and Coverage

	Coverage	
Kit Designation	Square Feet	Square Meters
50ml Kit	2.5	0.23
100ml Kit	5.0	0.50
500ml Kit	25	2.3
1 Liter Kit	50	4.6
1,500ml Kit	75	6.9
4 Liter Kit	189	17.5

Available Product Configurations

AC-® 130	4-Part, Clear
AC-® 130-2	2-Part, Clear

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Health and Safety Precautions

AC-®130 is safe to use and apply when recommended precautions are followed. Before using this product, read and understand the Material Safety Data Sheet (MSDS), which provides information on health, physical and environmental hazards, handling precautions and first aid recommendations. An MSDS is available on request. Avoid overexposure. Obtain medical care in case of extreme overexposure

Storage

The shelf life of AC-®130 and AC-® 130-2 is 12 months from date of manufacture, when stored in the original unopened containers between 40°F and 100°F.

Typical Application Technique

Prepare AC-®130 in accordance with instructions. Scale up for size of part and the method of spray application as necessary. Application rate is approximately 1 liter of AC-®130 per 50 square feet of surface to be coated.

Spray Application

Apply AC-®130 coating solution by spray-drenching the part surface. Spray solution generously, allowing excess to run off of the part surface. Keep part surface continuously wet with the solution for a minimum of 1 minutes. Part surfaces must not be allowed to dry and should be drenched with fresh solution at least 1 times during the application period. Insure treated surface does not dry between spray coats. Larger surface areas may require being coated by sections.

Allow coated part to drain for 5 to 10 minutes. If there is any surplus AC-®130 solution that has pooled or collected in crevices, pockets, or other collection areas, including drip edges or fastener holes, use filtered compressed air to blow off excess solution while maintaining a wet surface. Do not splatter this excess solution onto adjoining part surfaces. A cloth pre-wetted with AC-®130 may be used to gently blot, not rub, the surface of pooled solution. Do not blow dry areas of the part that are able to freely drain.

Brush Application

Apply fresh AC-®130 liberally by brushing with a clean natural bristle brush or swabbing with a clean wiper, cheesecloth or gauze. Do not scrub with a brush or applicator. Apply solution generously, keeping the part surface continuously wet with the solution for a minimum period of 1 minutes. Part surface should be drenched with solution. Brushes or wipers should not leave streaks on the surface. Part surfaces must not be allowed to dry and be covered with fresh solution at least 1 times during the solution application process.

Allow coated part to drain for 5 to 10 minutes. If there is any surplus AC-®130 solution that has pooled or collected in crevices, pockets, or other collection areas, including drip edges or fastener holes, use filtered compressed air to blow off excess solution while maintaining a wet surface. Do not splatter this excess solution onto adjoining part surfaces. A cloth pre-wetted with AC-®130 may be used to gently blot, not rub, the surface of pooled solution. Do not blow dry areas of the part that are able to freely drain.

Dry/Cure of AC-®130

Dry the solution-coated parts under ambient conditions for a minimum of 60 minutes. Minimize contact with the part, as the coating may be easily damaged or contaminated until fully cured. Exact drying time will vary depending upon part configuration of the part and ambient conditions. Alternately, after drying at ambient temperature for a minimum of 30 minutes parts may be heated to 140°F maximum for an additional 30 minutes minimum to facilitate drying. After drying, coated surfaces should be protected from contamination prior to applying the bonding primer.

AC-®130 is a Boeing Company Licensed Product Under Boegel-EPII

All values are typical and are not intended for specification use. **AC-130-05/10**

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