

# Engineered polymer components convey reduced expenses

PLASTICS  
IN FOOD  
PROCESSING

by Tim Lankenau

**F**rom break rooms to boardrooms, the battle cry sounded over the past few years has been “Reduce Expenses!” But even with every pen, pencil and paper clip accounted for, expense reduction hasn’t occurred as quickly as many food processors need in order to retain financial stability. Using bearings, gears, prep tables, sprockets, guide rails and wearstrips manufactured from engineered polymers instead of metals could have a very positive impact on expense reduction efforts already instituted by these companies.

Food producers/processors face challenges today that are greater than at any other time in history:

- Increased hygiene/sanitation standards.
- Tighter specifications on weights, shapes and sizes.
- Constant demand for new products.
- Increased potential for cross-contamination in non-single use equipment.

To overcome these challenges, producers/processors are looking at equipment enhancements that bring more automation into the plant, equipment that is both economical and flexible, and investments that result in immediate payback efficiencies. Polymer components are designed with those exact results in mind – and the additional benefits polymer components provide when compared to their metal counterparts, such as noise and vibration reductions, are significant.

**“Incorporating polymer components into a food processing operation is the optimum response to the continual need to reduce expenses and improve output in today’s ultra-competitive markets.”**

## Meeting higher standards

In order to meet higher standards of sanitation/hygiene, processing equipment must be able to withstand frequent chemical and high impact water washdowns. In addition, the equipment and all its “parts and pieces” must meet stringent FDA/USDA standards. In many cases, compliance with NSF, 3-A Dairy and Ag Canada guidelines are also required. Several of today’s polymers meet all those requirements, such as proprietary UHMW-PE formulations. Bearings, gears, guide rails, etc., fabricated from this and other food grade polymers not only meet all the aforementioned standards and guidelines, but they are also abrasion, corrosion, chemical, moisture, impact and wear resistant.

In addition, the extremely low coefficient of friction of these UHMW-PE formulations means that food being processed won’t stick – even before the washdowns. This property, combined with zero moisture absorption, make the sanitation process more thorough and quicker, reducing the potential for cross-contamination – a benefit particularly prized

today as processors use equipment for more than one product. Another benefit of using polymer components instead of metal is the fact that polymers don’t “add” anything to the food being processed. Metals rust and break off in extremely corrosive environments such as those found in meat and poultry processing plants; polymers don’t.

At the end of the day, the processor is able to meet the demands of end-users for consistent, high quality products by utilizing polymer components.



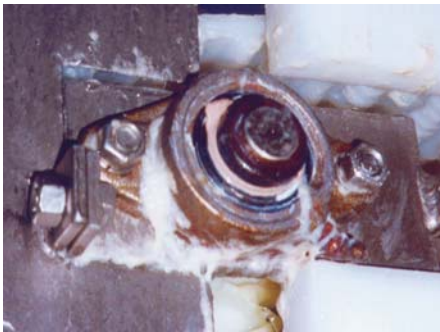
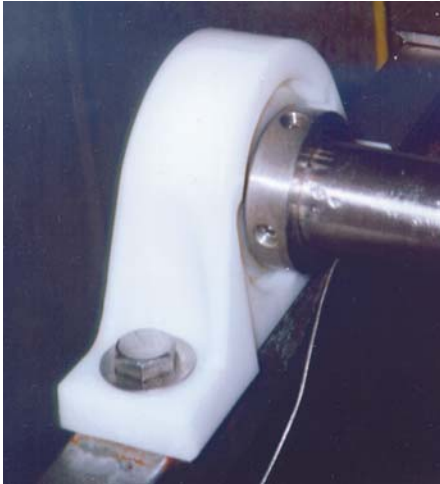
Ideal for food processing, bottling and packaging, polymer guide rails such as Poly Hi Solidur’s TIVAR® Rail™ reduce or eliminate routine, recurring conveying system problems such as premature wear, stretched chains, unscheduled downtime and expensive replacement parts.



Polymer cutting surfaces, such as the one shown here made from Poly Hi Solidur’s Sanalite® material, are used in a wide array of applications, from homes to commercial food preparation and in some of the largest packing plants in the United States.

Polymers also play an important role in meeting sanitation standards in areas besides the conveying equipment. Industrial food processing/prep surfaces present special challenges, particularly in meat and poultry processing. Not only must these surfaces exhibit the same durability during sanitizing and meet the same food handling standards, but they must also resist damage from cutting utensils.

Polymers such as patented cutting board materials incorporate material properties



*Polymer pillow-block style mounted bearings, like the top one pictured here from Poly Hi Solidur, show little or no wear after enduring 90,000 chickens, 540,000 gallons of water and several exposures to washdown chemicals each day for over a year. Stainless steel components, on the other hand, show a great deal of wear after just a few months.*

that address chemical and moisture challenges, and then go a step further with surface finishes that increase the material's wear-life without damaging expensive cutting blades.

### **Automation flexibility**

As food processors introduce more automation into their plants, they are focusing on installing equipment that is both economical and flexible. With the demand for new products – and old products in different shapes, sizes, etc. – by retailers and consumers, food processors need equipment that is not product-specific. In other words, they need equipment that is easily adjustable to ensure optimum performance no matter what product is being processed or packaged.

Once again, engineered polymer components come to the rescue. Available in simple to complex standard and custom shapes and sizes, polymer components are interchangeable with their metal coun-

terparts, adhering to American National Standards Institute (ANSI) guidelines for product size, shape, etc. Easily fabricated and installed, polymer components are the perfect choice for replacement parts in older, existing equipment. They are also an integral component in newer, modular designed processing and conveying lines, increasing a company's flexibility in terms of reconfiguring conveyor lines to handle different products.

Efficiencies can also be gained during the change-over process from one product processing to another by using color-coded polymer components. From USDA/FDA-compliant white, blues, oranges and more, polymer components can be easily identified by color as plant staff adjust equipment or replace parts.

Increasing automation when processing dry bulk foods calls for a somewhat different approach, although polymers increase efficiencies here as well. Sorting/separating chutes must distribute bulk materials consistently for the plant to optimize production. Lining these chutes with a low coefficient of friction polymer reduces or eliminates uneven bulk material distribution.

### **Results**

The bottom line, of course, is the impact of using polymer components on the processors own bottom line. And, the list of bottom line benefits is a long one. For example, polymer components:

- Reduce downtime and maintenance costs due to long wear-life and ease of installation.
- Weigh less than steel, easing the strain on motors.
- Reduce vibrations, so no more shake, rattle and roll during conveying applications.
- Reduce noise levels and wear by eliminating metal on metal contact.

These advantages make polymer components a value-added alternative to metal in many applications: longer life at a competitive cost creates opportunities for production planning to improve asset utilization.

Incorporating polymer components into a food processing operation is the optimum response to the continual need to "reduce expenses" and improve output in today's ultra-competitive markets. ■

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