

- 1. All Xylan® coatings are created equal.*
- 2. Thin-film coatings are free of pin holes.*
- 3. Chemical resistance does not depend on cure temperature.*
- 4. One coat of a Xylan 1000 fastener-class series has all the corrosion resistance you need.*
- 5. Xylan 1014, 1052 and 1070 are ideal for mould release.*
- 6. You can get good UV and good chemical resistance in the same coating.*
- 7. Xylan 1000 series prevents barnacle growth.*
- 8. Xylan on fasteners has acceptable insulation against electrical current.*
- 9. Xylan is pure Teflon®.*

Do you suffer from these 9 dangerous misconceptions about Xylan coatings?

Used properly, Xylan coatings perform brilliantly. But improper use of Xylan (and other coatings) is more common than you think. If you agree with any of these 9 statements, you may be heading for trouble. Here's what to do...

Whitford Worldwide

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

Whitford has long prided itself on having the largest, most complete line of fluoropolymer coatings in the world. The reason for such an extensive line is that virtually all of Whitford's coatings have been designed to solve specific problems. And, as the problems vary, so do the formulae created — to provide the maximum solution to each problem.

The ingredients in any coating can only add up to 100 percent. While that may sound obvious, we state it to remind ourselves (and our customers) that, if we add more of one ingredient (a binder, for example), that means there will be less of other ingredients in the same formula.

And that will alter the performance characteristics of the coating.

We publish this document to help avoid some common misunderstandings we have come across in the field that have led to “perceived failure” in the sense that some Xylan coatings have not performed as users expected. Investigation has frequently led to the realization that the coatings were being used on applications for which they were not developed.

Here are 9 of the most common of these misconceptions.

1. All Xylan coatings are created equal.

All Xylan coatings are carefully designed to meet certain specifications. Some may be for low friction, for release, abrasion resistance, chemical resistance, UV stability, etc. As the importance of release, for example, increases, other characteristics will suffer (such as abrasion resistance).

It is chemically impossible (at least as of this writing) to create one coating that is “best” at providing all of the qualities and characteristics listed above.

Your Whitford representative will help you select and specify the Xylan product that best meets your specific requirements.

2. Thin-film coatings are free of pin holes.

All organic coatings are inherently subject to pin holes, tiny (but visible) perforations in the surface of the coating caused by incomplete flow or bubbles that explode during cure. While Xylan coatings have been engineered to maximize flow and minimize bubbling, one coat simply cannot assure the absence of pin holes.

That's why, in applications that demand corrosion resistance, Whitford recommends at least two coats. Note: Pin holes do not normally affect applications that require lubricity and/or release.

3. Chemical resistance does not depend on cure temperature.

Some applicators who have ovens of limited capacity and range may cure parts coated with Xylan at lower temperatures for longer periods of time, hoping to achieve the same results as a higher-temperature cure for less time. In terms of such characteristics as mechanical properties, for example, the lower cure temperature makes little or no difference in performance.

Chemical resistance is a totally different story. To achieve proper resistance to chemicals, the Xylan 1000 series must be cured at no lower than 232°C (450°F) for 5 minutes. And, for maximum resistance, *at least* 260°C (500°F) for 5 minutes. (Please note that “temperature” refers to PMT [peak metal temperature], not the oven temperature.)

4. One coat of a Xylan fastener-class series has all the corrosion resistance you need.

While a Xylan coating by itself will provide limited resistance to corrosion, it is the *combination* of the coating and a suitable primer that creates the maximum corrosion resistance (a classic example of the whole being greater than the sum of the parts).

For maximum resistance, always use one of the following as the primer underneath the topcoat of Xylan:

- A micro-crystalline heat-stable phosphate conversion coating and P-92, P-501 or Xylan 4090.
- Zinc plating.
- Xylar 1 (an inorganic coating).

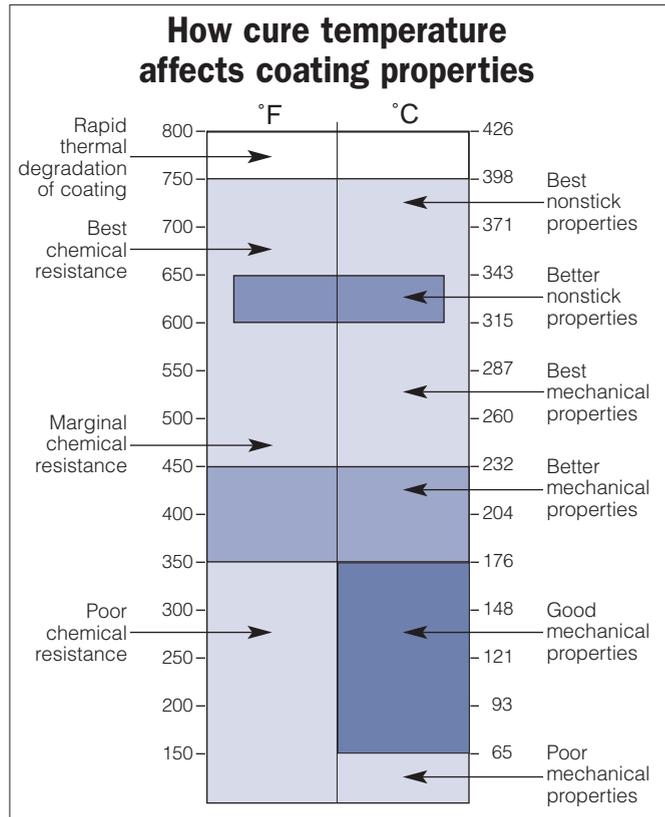
5. Xylan 1014, 1052 and 1070 are ideal for mould release.

Xylan 1014, Xylan 1052 and Xylan 1070 were developed specifically for dry-film lubrication and anti-galling. 1014 and 1070 were developed to provide corrosion resistance, primarily for fasteners exposed to off-shore and chemical environments. They have sufficient PTFE (polytetrafluoroethylene) to facilitate make-up and break-out.

1052 is designed for applications of extreme pressure in which galling is a problem. It contains a mixture of MoS₂ (molybdenum disulfide) and PTFE.

The best fluoropolymer for such applications as mould release of sticky substances (e.g. sugar and rubber latex) is FEP (fluorinated ethylene propylene), followed by PFA (perfluoralkoxy). 1014 and 1052 contain neither.

Ideal for mould release would be the Xylan 1756 system, followed by Xylan 1700, Xylan 1840, Xylan 8840 or Dykor 810 — all of which have a significant amount of FEP or PFA.



6. You can get good UV and good chemical resistance in the same coating.

For reasons of conflicting chemistry, as either UV (ultraviolet) or chemical resistance increases, the other decreases. The best attainable in one coating would be *average* performance. For applications that need both, use two coatings. Use P-501, for example, as the primer (for excellent chemical resistance). Then use Xylan 1514 as the topcoat (for excellent UV resistance).

7. Xylan 1000 series prevents barnacle growth.

Because PTFE is inherently porous, waterborne micro-organisms like to live in it. And barnacles feed on these micro-organisms, attaching themselves tenaciously to the surface of the coating. Unfortunately, there are still no easy solutions to the problem of barnacle growth.

8. Xylan on fasteners has acceptable resistance against electrical current.

All thin-film coatings (including Xylan) on fasteners are subject to breaching during installation, which occasionally leaves areas exposed, permitting metal-to-metal contact. If insulation is absolutely necessary, use plastic sleeves and plastic washers *in combination* with a coating such as Xylan 1014.

9. Xylan is pure Teflon.

Each of the Xylan 1000 series coatings is a combination of many ingredients, and each coating is designed for a variety of different demanding applications. Were they pure PTFE (Teflon), they would not adhere as well, would abrade off quickly, would have little chemical resistance, etc.

Equating an engineered coating of Xylan with a pure PTFE film is like equating a Mercedes Benz with a large block of pig iron. Whitford does offer coatings with a high content of fluoropolymer, but they are part of a multicoat system. If you are looking for maximum release, low friction or corrosion resistance, your Whitford representative can help you select the best coating system for your application.

An ounce of prevention...

Remember: You can prevent unnecessary and costly failure in the field by taking a few moments to make sure the coating you specify (or have specified for you) provides the optimum characteristics for your application.

We at Whitford are here to help. Call your Whitford representative or call Whitford directly at (01928) 571000 and ask for technical support.

Thank you for your interest in Whitford coatings.

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