



*From coatings for economical to expensive cookware...*



*To coatings for every kind of appliance...*



*From a wide range of superb industrial coatings...*



*To outstanding flexible finishes for automotive...*

# **Whitford**

## **Makers of the world's largest, most complete line of fluoropolymer coatings**

- **Cookware (nonstick and decorative)**
- **Bakeware (interiors and exteriors)**
- **Small appliances**
- **Industrial applications**
- **Automotive (flexible finishes)**
- **Et cetera**



Whitford's worldwide headquarters, located in Elverson, Pennsylvania, in the United States.

**W**hitford formulates and manufactures high-performance fluoropolymer coatings (also known as “nonstick” coatings) for countless applications, including food contact, high-temperature use, decorative, industrial, aerospace, automotive, chemical processing, reprographics, textiles, etc.



Headquarters for Asia are located in Singapore, where many of the Asian training programs are held.

We manufacture and maintain sales offices in many countries, with agents in many more. We make the largest, most complete line of fluo-

ropolymer coatings in the world. But size is not the only thing that distinguishes Whitford from its competitors.

### The secret weapon

Whitford spends a higher percentage of sales on research and development than any competitor. We run training programs for our customers around the world. We often formulate coatings to solve a customer's specific problem. And we provide unsurpassed technical support for our products worldwide.

Here are some of our products.

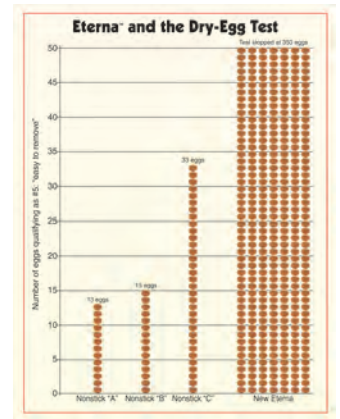


The holy grail in nonstick coatings — outstanding nonstick (release) that lasts — was finally achieved by Whitford with Eterna®.

The “Dry-Egg” Test is a standard measure of

release. Eggs are cooked, one by one, in a nonstick pan with no butter or oil. The test is repeated until the eggs no longer lift off with ease.

Tested were nonstick pans from three major manufacturers. A similar pan coated with new Eterna was tested. The results: Nonstick “A” lasted for 13 fried eggs. Nonstick “B” went to 15. Nonstick “C” went to 33. New Eterna went for 350 fried eggs — at which time the test was stopped.



The dry-egg test that proved Eterna's remarkable superiority.

That's more than 26 times better than one of today's most popular nonstick coatings, and more than ten times better than the nearest top-end competitive nonstick system.



Excalibur® won the reputation of the “toughest, longest-lasting, most durable nonstick system in the world”. That's because Excalibur is reinforced externally with stainless steel. The result: Only Excalibur offers the strength of stainless steel plus the release of the world's finest nonsticks.



The Eclipse® primer contains a unique combination of resins and unusually hard materials. Because it contains no nonstick (virtually all cookware primers do), it can be dedicated entirely to (a) adhesion and (b) reinforcement. The midcoat also contains the special reinforcements, which



Internally reinforced Eclipse: ideal for aluminum cookware.

permits the topcoat to be dedicated entirely to release. This integrated system provides resistance to wear that exceeds by far all of Whitford's (and other) internally reinforced systems.



QuanTanium® contains a unique blend of titanium particles that reinforce as they provide unusual durability. QuanTanium's nonstick system has been formulated to create maximum synergy with the titanium, resulting in outstanding resistance to all kinds of wear with superb release.



Reinforced Quantum2 is especially popular for bakeware of all shapes and sizes.

Quantum2® was developed to outlast conventional nonsticks (even the latest improved versions). Quantum2 is reinforced internally with a diverse blend of space-age inorganic particles. And the nonstick surface is smoother, with higher eye-catching gloss than conventional nonsticks.



Xylan®, Whitford's largest line of coatings, is specified by manufacturers, importers, exporters, retail chains, for use on products from the most economical to the more expensive cookware, bakeware, electric griddles and grills, to rice cookers, breadmakers, coffee makers, sandwich makers, waffle makers, etc. Xylan comes in one-, two- and three-coat versions.



Fusion®, made without PTFE or PFOA, is a waterborne ceramic nonstick that withstands heat up to 850°F/455°C. Most ceramics are two-coat systems, with each coat having several components that require careful mixing and have a short pot life. Fusion, also a two-coat, has far fewer components, is much simpler to use and more user-friendly.

## Regulatory compliance

Regulations covering many different products are becoming more and more stringent around the world. It's comforting to know that all Whitford interior coatings, solvent- and water-based, comply with the regulations of the USDA, FDA, BGA, JIS and other governmental bodies. Some also meet TUV.

## Whitford's Quality Cooperative Program

As an additional step to expand quality control, Whitford has established the Quality Cooperative Program (QCP), and it's free.

Its primary purpose is to achieve and maintain the highest quality by preventing problems from occurring before any coated products reach point-of-sale.



The QCP sets quality standards that must be met by those who apply Whitford coatings. It also outlines specific test procedures that must be carried out on random samples of all coated products to make sure that these application standards are maintained. Only members of Whitford's QCP are entitled to use the Whitford trademarks.

Effective (and free) testing to assure quality control, courtesy of Whitford's worldwide QCP.

## Industrial products

Whitford offers a broad range of coatings for diverse industrial applications. For example, we make products with outstanding release characteristics for applications such as food processing, shoe molds, and photocopy rollers.

Another group of products is designed to provide superior corrosion resistance for critical parts such as threaded fasteners that are used in the chemical-processing, energy, transportation, and waterworks industries. Other coatings are formulated to reduce friction on many items (examples just in automotive include pistons, brake shafts, seat-belt brackets, throttle shafts).

Problems of corrosion, sticking, or friction are usually the primary reasons for choosing a high-performance coating. Yet, applications almost

**Whitford manufactures the largest, most complete line of fluoropolymer coatings in the world. Here are our principal consumer brands with a selection guide.**

## SELECTING THE RIGHT COATING

Product range	Basic specifications	Nonstick suggested	Coatings
Gourmet/Commercial/Upper moderate	Heavyweight substrate, features/benefits as important as price ("quality, performance and value")	2- or 3-coat systems internally and/or externally reinforced	Eterna, Excalibur, Eclipse
Upper moderate/Moderate	Medium-weight substrate, features/benefits of some importance, price still focus ("performance/value")	3-coat nonstick	QuanTanium, Quantum2
Opening price point/Promotional	Lightweight substrate, price is driving selling point ("convenient and economical")	1- or 2-coat system 3-coat roller system	Quantum2, Xylan Skandia, Fusion

WHITFORD BRAND	PRODUCT SERIES	RATING/USE
 Eterna®	71-050 (basecoat) 73-353 (topcoat)	10 Gourmet, Commercial
 Excalibur®	8254 (basecoat) 8256 (midcoat) 8257 (topcoat)	10 Gourmet, Commercial
 Eclipse®	7050 or 7151 (ground coat) 7252 or 7253 (midcoat) 7353 7353 (topcoat)	10 Gourmet, Commercial, Upper Moderate
 QuanTanium®	7141 (basecoat) 7242 (midcoat) 7343 (topcoat)	9 Upper Moderate, Moderate
 Quantum2®	7131 (basecoat) 7232 (midcoat) 7333 (topcoat)	8 Moderate
 Xylan®	The Xylan range includes 1-, 2- and 3-coat products of varying performance. Ask Whitford which would be best for your needs.	3-6 Opening price point, Promotional
 Fusion®	8088	5 Moderate
 Skandia®	Skandia roller coatings include Skandia Xtreme (reinforced), so performance can vary. Ask Whitford which would be best for your needs.	3-6 Opening price point, Promotional

*Eterna, Excalibur, Eclipse, QuanTanium, Quantum, Xylan, Fusion and Skandia are registered trademarks of Whitford.*

always have several performance requirements. So we make hundreds of different coatings to provide performance tailored to the problems, whether extreme temperatures, heavy loads, abrasive environments, difficult weather conditions, harsh chemicals, galling, fire, etc.

### Our expanding universe



Heavy-duty clippers use Xylan for easier cutting, good abrasion resistance for longer life.

Whitford's coatings are offered in two forms: liquids and powders.

Xylan liquid coatings are usually applied using common spray techniques to achieve a dry-film thickness in the range of one mil (25 microns). However, certain applica-

tions call for other coating techniques, such as dip/spinning, to coat large numbers of small parts efficiently.

Most Xylan coatings were formulated with organic solvents but, in recent years, we



Xylan has been protecting large fasteners of many kinds for many years.

have developed easy-to-use waterborne analogues that are far more environmentally friendly.

One of our best liquid-coatings is Xylan XLR ("Xtra Long Release"). A premium product for a variety of markets, Xylan XLR outperforms all release coatings available, significantly reducing

the need for re-coats during the life of the component. And it offers a variety of benefits including enhanced resistance to abrasion, improved hardness, resistance to permeation and higher gloss.

Whitford's powder coatings can be applied using electrostatic spray or fluidized-bed



Xylan offers low friction combined with superb resistance to abrasion and corrosion for the oil patch.

techniques in thicknesses greater than 1.5 mils (37 microns), which can be advantageous (versus liquids) in applications that require a thicker coating. These powders can be applied with almost zero environmental problems: there are no VOC-bearing effluents or wash-down solutions to clean up.



Industrial bakeware is a key market for some of Whitford's newer products that provide extended release.

PFA+ is a top-notch powder for the industrial market. Compared to standard PFA powder coatings, PFA+ offers better release and superior smoothness. We have also introduced Xylan 26P, a line of one-coat, nonstick, food-grade, hot-hardness powders with enhanced resistance to corrosion and abrasion.

## Flexible Finishes

Whitford has developed a line of specialty automotive coatings called Resilon® (water-borne) and Xylan (solvent-borne) that offer a complete range of benefits to solve many problems on flexible substrates.

These include low friction, freeze-release, excellent resistance to abrasion, elimination of "itch and squeak". There is improved resistance to weathering and chemicals, plus aesthetics (including clear coatings).

These flexible finishes are easily applied to a variety of substrates, including EPDM, NBR, PVC, ASA, acrylics, ABS and polyester, sometimes in combination with Whitford-provided or Whitford-approved primer systems. They are used for glass runs, door, boot and bonnet seals as well as for decorative effects.

More than 20 major automotive manufacturers of the world now specify at least one of these highly versatile flexible finishes.



Major manufacturers from BMW to Volkswagen have insisted on flexible finishes made by Whitford.

## Selecting the right Flexible Finish

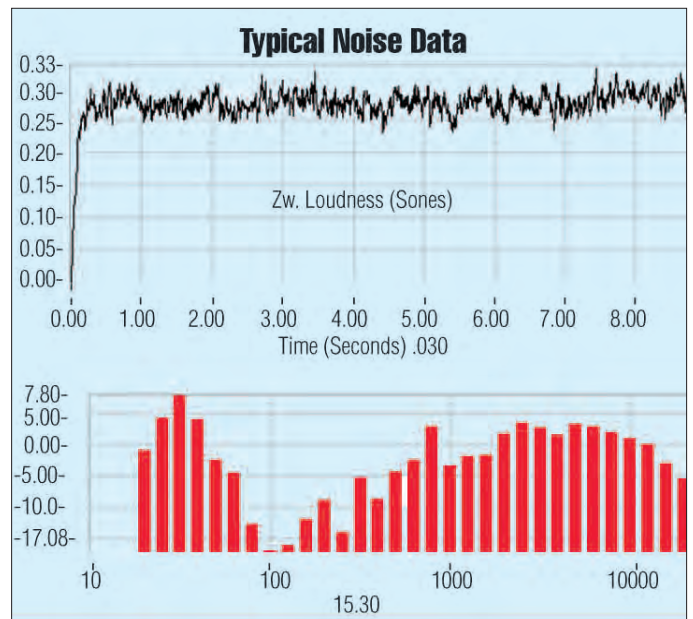
Many automotive manufacturers have specified one or more of Resilon or Xylan coatings to solve a variety of problems.

They include Aston-Martin, Bentley, BMW, Chrysler, Fiat, Ford, GM, Honda, Kia/Hyundai, Mercedes, Nissan, Suzuki, Tata, Toyota, VW.

Whitford is one of a select group of companies that have achieved the rating of an ISO TS 16949 supplier. In addition, we have been awarded ISO 14001 for our commitment to environmental management. This commitment to the most exacting standards is maintained by quality assurance teams at all Whitford facilities.

### No more “itch and squeak”

Controlling and reducing noise are of paramount importance to auto manufacturers today. That’s why Whitford has installed the world’s most advanced noise-analysis equipment, designed to replicate “itch and squeak” on cars. Whitford’s advanced low-noise technology (LNT) can virtually eliminate the noise generated by










Typical data that Whitford's new test equipment is able to generate in the Noise Laboratory. Such information is critical in the development of better, quieter coatings.

micro-movement between mating surfaces such as a car door and the door’s sealing system.

This LNT has been incorporated into several Resilon coatings, all of which comply with the toughest noise specifications such as Ford (CETP 01.07-L400) and GM (GM9842P).

## Guide to Whitford’s Flexible Finishes

Trade name	Product Code	Main properties	Typical applications
	2020	Low-noise weatherstrip coating for most rubber compounds. Single component, water-based.	Automotive weatherstrip, seals, gaskets and O-rings.
	2120	High abrasion-resistant weatherstrip coating. Single component, water-based.	Automotive weatherstrip where high abrasion resistance is a requirement.
	2121	Exceptional resistance to abrasion for glass runs. Two components, water-based.	Automotive glass runs (replaces flock).
	2251	Simple fitting aid to give controlled friction values to rubber substrates.	Fitting aid for weatherstrip and glass-run profiles.
	2420	Quick-cure coatings for rubber. Single component, low-temperature cure, water-based.	Weatherstrip seals and temperature-sensitive substrates.
	4016	Exceptional solvent-based primer that provides superior adhesion for all problem applications.	Suitable primer for all Resilon and Xylan rubber coatings. Excellent performance on high oil-content compounds.
	4020	Market-leading water-based primer. No VOCs. Suitable for temperature-sensitive substrates.	Suitable primer for all Resilon and Xylan rubber coatings.

# Guide to Whitford's Industrial Coatings

Brand and Product Code	Solvent-borne	Water-borne	Colours	Working temp °C min/max	# of coats	DFT per coat	Low friction rating	Non-stick rating	Corrosion resist	Abrasion resist	Cure temp C/# min (PMT)	General comments Uses
Xylan 1010			No light shades	-195 to +260	1 or more	20 ± 5µ	10*	2	4	3	220-345/20-5 min	General-purpose coating for dry lubrication in high-speed and/or low-temperature environments. Typical applications include rotary actuators, bearings, carburetors and garden tools.
Xylan 1014			No light shades	-195 to +260	1 or more	20 ± 5µ	8	NNS	5	4	220-345/20-5 min	Improved abrasion resistance over Xylan 1010. Typical applications include hinge pins, piston casings, compressors, fasteners, etc.
Xylan 1052			Dark only	-195 to +260	1 or more	15 ± 5µ	6	NNS	4	4	220-345/20-5 min	Extreme pressure capability. Coating contains MoS2/PTFE. Typical applications include bearings, valve springs, sealing rings, etc.
Xylan 1070			No light shades	-195 to +260	1 or more	20 ± 5µ	8	NNS	6	4	205-345/30-5 min	Stud-bolt coating used over phosphate or other pretreatment to achieve up to 3,000 hours salt spray. Typical applications include threaded fasteners.
Xylan 1331			No light shades	-20 to +230	1	22.5 ± 2.5µ	9	NNS	9	6	375-400/15-5 min	Dry-film lubricant with PPS and PTFE for outstanding wear, abrasion and chemical resistance. Typical applications include offshore down-hole tools.
Xylan 4018			Range of colours	-40 to +260	1	10± 2µ	Powder topcoats can be applied over this primer wet or flashed.					Solvent-based primer for powder coatings. Typical applications include chemical processing equipment and industrial bakeware.
Xylan 1424			Range incl. off-white	-20 to +180	1 or more	17.5 ± 2.5µ	8	NNS	8	4	205-275/15-5 min	Low-friction coating with excellent corrosion resistance. Designed for fasteners, piston casings, compressors, etc.
Xylan 1514 Xylan 1518			Range incl. white	-40 to +220	1 or more	20 ± 5µ	9	3	3	4	220-275/30-5 min	Decorative coating with low-friction properties. Good UV and abrasion resistance. Typical applications include cooling fans, light fittings, personal-care products, radomes, I-O drives, etc.
Xylan 5420			Range	-50 to +200	2 or 3	7 ± 1µ	3	NNS	7	3	200-230/20-10 min	Application by dip/spin. Provides controlled friction to suit torque tension. 240 hours salt spray over phosphate. Typical applications include fasteners, especially for the automotive industry. Xylan 5230 is solvent-borne version.
Xylan 8840			Range	-40 to +205	1 or more	15 ± 2µ	NNS	7	NNS	6	375-420/15-5 min	Excellent nonstick, easy-clean, food-safe coating for mold release in both engineering (e.g., for tires/polyurethane) and food industries (e.g., bakeware).
Xylan 80-510 Xylan 80-511		PFA powders	Natural to white	-40 to +260	1 or more	>50µ	7	8	8	7	400/15 min	Excellent for high-build systems in which chemical resistance and permeation resistance are needed and service temperatures can exceed 200°C. FDA-compliant grades available.
Xylan 80-550 Xylan 80-551		FEP powders	Natural to white	-195 to +205	1 or more	>50µ	7	9	6	5	400/15 min	Excellent for high-build systems in which resistance to chemicals and permeation are needed and service temperatures are below 200°C. Release is superior to PFA systems. FDA-compliant grades available.

\*Rating: 10 = best. NNS = not normally specified. Note: These products are a small sampling of Whitford coatings. For a complete listing, call your Whitford representative or Whitford directly.



**Whatever your coating problem,  
Whitford probably has the  
right product to solve it. If not,  
we will work closely with you  
to develop the coating that will.**

### **How to contact Whitford**

Whitford manufactures and maintains sales offices in many countries of the world. For more information, please contact your Whitford representative or the nearest Whitford office (see our website: [whitfordww.com](http://whitfordww.com)) or [sales@whitfordww.com](mailto:sales@whitfordww.com).

*Eclipse, Excalibur, Fusion, QuanTanium, Quantum2, Resilon, Xylan and Xylar are registered trademarks of Whitford.*

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