

Whitford Worldwide

The Little Giant of Fluoropolymer Coatings

Whitford Corporation was founded in 1969. David Willis, a graduate of Wharton Business School, had been working at the same company for several years. Suddenly, three days before Christmas, he was fired. He and a friend decided to start their own business. They had no clients. No products to sell. All they had was a dream.

Today, that dream has become Whitford Worldwide, the leading worldwide producer of performance fluoropolymer coatings, known best for their use as non-stick coatings on cookware. Whitford is now a worldwide organization with manufacturing facilities in seven countries, direct offices in 6 more, agents in an additional 25, and sales in more than 50 countries.

The First Order – five gallons of Xylan® 1010

Whitford's first order was small: five gallons of Xylan® 1010, its first product. This is a matrix coating based on an alloy of engineered polymers, which was sold to Xomox Corporation, a company that wanted to protect its valve actuators. This matrix coating, based on an alloy of engineered polymers, provides a tough, very low-friction film and can be cured at low temperatures. Today, the Xylan® series remains among Whitford's most popular products.

Entrepreneurial Banking Woes

Dave Willis shared the following anecdotes of his banking trials and tribulations as Whitford grew and prospered.

Startup Banking Crisis

“Whitford started as a small business using the typical banking services such as check cashing, payroll, and a very small line of credit. Whitford arranged a line of credit with a local bank, Southeast National Bank. A couple of years later, the bank decided we were too small for them to bother with. They sent us a letter calling our loan and gave us 10 days to get out of the bank. We were current (not late) on every basis.”

“Panic ensued. Fortunately, in the middle of the 10-day period, we read a Wall Street Journal article saying to call a loan without cause was illegal. Our banker then gave us more time to get out, but made it clear we had to get out. We replaced Southeast National Bank with a little larger bank where we knew the local president.”

Supply Crisis

“We later moved our banking to IVB which worked pretty well until our business went bad in 1978 when one of our suppliers changed its raw material and then denied it. As a result, we lost 40% of our business in 5 months. We went from 28 people to 18. We then spent the next 2 years visiting the IVB branch manager every week to go over our order backlog, convincing him that we were worth continuing to provide a line of credit. He never understood our business, but he never called our loans either. In 2002, we regained part of the business that we had lost at our



New Singapore Plant and Original Whitford Building (inset)

then largest account — after 21 years.”

Banking Tribulations in the Nineties

“After many mergers and acquisitions among our bankers, we found another bank, First Valley, out of Bethlehem. We remained with them for about 6 years, through 3 name changes, until everyone we knew retired, cashed out, went to work for a client, or took a smaller job with a smaller bank.”

“We went to PNC in 1999 based on an excellent offer from them. This relationship worked great until our business got soft and a great deal of pressure was put on all US banks to improve their portfolios. Their answer to a company in trouble (Whitford) was to remove our sweep account necessitating much higher daily balances. They began to charge for many services that had been free and raised our interest rate. If this is what they did to customers in soft times, what would they do in bad times? **We knew we were on their “B” list when we were no longer invited to the Flower Show.**”

Whitford Today

Selling Solutions

Whitford believes that the way to a better product is to start with the problem, then create a product specifically designed to solve it. “In the past few years, we’ve put nearly ten percent of our sales money into R&D,” said Mr. Willis. “I’m willing to bet that we are the R&D leader in the field. We have more new products and systems than anyone.”

The Largest, Most Complete Line of Fluoropolymer Coatings in the World

Whitford’s focus on solving problems, coupled with a remarkably high investment in research and development, has led to a series of “firsts” in the industry.

Whitford “Firsts”

- ▶ First fluoropolymer dry-film lubricant to operate consistently at 260°C (500°F) and above.
- ▶ First bright white fluoropolymer coating.
- ▶ First bulk coating material to deliver consistently 400 hours of resistance to salt spray.
- ▶ First high-temperature-resistant wood-grain-finish coating.
- ▶ First coatings designed for use on the curtain coater for economical application of nonsticks to cookware.
- ▶ First internally reinforced nonstick to provide increased durability for coil-coated bakeware.
- ▶ First externally reinforced coating system to provide significantly greater durability, justifying nonsticks on top-end cookware.
- ▶ First waterborne VOC-compliant coating for use on rubber substrates for glass-run and freeze-release applications

Key Whitford Markets

Fluoropolymer Coatings are used in many industrial markets as well as in consumer cookware.

- ▶ Consumer (cookware, bakeware, small appliances)

- ▶ General Industrial applications (the chemical processing industry, fasteners, molds, and an endless list of uses)
- ▶ Flexible Finishes (flexible substrates such as automotive sealing systems, etc.)
- ▶ Industrial Textiles (belts, filters, gaskets, awnings, sails, etc.)
- ▶ Reprographics (copy rollers, etc.)

Why Coat with Fluoropolymers?

Fluoropolymer coatings can transform nearly any metallic surface to those of a fluoropolymer. Fluoropolymer coatings with the same end properties may be formulated and applied to virtually any other substrate as well.

Product Types - By altering the binder (adhesive) resin, cures can be designed that will not harm temperature sensitive substrates including plastics, wood, even paper.

Product Size - Parts from tiny valve seats to 50-foot-long rocket casings can be successfully coated. Thousands of small fasteners can be coated at once using dip-spin techniques.

Custom Coaters are located throughout the US (and the world), who have the capability to do from one to millions of parts as the application demands. Freight costs tend to limit their trading area.

Coatings - The market tends to be served by about 50 formulae, but literally hundreds of materials are commercially available for special applications or needs.

The Process consists of cleaning, coating and curing. The choice of how to do each is governed by the needs of the specific application and may vary widely.

Key Products

Given the diversity of uses, Whitford coatings are marketed under many different brand names.

▶ The most commonly used name (especially in the industrial area) is Xylan®.

▶ Dykor® is most common to the CPI.

▶ The consumer area has more brand names. Excalibur®, for example, is known as “the toughest, longest-lasting, most durable nonstick system in the world.”



Many Coating Applications in Autos

▶ There is Eclipse®, the internally reinforced nonstick “that outlasts other reinforced nonsticks by a factor of ten”.

▶ QuanTanium® is the nonstick reinforced with titanium “to outlast almost anything”.

▶ And there is Quantum2, reinforced internally “to outlast all conventional nonsticks.”

More Durable Fluoropolymer Coatings

Whitford’s emphasis on durability has been driven by marketplace needs. “Since 1997, top-of-stove nonstick cookware has improved in



Home Cookware

durability more than 100 times over,” said Mr. Willis. According to Mr. Willis, nonstick coatings for cookware are now so durable that testing methods previously used are completely obsolete. “Testing methods used to destroy a product in about 10 minutes in 1997, now the same amount of testing barely produces a blemish after 3 hours.”

“Developments of the past three years have moved the entire area of consumer coatings forward to the point where our worst coatings today are substantially better than our best coatings of three years ago.”

The development of more durable fluoropolymers coatings has substantially expanded the market for fluoropolymer-coated products.

The Curtain Coater

Whitford has spent the past 10 years perfecting the curtain coating process as a way to apply fluoropolymer coatings. The system is nearly 100% efficient (about 35% more efficient than spray), but offers the same appearance and more important, the same physical properties as spray. Roller coating, the alternative to curtain coating, leaves unsightly striations

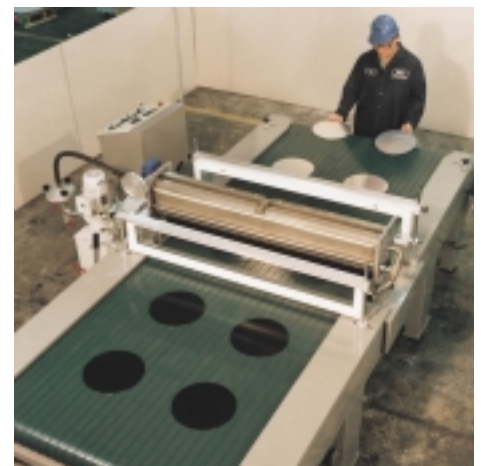
on the surface that wear away quickly.

Whitford Culture

Part of Whitford’s culture calls for **making superior products**, yet never being satisfied with their performance. What makes this possible, according to Mr. Willis, is the company’s unwavering commitment to R&D. “If we don’t have a product that meets customer needs, we’ll make one.”

Still another part of that culture calls for **serving customers better** than the competition. “That’s why we maintain a presence in so many countries,” said Mr. Willis. “We can help anyone, anywhere.”

Another Whitford key thrust is its **focus on worldwide growth**. Whitford’s sales have nearly doubled since 1997. Recent upgrades to its facilities abroad should help support future growth, which appears to be accelerating.



The Curtain Coater

Recent and Planned Expansions

► In 2000, Whitford opened its largest facility, a state of the art plant in Singapore, with over 5300 square meters of factory, office and lab space.

► In 2001, Whitford moved to a much larger and brand-new facility in Germany, increasing space by 70%.

► In 2002, Whitford inaugurated a new facility in Brazil, with 3,000 square meters of bright, clean space on almost 16,000 square meters of countryside.

► In 2003, Whitford will open a large new facility in Jiangmen, China, in the Pearl River Delta, which will be the most modern of all the new facilities.

In addition to the new factories, Whitford has also opened a number of regional offices and distribution centers throughout the world including Australia, Germany,

Dave Willis, Entrepreneur

Dave Willis, founder and president of Whitford Worldwide, was named "Entrepreneur of the Year" in June 2000. Mr. Willis received high



honors at a special dinner held at the Pennsylvania Convention Center in Philadelphia. The banquet celebrated the 2000 Greater Philadelphia Entrepreneur of the Year Awards. Willis, and Whitford Worldwide, the company he founded, won the award in the category of Manufacturing.

Vietnam, Colombia and Hong Kong. The last distribution center and office is larger than the company's first factory, testimony to its growth.

Whitford Tomorrow

Where does Whitford go from here? "Expand into 'non-traditional' markets such as sealing components for automobiles," says Dave Willis. "Areas such as door and trunk seals, glass-run coatings where the surface needs to be smooth, with low friction and noise reducing properties are all candidates for fluoropolymer coatings. Provide coatings for technical textiles that need improved outdoor weathering, water repellency, non-wicking or other property uniquely available with the use of specifically formulated fluoropolymers."

He sees continued rapid growth and overseas expansion for Whitford.

When bankers asked the "Vision Question," Dave said "*more flags, bigger flags, and more people under them.*"

"Whitford - The little giant of fluoropolymer coatings"

From its very beginning, Whitford has taken a global approach to its business. It has mixed the customer dedication and innovation of a smaller company with the global reach of a large multinational giant.

Whitford has obviously had exceptional leadership from its founder and President, Dave Willis. It makes you think "*What would have happened if Dave Willis had not been fired from his job way back in 1968?*"

Fluoropolymer Coatings Development Timeline

The 1960s

- **Acid Primers** – First FP coatings with good adhesion
- **Hi-build colored topcoats** – Expansion of nonstick cookware market
- **FEP based coatings** – Use in CPI and mold release
- **Dry-film lubricant use** – Blends of micropowders and solvent based resins

The 1970s

- **Acid-free primers** – Safer nonsticks for cookware
- **Use in consumer bakeware** – Post-formable solvent-based nonsticks applied by coil coating
- **Use of melt processible FPs in coatings** – Improved nonsticks for cookware and office products
- **Use on small electric appliances** – Aqueous dispersions of high temperature binders

The 1980s

- **Coatings reinforced with fillers** – More durable and economical nonsticks
- **Fastener coatings with controlled T-T properties** – Low-temperature curing binders and micropowders
- **Externally reinforced nonstick coatings**
- **Low-VOC coatings** – Blends with variety of waterborne binders.

The 1990s

- **Nonsticks needing less substrate preparation** – Cheaper coatings for cookware
- **New application method - curtain coating** – Cheaper nonsticks with better appearance
- **Flexible finishes for auto weatherstrips** – FPs blended with elastomeric binders
- **High abrasion-resistant nonstick coatings** – Super internally-reinforced FP coatings

The Future Years

- **The best is yet to come!!**