

1957

1967

1977

1987

1997

2007

FIFTY YEARS OF INNOVATION IN THE TIRE INDUSTRY

January 1963 – a first in the retread industry, Bandag Vice President of Research & Development Ed Brodie creates a single-ply cushion gum. This pre-prepared rubber compound bonds the tire casing and the tread together. Still in use today, the single-ply cushion eliminates the need for dealers to blend curatives and rubber to make cushion gum on site at their manufacturing plant. This new invention helped to create a more consistent retread and saved Bandag dealers precious manufacturing time.

What's the Strongest Part of a Retread? You May be Surprised.

Eugene Johnston shows the HD-30 cushion gum, which bonds a Bandag tread to a tire casing. Johnston worked for more than 10 years improving upon the Bandag retread process. Today, he is manager of business development.



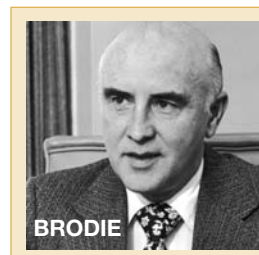
Using the original method created by Bernard Nowak, treads would not always stay attached. The process worked well when it worked, but consistency was an early problem.

Back in 1957, the original adhesive consisted

of two materials that needed to be combined to start the vulcanization reaction. These were a rubber cushion gum and a rubber cement solution. If the process was not done just right — if the solution was too wet or too dry, if there was inadequate coverage, or if the casing was not buffed just right, the tread might separate from the tire before the truck left the parking lot.

HD-30 Was the Turning Point

With the help of the Bandag research and development team, chemist Ed Brodie invented the first major innovation in cushion gum. By removing the curing chemicals from the cement and mixing them directly into the cushion gum, a much stronger bond to the tread and casing was created. The cushion gum became the strongest part of the retread.



When this “single-ply” cushion gum was launched to Bandag dealers in 1963, pre-cure retreading was still in its earliest stages and not

accepted by the trucking industry. This innovation brought the reliability of Bandag® retreads to a whole new level and also gave dealers a huge boost of confidence in the product.



Bandag routinely puts its retreads to the test. Like a steel weld joint might be tested, a tensile tester makes sure the bond is stronger than either the tire casing or the Bandag tread.

The new invention was dubbed “HD-30,” where the “HD” means “Heavy Duty”. Today, we may take it for granted, but in 1963, this new cushion gum was a huge improvement over the earlier material. “Heavy Duty” wasn’t just a name; this was seriously tough rubber. Even today this innovation is available only through a Bandag dealer.

Continuous Improvements

Over the years, we’ve continued to improve cushion gum. Bandag continues its research even today. Every innovation has been focused on delivering greater value to fleet customers and increased efficiencies in Bandag dealers’ retread manufacturing plants. Since the invention of HD30, many improvements have been made.

In the 1970s, as radial tires became more prevalent and the number of tire sizes in the marketplace grew; many more widths of cushion gum were made available to Bandag dealers. The additional sizes reduced waste and the amount of manual trimming necessary to get the right size of cushion for the tire.

In the late ‘80s and early ‘90s, the industry began to focus on its impact on the

environment. Air quality and smog became a concern, particularly for those in major metropolitan areas experiencing lots of industry and traffic congestion. As a result, a call for reducing the use of solvents was made and Bandag responded with a cementless retreading process. This process takes advantage of tackifying agents in the cushion gum compound so that tread can be securely stitched in place on the casing until the cushion has been cured, eliminating the need for cement and the solvents it contained.

Since that time, we’ve seen dealer retread manufacturing plants consolidate and grow in scale. This paved the way for more automation and greater manufacturing efficiencies. Today, most cushion gum is shipped to dealers in the form of strips that feed into a 6400 or 6300 cushion gum extruder. Cushion extrusion saves poly film and reduces dealer inventory. Since the strips are extruded to fit the exact dimensions of each casing, multiple widths of cushion gum do not need to be stocked. ■

By Eugene Johnston



Since its earliest days, Bandag has continually developed technology innovations to help its dealers produce quality retreads consistently: a win-win situation for dealers and fleets alike.

The Bandag Process has a reputation for being robust. The process can accommodate a wide variation in inputs yet still produce a consistent finished product. All of the components including casing brands, repairs, tread design, etc., are built into the process. Everything is designed to work together.

Many of the most visible innovations have been through advanced tread rubber pat-

terns and compounds, or major pieces of retreading equipment. However, the development and integration of cushion gum and curing envelopes truly brought together all of the pieces into the “One and Only System” for tire retreading.

An Imperfect Solution

When our organization’s founder, Roy Carver, brought the original Bandag process to America, the method for adhering a pre-cured tread to a used tire was still not well understood. In fact, major tire manufacturers of the day said he should not waste his time on something that could not be done. Mr. Carver pressed on.