

# Getting started with **Xylan**

Applying fluoropolymer coatings is not unreasonably complicated. Yet, there are many opportunities for error — pitfalls that can lead to what is perceived as “coating failure” but in fact is due to common mistakes in processing.

This document helps avoid these mistakes.

**Whitford**

*Makers of the largest, most complete line of fluoropolymer coatings in the world*

### **1. Choose the proper solvent**

If Xylan is “paint” and the paint store sells “paint thinner”, then shouldn’t that work just fine? The answer is No.

There are many different chemicals used to reduce coatings and to clean up after their application. Most of these are not available at your local paint store.

Every Xylan coating has been chemically crafted to achieve specific performance characteristics. And Whitford has a special solvent designed for maximum efficiency with each coating. Whitford publishes Product Data Sheets that specify the correct solvent as well as the ideal reduction ratio. Paying attention to this at the outset avoids serious problems later.

### **2. Don’t get mixed up about mixing**

All Xylan coatings must be properly mixed to provide maximum performance. But not all Xylan coatings can be mixed the same way. Some must be mixed vigorously



*Improper mixing is probably the most common mistake made in the application of Xylan coatings.*

with a high-shear blade, which actually “cuts” the coating into smaller and smaller bits, ultimately dispersing it to fine particles. Other Xylan coatings (such as PTFE-heavy topcoats) must be rolled slowly (or they will coagulate and be rendered useless). Roll for 1 hour at 30-40 rpm. Check the bottom to ensure that no sediment remains after mixing.

Whitford recommends using an air mixer with a high-speed dispersion blade for most Xylan coatings. This equipment can be purchased through INDCO, (800) 942-4383, or Fawcett Co., (330) 659-4187. INDCO also sells rolling

machines that are suitable for shear-sensitive coatings. Avoid mixing too fast, which can entrap air. Note: Paddle-type mixing blades are useful for keeping a coating mixed once it has been dispersed with a high-shear blade, as are five-gallon paint shakers (also available from INDCO). But use these only with non-shear-sensitive coatings. Check Whitford’s Product Data Sheets for proper mixing instructions.

### **3. Think before you spray**

Protect yourself with the proper safety equipment. Wear a respirator with a carbon filter. Use a full face shield. Put on safety gloves. All these items are available through Air Gas Direct Industrial, IPCO Safety Division, (800) 827-2338 in PA, (800) 678-2878 in CA and (800) 445-3711 in GA.

### **4. Select the right spray booth and gun**

Most regular and HVLP (High Volume, Low Pressure) spray guns work well. But make sure you have the proper fluid nozzle and air cap that correspond to the ideal spraying viscosity of the coating (found in the Product Data Sheet).

The booth must comply with the proper permits to meet local fire and safety regu-

lations. Two reliable suppliers of spray guns and booths are A.O.M.-America, LLC, (800) 533-6254 and ITW DeVilbiss, (419) 891-8191.

### **5. Look before you leap**

Whitford recommends that you test the viscosity, the nozzle and the spray pattern before you actually spray the part. Spray a thin aluminum test panel, which cures quickly, letting you check for smoothness and film thickness. If there are any problems, it's better to discover them on a throwaway panel rather than on a part. If you have any questions regarding the test results, you can always send the panel to Whitford so that our technicians can check it for you (see address at end). Panels are available through Q Panel Lab Products, (440) 835-8700.

### **6. Prepare the part properly**

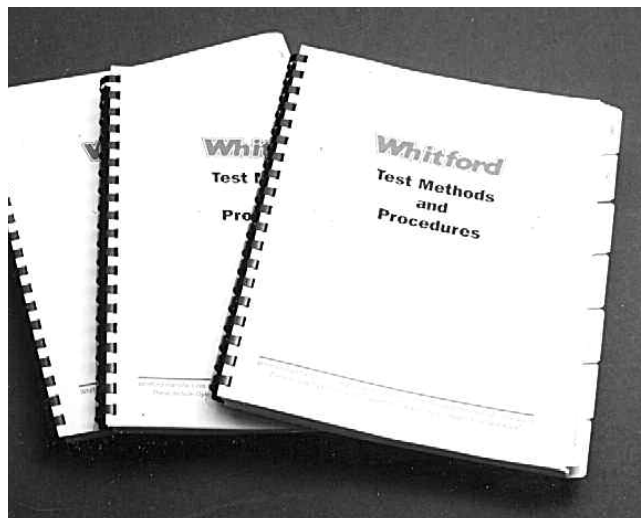
All Xylan industrial coatings require that the surface be properly prepared. First, any oils and contaminants must be removed by degreasing the part with a good degreaser (such as an alkaline cleaner), or the coating will not adhere. Alkaline washing cleans parts with moderate or high pH cleaners. This is preferred for high volumes of parts. Parts which should not be washed by this method are those which may be adversely affected by the chemistry involved. If the part can withstand elevated temperatures (800°F/425°C), burn off any contaminants.

Grit-blasting with aluminum oxide or other abrasives is a common cleaning technique, preferred for parts whose surface contaminants — rust, scale, corrosion, old coatings — must be removed physically. Whitford recommends a grit medium from 60- to 120-mesh/250- to 125 microns. Two suppliers of grit-blasting equipment are Empire Abrasive Equipment Co., (215) 752-8800 and Georg Fischer - Disa Goff Corp., (405) 382-6900. Blow off part with compressed air to remove any abrasive residue.

Phosphating is a secondary surface preparation for steel which is generally used after degreasing, alkaline washing or grit-blasting. Whitford recommends a modified zinc phosphate with a fine crystalline structure such as Aerocote 4. A thin layer (750-1000 mg/ft<sup>2</sup> or 7.5-10 gm/m<sup>2</sup>) of zinc phosphate is deposited on the surface of the part to promote better adhesion and dramatically increase corrosion and chemical resistance. Cleaning and phosphating solutions are available from Aerocote Corp., (713) 224-6185.

### **7. Cure the part correctly**

All Xylan coatings must be cured at a specific temperature to provide maximum performance. Details of the cure are in the Product Data Sheet. Please note that the



*Whitford has developed a series of test methods to help assure consistent and ideal performance for Xylan coatings. Copies are available to those who would like one.*

proper cure temperature is the temperature of the part itself, not the temperature reached inside the oven. Whitford recommends using a hand-held thermocouple to check the temperature (available through Omega Engineering Co., [800] 826-6342).



*A simple, inexpensive Zahn cup and a stopwatch are perfect for checking the viscosity of Xylan coatings.*

Note: Always use an oven rated for the solvent load of the coating to prevent explosions. Oven suppliers: The Grieve Corp., (847) 546-8225, Despatch Industries, Inc., (612) 781-5363, Lindberg Blue M, (800) 873-4468, and LTG Technology, (414) 672-7700.

### **8. Test to be sure**

Whitford recommends that any serious coating applicator have the basic testing equipment to assure ideal quality. This includes Zahn cups (to measure viscosity), a film-thickness gauge, a cross-hatch cutter and special tape (to test adhesion), and visual anchor profile comparators (to check grit-blast and phosphate profiles). Such equipment is available through Paul N. Gardner Co. Inc, (954) 946-9454 and KTA-Tator, Inc., (412) 788-1300.

### **9. Help is at hand**

Having the right equipment, following the proper procedures closely and testing to be sure will help guarantee that all Xylan coatings you apply perform as expected.

Note: Remember to use the specific Product Data Sheet for each coating you apply.

Whitford offers additional literature to help with the process:

1. "Engineering Design Guide" (36 pages of technical information on the application and use of fluoropolymer coatings).
2. "9 Misconceptions about Xylan Coatings" (9 common mistakes).
3. "Fastener-Class Coatings" (which Xylan coatings to use for fasteners).
4. "1021 Bulletin" (comprehensive introduction to the Xylan 1000 Series coatings).
5. "1000 Series Cure Chart" (how curing temperatures affect coating properties).
6. "Solving Common Coating Problems" (Wall chart with visual and verbal identification of common problems and how to solve them).
7. "Whitford Test Methods and Procedures" (explained and illustrated).

If you have any questions, or would like any of this literature, please contact us at Whitford Corp., Box 80, Elverson, PA 19520. Tel: (610) 286-3500. Fax: (610) 286-3510. Email: [sales@whitfordww.com](mailto:sales@whitfordww.com). Web: [whitfordww.com](http://whitfordww.com).

# **Whitford**

NON-WARRANTY: THE INFORMATION PRESENTED IN THIS PUBLICATION IS BASED UPON THE RESEARCH AND EXPERIENCE OF WHITFORD. NO REPRESENTATION OR WARRANTY IS MADE, HOWEVER, CONCERNING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PRESENTED IN THIS PUBLICATION. WHITFORD MAKES NO WARRANTY OR REPRESENTATION OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND NO WARRANTY OR REPRESENTATION SHALL BE IMPLIED BY LAW OR OTHERWISE. ANY PRODUCTS SOLD BY WHITFORD ARE NOT WARRANTED AS SUITABLE FOR ANY PARTICULAR PURPOSE TO THE BUYER. THE SUITABILITY OF ANY PRODUCTS FOR ANY PURPOSE PARTICULAR TO THE BUYER IS FOR THE BUYER TO DETERMINE. WHITFORD ASSUMES NO RESPONSIBILITY FOR THE SELECTION OF PRODUCTS SUITABLE TO THE PARTICULAR PURPOSES OF ANY PARTICULAR BUYER. WHITFORD SHALL IN NO EVENT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Xylan is a registered trademark of Whitford © Whitford/10/10.