AZON Newsletter
Technology • Chemicals • Machinery

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From the Chairman,
Jim Dunstan

In this issue:

"Where is the Beef?"

Taken from an often quoted question from one of the most successful series of television commercials,"Where's the Beef?" an advertisement for a major hamburger chain, which became a common expression for *where's the real substance in a product or a thing.*

In the same vein we might ask ourselves the question,"Where is the *value*?" An essential question that surfaces for everything that is purchased. It is the cost-to-benefit-ratio, "Are we receiving value for the goods we buy?"

In the recent months, conditions have developed in the supply chain for the basic constituents that Azon has to buy from, which have increased in their cost dramatically. These increased costs are brought on by global supply and demand conditions. First, the cost of oil and gas, from which chemical feed stocks are derived, have risen to their highest levels in memory. Second, the burgeoning global demand for chemical compounds derived from oil and gas, especially in Asia, has out-weighed the capacity to produce these materials. The isocyanate component used in Azon polymer is produced by only five companies in the world. They are all producing at maximum capacity. The slightest interruption in production can cause a shut down sending shock waves throughout the industry. Our suppliers tell us that we may not see relief in this situation until sometime in 2006. Fortunately for Azon and our customers, we have been assured that we will be supplied at the level of our purchases, but no more. This has all been explained to our customers, as we have been forced to increase our pricing.

The answer to the question "Where is the value?" can be found in the impressive number of advantages that come with every pound/kilo of Azon product that reaches its final destination as an energy saving component for aluminum windows. Azon has evolved into a company unique in its approach to building a business, based on these precepts, we are first in technology, machinery and chemicals. To begin with, Azon is the worlds largest and leading supplier for the pour and debridge, thermal barrier technology for rendering aluminum windows and doors energy efficient. We have twenty-eight years of experience as a specialist, providing both machinery and chemicals to the aluminum fenestration industry.

Azon has the largest research and development department, devoted exclusively to the perfection of high-performance thermal barrier chemicals in the world. Azon is the only supplier of thermal barrier chemicals, the only supplier that manufactures high-capacity, highly productive, process machinery. We raised the bar by adding HMI (human machine interface) versions, which can produce at a very high output rate, with fewer workers.These advanced machines are designed by a fully staffed engineering department that integrates the latest computer technology with machinery.

Azon holds the only thermal barrier machinery patent in the world

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Where's the Beef? *(cont. from page 1)*

for the Azon Azo-Brader™. This machine, introduced ten years ago, literally rescued the pour and debridge system from its demise (due to the dry shrinkage phenomenon).

Thermal barriers produced with an Azo-Brader™ carry a ten-year warranty, against cracking and dry shrinkage. We are proud to report since its inception not a single polymer failure has been reported by any of the approved Azo-Brader™ applicators. Azon has a fully staffed parts department, over-seeing over a half-million dollar parts inventory and a fully trained service staff, some with over twenty-years experience, who may be dispatched anywhere in the world on short notice. Our service technicians make regular visits to Azon's customers —the cost of which is born from the price paid for Azon's chemicals.

We conduct the most comprehensive E-Quality Audit (electronic quality audit) program, which is surveyed electronically on a real-time basis. In addition, physical testing is periodically performed on the Azon polymer from test molds produced from the machines. Azon regularly conducts life-cycle tests, according to AAMA specifications, in an environmental test chamber, based on production profiles. Azon has a full-time, highly qualified, window designer on staff; an engineer with over thirty-years experience in aluminum and plastic materials, including fiberglass windows. He works as a consultant on design problems with Azon customers. He is also involved with concept designs for next generation thermal barrier systems.

Azon is the only chemical supplier in the world that holds patents on aluminum thermal barrier window designs.

Azon has a full time physicist on staff who interfaces with all of the interested organizations including AAMA, AEC, NFRC, ASTM, NAM, National Sunroom Association,

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DEWI SANT

Saint David (Dewi Sant in Welsh) the patron saint of Wales has his national day on the first day of March each year. Back in the days of the "Druids" he would preach the word of Christianity throughout the area that is now known as Wales.

Azon UK Ltd, signed the lease agreement on 1 March 2005, Saint David's Day, for the new business facility in Ystrad Mynach, Wales. I believe this is not pure coincidence or that we just happen to be in Wales, but it is a good luck message from Dewi Sant wishing us success from this day on.

Azon has been in Caerphilly for 18 years, trading from a small office over a travel agency in the High Street, to the present unit on Venosa Trading Estate. Whilst the Venosa unit has served us well, times have changed and we have out grown the space available to us. We are the last tenants on the estate and the ground will be used to build a large supermarket with adjacent residential homes. We wish all who occupy this new development a happy and successful future.

Ystrad Mynach (pronounced something like Ustred Manak) is within the Caerphilly Borough Council. The unit has 20,000 sq ft of production area with only 2 steel supports within the area due to a very clever roof lattice structure. There is just over a 1,000

New location announced

AZON UK LTD.

sq ft of offices plus a canteen (tea room) and even a small garden area adjacent to the car park.

The benefits we will have over the existing unit will be:

- The potential for bulk storage of raw materials.
- Loading and unloading of transport inside the factory.
- Logical layout of the blending operation.
- Ease of inventory control.
- Larger area for the laboratories
- Larger area for engineering works.

The office area will allow for: a reception, a board/meeting room, an exhibition area and a pleasant view across the Welsh countryside.

Within all of this, Azon will be investing heavily on updating all IT, communications systems, storage and handling equipment, along with creating a more pleasant working environment for its employees.

I look forward to reporting how our first period in our new home has been in the next issue of the newsletter. ■

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Aluminum Fenestration for Use in Building Envelopes • white paper

download a copy at www.azonintl.com

A white paper authored by Dave Mills entitled *Aluminum Fenestration for Use in Building Envelopes* was presented at National Manufaturing Week (National Association of Manufacturers or NAM) by Patrick Muessig early in March. The session was sponsored in part by the Aluminum Extruders Council (AEC). The presentation highlighted the use of aluminum with a structural thermal barrier as the material of choice for fenestration worldwide for commercial and residential applications. Structural

longevity and design flexibility of such products is discussed. Data was provided to illustrate the ability to meet energy codes required for the architectural building industry. Comparison studies were also given on various types of systems that can be used for insulating aluminum windows and doors. ■

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Customer Profile
YKK

In the Azon newsletter we often have occasion to write a historical analysis of one of our customers. All of our customers certainly have interesting profiles, and we have already profiled many and hope to interview all for future publications. However, one of the more interesting companies is YKK, who has a long, diversified history.

YKK was founded in Japan in 1934 by Mr. Tadao Yoshida. The company formalized its name, Yoshida Kogyo Kabushiki Kaisha, or YKK for short. This name translates to English as, Yoshida Company Limited.

YKK of course, was started as a zipper manufacturer. In fact, if you look at the stampings on your zipper, there is a 70% chance it will read "YKK".

To some of us, YKK will seem unique in its manufacturing philosophy. Early on, YKK became involved in vertical manufacturing. As many companies come to realize, simply manufacturing a product, zippers in the case of YKK, does not ensure a quality product. The zipper is an integral part of any article of clothing. If the fabric it was attached to failed, the zipper was deemed a failure. If the metal or plastic caused the zipper to bind, the zipper would be doomed. YKK's concern with quality took their manufacturing philosophy to a high level. They began first by designing and manufacturing the equipment that produces the zipper itself. This allowed YKK to take control of the most important component in the manufacturing process; from there they began to analyze other elements of overall quality. The next step was to produce the raw materials that went into this production. YKK now makes: the yarn, the threads, the dye, the coils, the brass, the sliders, the teeth, and all other raw components involved in their product.

This philosophy is what eventually led them to become one of the largest construction products manufacturers in the world. Using this vertical manufacturing technique, in addition to the process to search for the best metal for their zippers, they worked

extensively with aluminum. This work and knowledge naturally led them to architectural aluminum building products--YKK-AP. YKK is the largest zipper manufacturer in the world, with 206 facilities in more than 50 countries. This statistical fact is quickly beginning to pale in comparison to their architectural products group. This group now accounts for more than 60% of YKK's total worldwide sales. YKK is now one of the largest aluminum building products companies.

Azon's involvement with YKK is an interesting story as well. We became involved with the company about 8 years ago, prior to their current architectural presence in North America. Almost since their inception into the architectural market, YKK produced thermal barriers for their fenestration products. For 15 years they utilized the Polyamide or strip system. They once again integrated vertically to design and produce automated equipment for this particular thermal barrier process.

YKK enlisted Azon in an attempt to improve all aspects of their thermal barrier offerings and processes. They recognized the advantages of pour and debridge thermal barriers over their own 'Megatherm' strip process. With advantages in thermal performance, structural integrity, design ease, and most importantly, processing improvement from 'billet to window,' they made the decision to switch their product lines to the pour and debridge thermal barrier. YKK chose Azon because of our expertise with processing, for our patented chemicals, our service dedication to the industry, and most importantly, because we mirror their philosophy of integration in production. Azon produces equipment specifically designed for thermal barrier production in conjunction with producing our own variants of chemicals for this application. It has taken almost five years, and the purchase of eight equipment lines to make it happen, but YKK-AP, in both Japan and the U.S., have completed almost all design changes, process staging, and production to the pour and debridge process.

YKK still adheres to Mr. Yoshida's business philosophy, "The Cycle of Goodness" meaning *no one prospers unless he renders benefit to others*. Quality of product, service, and commitment to the industry's and consumers' needs, is key to his and our philosophy of business. ■

Dave Mills, CEO, dmills@azonusa.com

Where's the Beef? *(continued from page 2)*

CAB and ALFE (in Britain), and the US Department of Energy; along with all of the leading academic bodies interested in energy conservation and Green building. Azon is the only supplier of thermal barrier chemicals directly supporting pour and debridge technology by conducting educational seminars with architects, and our customers' sales force. When taken into consideration, the price increases fostered by conditions beyond Azon's control—there are tremendous added value benefits for our customers and the aluminum thermal barrier window industry in general—all expensed to Azon. "Where is the value?" We hope this, in part, answers the question. ■

Jim Dunstan, Chairman,
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A Historical First

In early December of 2004, Azon technology was implemented into the specifications of an important project in South Korea—the soon-to-be built Acro Towers, in Seoul. It will be the first time that the full-scope of Azon's energy conserving technology has been realized in a major commercial construction project. What distinguishes this venture from so many other majestic commercial developments Azon has been involved with in this part of the world, is that the specifications include Azon's structural thermal-barrier polymer and Warm-Light insulated glass spacer as well. In doing so, this became one of the most energy-efficient endeavors in this part of the world, to date.

The Arco Towers consist of two, 42-story buildings, which encompass 14,044 m2 of space. Saving energy for such a monumental project can weigh on a building owners mind.

The inclusion of Azon technology had several positive benefits,

including a greater resistance to condensation. The CRF (condensation resistance factor) increased 12 points for the glass and 25 points for the frame. Also, there is a reduction in sound transmission and an increased internal temperature, of the fenestration units, from 5 to 10 degrees Celsius--all of which will contribute to a dramatic improvement of the comfort levels of the tenants.

In putting together an energy savings model, Azon was able to simulate the impressive efficiency of aluminum fenestration by employing the Azon thermal-barrier and Warm-light, which are unparalleled by any other method available in the world today.

The annual heating and cooling costs per window will be reduced by 32%. Over a period of thirty-years, enough energy will be saved to supply the two towers for an additional 5.25 years. To put it into another perspective, it means that there will be enough energy saved to support 1500, average-size, apartments for one year. It is estimated that the total energy savings, for the buildings attributed to the inclusion of Azon technology, will be over $789,000 USD over a period of thirty-years.

Commercial buildings consume nearly 1/3 of all energy produced by carbon fuels. In this era of "Green Building", global-warming, and the Kyoto accords, it is estimated that emissions due to the windows to be part of the Acro Towers will also be reduced by 44%. This is as an enormous advancement in environmentally-conscious building. We look forward to the continued success of Azon Korea and can now point to Arco Towers as a model and send a message to builders Worldwide of what a truly energy efficient project can be in the 21st Century. ■

Patrick Muessig,
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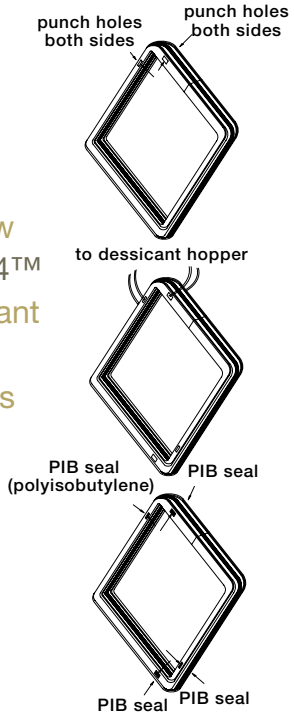
the new Quad-4™ desiccant filling process



The Quad-4™ desiccant filler

A new era has started for Azon as the company engages further into producing fabrication equipment for the manufacturing of insulated glass and windows.

The Quad-4™ desiccant filler is designed for filling both tubes on all four sides of a four corner bent spacer. The Quad-4™ improves production efficiency and increases the ease of fabricating insulated glass utilizing Warm-Light®. The ordinary progression in an automated insulated glass production line is to have desiccant filling immediately following the bending process.

This machine permits a smooth transition from bending to desiccant filling. Holes are routed simultaneously into both outside shoulders of the spacer frame. Desiccant beads are then pulse air blown into the hollow tubes. Once the tubes are full, (PIB) polyisobutylene is applied to seal the hole. The end result is a perfectly desiccated spacer frame ready for glass placement and sealant application. The machine will also accommodate any conventional spacer and can be incorporated to any automated fabrication line. Essentially any size spacer frame can be handled, as small as 24 in x24 in or as large as 96 in x116 in.

To learn more about the Quad-4™ and the Warm-Light Certified Fabricator Program please contact Azon. ■

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