



BULLDOG Aircraft Coatings Description & Application Guide

INTRODUCTION

Bonnyville Air Services supplies the BULLDOG aircraft coating product that offers increased environmental friendliness, without sacrificing performance. Since this product thins and cleans up with water it is less hazardous and less costly to use than their solvent-containing counterparts. Because it is non-combustible it can be used where flammable solvent-based paints cannot. Once cured, the combination is water and chemical-resistant, and offers maximum protection from sun and weather, for aircraft and many other projects. The BULLDOG topcoat contains ultra-violet light absorbers, to give it extra durability.

Although the Bonnyville Air Services paint products thin with water, they apply much differently from architectural latex paints. With a little practice however, professional-looking results can be achieved by the non-professional applicator. This brochure will attempt to get new user acquainted with what he or she can expect from the products.

DESCRIPTION

BULLDOG Aircraft Coatings Polyurethane Topcoat

BULLDOG Aircraft Coatings is a two-part, water-borne linear polyurethane enamel. It will provide appearance and performance equal to its solvent-borne counterparts. This topcoat comes in clear gloss.

The BULLDOG Aircraft Coatings product consists of a can of paint and a bottle of crosslinking material. The paint by itself cures to a very high-quality coating, without the crosslinker. However, the addition of the crosslinking material produces a tougher and more durable film. It will be more chemical and fuel resistant, have better gloss retention, and generally last longer than a film cured without the crosslinker.



Paint cured without crosslinker may be recoated up to two weeks without sanding. However, a crosslinked film, because it is much tougher, must be sanded if recoating takes place more than one day after the previous coat was applied. Some sanding can be avoided, at the sacrifice of some durability, by mixing crosslinker into only the last coat. The crosslinker reacts with the polyurethane resin in the paint, but also reacts slowly with water. Crosslinked paint not used within 8 hours will lose the added durability. A readdition of crosslinker can be done, however, without any loss of properties.

When enough water evaporates a film begins to form and the paint is "set-to-touch." This can happen in hot weather before the paint does not have adequate time to flow out. Further thinning to solve this may result in runs and the only solution will be to wait until the temperature drops or raise the humidity in a closed room by spraying a quart of water into the air.

Plan on a minimum of three applications when using our topcoat. While you may have sufficient "hide" with only one or two coats you will not have sufficient dry film thickness to provide maximum protection. Premature weathering of the paint film may occur under these circumstances. The three coats may consist of a combination of pigmented and clear coats.

SURFACE PREPARATION

Use epoxy resin with microballoons to fair or level out flaws and imperfections in the surface to be painted. Seal sanded microballoon putty with a thin coat of clear epoxy to eliminate any surface porosity and roughness. Surfaces to be painted must be free of dust, grease or oil. Do not use a tack rag to remove dust. They usually contain wax or

other materials that can leave a residue on the surface that is incompatible with water. Waterborne paints have a difficult time wetting contaminated surfaces.

Aluminum: Apply a wash, or etching primer according to manufacturer's instructions. Allow to cure, then apply a suitable primer, paint with base coat and finish with BULLDOG Aircraft Coatings.

Composite surfaces such as wood/epoxy or polyester resin should be cleaned of dirt, oil, & other contaminants then sanded with up to 150-grit sandpaper. Remove all sanding dust with a damp or alcohol-wetted rag prior to BULLDOG Aircraft Coatings application.

Mild Steel should be cleaned of rust, oil, & dirt, then chemically etched or sandblasted.

Wood should be cleaned of dirt, oil, & other contaminants then sanded with up to 150-grit sandpaper. Remove all sanding dust with a damp or alcohol-wetted rag prior to BULLDOG Aircraft Coatings application.

APPLICATION

Temperature: Use BULLDOG Aircraft Coatings when the ambient temperature is between 55-85°F.

Humidity: Higher humidity will allow the paint to stay wet longer. This will allow easier maintenance of a wet edge, and better paint flow-out before drying.

Coverage: The following will serve as a guide for ordering the correct amount of paint for your project:

BULLDOG Aircraft Coatings topcoat 350-400 ft²/gallon

Film Thickness: The following yields are our recommended based on the coverage rates shown below:

PRODUCT	Wet Film Thickness	Dry Film Thickness
BULLDOG Aircraft Coatings Topcoat	6 – 7 mils	2½ - 3 mils

To measure wet-film thickness, use a film-thickness or "notch" gauge. They are available at most paint stores.

Equipment: BULLDOG Aircraft Coatings can be applied by brush, roller, or spray. The best results are obtained by using spray equipment. HVLP sprayers, intended for use with waterborne enamels, will give the least amount of dry and overspray, with maximum fan and material flow control. Both the turbine type and air-assisted are used successfully. With some practice at lowering air pressure and increasing material flow, a conventional pressure sprayer will give acceptable results too.

The amount of thinning is not only a function of the equipment but it also depends upon ambient temperature and humidity. The lower the temperature and the higher the humidity, the more open time the topcoat will have. Thin the material just enough to get rid of "orange peel" in the dry film and no more. Start at 20% for the BULLDOG Aircraft Coatings topcoat. Needle and tip selection vary depending on the equipment. Get the manufacturer's or dealer's recommendation for spraying waterborne enamels. The nomenclature can be confusing. With solvent-based, or conventional topcoats, there is a distinction between the kind of needles and tips used for enamels and polyurethanes. With waterborne products, there is no such distinction. A general recommendation for tip size is 1.0 millimeter.

Turbine air is quite warm and dry and can dry the topcoat too much in the fan. When using a turbine type HVLP, an extra hose section can help. The extra hose section allows the air to cool. On warm dry days the extra section can be coiled in a five-gallon bucket of ice water.

Acceptable results can be obtained by brush or roller application. For brushing, use a high-quality synthetic bristle brush. For rolling, use a 1/8 or 1/4 inch nap roller.

BULLDOG Aircraft Coatings Topcoat: Add crosslinker at the ratio of 2 fluid ounces per gallon of paint base, or 8 drops of crosslinker per ounce of paint. The topcoat may be thinned prior to use, using clean water. The amount of thinning will depend upon the environmental conditions and method of application. The recommended range is up to about 25%. Dilute the crosslinker by adding it to the water, then add the mixture to the paint. The optimum amount of thinning will depend on the temperature and humidity.

Conditions are critical when applying topcoat. It is more difficult to get good results in hot dry weather as the paint can dry in the air before contacting the surface when spraying, or before leveling out when brushing or rolling. Never paint a surface that has been in direct sunlight for hours. It can be hot enough to dry the paint before it can level out.

When spraying, make multiple light passes with the gun to the point where the droplets almost flow together. This will give the best results. As the droplets begin to level they will coalesce and flow into a film.

When brushing, first spread the material out, then work back into the wet material with long, slow strokes. When rolling, use the short-nap roller mentioned earlier, and then go back over the wet coat lightly, with a dry brush, foam or bristle, to pop any bubbles. This is called "rolling and tipping."

Subsequent coats may be applied as soon as the previous film has set and is not marred by a light touch. This is about 30 minutes at 80°F and 50 percent relative humidity. The previous coat may be masked in about an hour. Recoating of crosslinked coats should take place within eight hours of the subsequent coat while non-crosslinked coats have a non-sand recoat time of about two weeks. If more time than this elapses you should sand the previous coat to remove the gloss. Apply a minimum of three coats of BULLDOG Aircraft Coatings topcoat, four if sanding and buffing.

For maximum durability, the final coat(s) of topcoat should be crosslinked. This will improve resistance to solvents and other chemicals, as well as improving abrasion and scratch resistance. A crosslinked coat will be 90% cured in about four to seven days. However, polyurethanes do not develop 100% of their properties for two weeks.

Buffing and polishing: If a higher level of gloss is desired the cured coat may be sanded and buffed. Wet sand with 600 grit sandpaper proceeding in stages through 1500 grit. Buff with a compound equivalent to 2500 grit and finish with something like 3M's *Finesse-It*.

Cleanup: The topcoat should be cleaned up with water immediately after use. Remove dried BULLDOG Aircraft Coatings topcoat from brushes or equipment by soaking in rubbing alcohol overnight, then rinse again thoroughly with water prior to re-use.

APPLICATION HINTS:

Practice applying paint on pieces of scrap beforehand. Mask parts or panels before mixing the paint. Use a high-quality masking tape intended specifically for low-viscosity paints. Press the edge of the tape with a thumbnail or the back of a spoon after applying to seal the edge. Masking tape should be removed as soon after applying the final coat as the paint won't run, but before the paint has dried. Using a razor knife may assist in removal of the masking tape. Cover any adjacent areas to protect from overspray.

Safety and Handling: While these products present no serious safety hazards, some precautions should be observed during use. Try to keep the material off your skin. Cured topcoat is difficult to remove without strong chemicals. The topcoat and crosslinker are skin sensitizers. They can cause a severe allergic reaction from prolonged and repeated contact. Except for the Activator all the products mix with water so you should immediately wash them off if skin contact occurs. Remove any Activator by washing in soap and warm water. In case of eye contact with any of these products flush with plenty of water and seek immediate medical attention. Don't take them internally and keep them away from children.

It is not necessary to wear a respirator when applying these products by roller or brush. When spraying, wear a NIOSH-approved respirator for organic vapors.

Questions and Comments: We're here Monday through Friday, 8:00am to 4:30pm Mountain Time to help you with your painting questions and problems. Please e-mail us via our website at www.bonnyvilleair.com, FAX us at (780) 826-7195, or call us at (780) 826-6885.

Warranty and Disclaimer: The information presented herein is offered as a guide to application only. It is not a product specification. While we have tried our utmost to ensure that the information presented in this brochure is accurate we are not responsible for errors. We urge potential users of these products to do some experimentation to learn how to handle them. These products are sold without warranty for fitness of purpose.

Bonnyville Air Services (1980) Ltd. shall be liable only for refund or replacement of defective materials, and will not be responsible for incidental or consequential damage resulting from use of these products.

BONNYVILLE AIR SERVICES (1980) LTD.

HANGER #9, BONNYVILLE AIRPORT, P.O. BOX 7599 BONNYVILLE, AB CANADA T9N 2H9

PREMIUM AIRCRAFT COATINGS