

# CASE STUDY: Major Tire Production Bottleneck Mold Release Solution

**PRODUCTION BOTTLENECK:** Rubber tires sticking to bladder ring; requiring the use of mechanical equipment to achieve separation from the ring. Besides slowing down production, the process was also creating hazardous/unsafe conditions from the violent reaction as the tire released from mold. Additionally, the process would often damage elements of the fresh tire.

**GENERAL DESCRIPTION:** 53" bladder tire ring weighs in excess of 6,000 lbs.



**SOLUTION:** Dyna-Tek's mold sealer and release coating system. The bladder ring was lightly mechanically etched so as to remove impurities, and clean the metal surface. Upon completion of this step, the surface was cleaned with an approved solvent so as to remove any remaining impurities.

The metal surface received Dyna-Tek's DT-400 Base Sealer designed to permeate the surface and seal the pores of the metal surface; including the entire outer surface, and internal channels. This process is a hand applied and allowed to ambient cure for a period of 24 hours.

With the Base Sealer in place, Dyna-Tek's DT-6000 Mold Release coating is applied. Unlike the sealer, the top coat can be applied either by wiping, or with conventional spray equipment. Upon completion, the top coat is allowed to cure for 4-5 days; although the coating is dry to the touch in 20 min.

**RESULTS:** Tires which had been sticking to the ring to the point that they required thousands of pounds of mechanical force; now released with no sticking... for months.

1. Safety issues created by the former sticking was eliminated.
2. Improved quality of tires in the bead area and all areas where the tire surfaces came in contact with the ring.

3. Problems with corrosion in the high carbon steel have been minimized.
4. Extended tooling life for the bladder ring.
5. Increased production through-put.

**ADDITIONAL BENEFITS:** Ultimately, the mold release can begin to lose its effectiveness due to abrasion from handling, and other mechanical wear and tear. To counter this, Dyna-Tek offers coating refurbishing kits that can be applied by (trained) plant staff personnel. These kits not only extend the functional performance of the coating system, but also the other benefits noted above.