

technically speaking

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THE EFFECTS OF INSUFFICIENT DRYING TIME AND IMPROPER CEMENTS

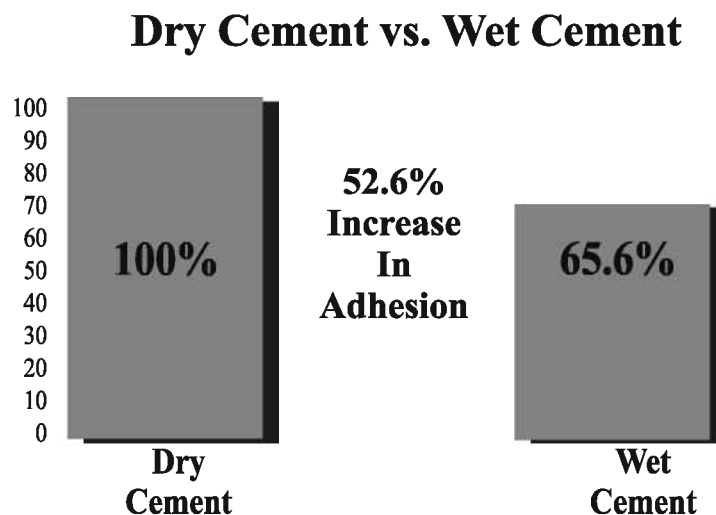
Many times we tell customers that not allowing proper drying time or not using the correct cement will cause a repair failure. These are both correct statements, however the customer may feel that this is just a way to sell them a product or the person conducting training does not have technical data to back up these statements. We feel that it is important for our sales force to have the technical data to support our recommendations.

Recently, Tech International conducted a series of tests that compared the effects of improper drying time as well as mixing various brands of cements with repairs. The test used was a standard adhesion test, which we use to determine the pounds per inch that it takes to pull a repair from a tire. With this test, we use a simulated tire or substrate that is produced at Tech so that there is a consistent surface to apply repairs. This substrate consists of two plies of fabric and a layer of synthetic rubber similar to inner liner rubber. The substrate is buffed, cleaned, and cemented to achieve a consistent surface, then the repairs are stitched down to the prepared surface. When the repairs have been fully cured to the substrate, the samples are cut into one inch wide strips. The samples are then placed onto a tensile tester that pulls the samples apart. The tensile tester is computer controlled and records the average force that it takes to pull the repair unit from the substrate.

In the test used to determine the effects of drying time and mixing of products, we pulled five samples of each condition. An average of each condition was taken to compare the differences.

There were two tests to determine the effects of drying time. In the first test, the chemical vulcanizing fluid was allowed to dry for less than one minute. In the other test the chemical vulcanizing fluid was allowed to dry three minutes, which is Tech's minimum recommended drying time. Figure one, shows the effects of wet vulcanizing cement on the adhesion of a repair unit. **There was an average decrease of 34.4% in the adhesion of a repair placed on wet vulcanizing fluid.** To promote proper drying time, we try to talk about the percentage of increase when vulcanizing fluid dries for three minutes or more. **The increase in adhesion is 52.6% greater when the technician allows proper drying time.**

Figure 1

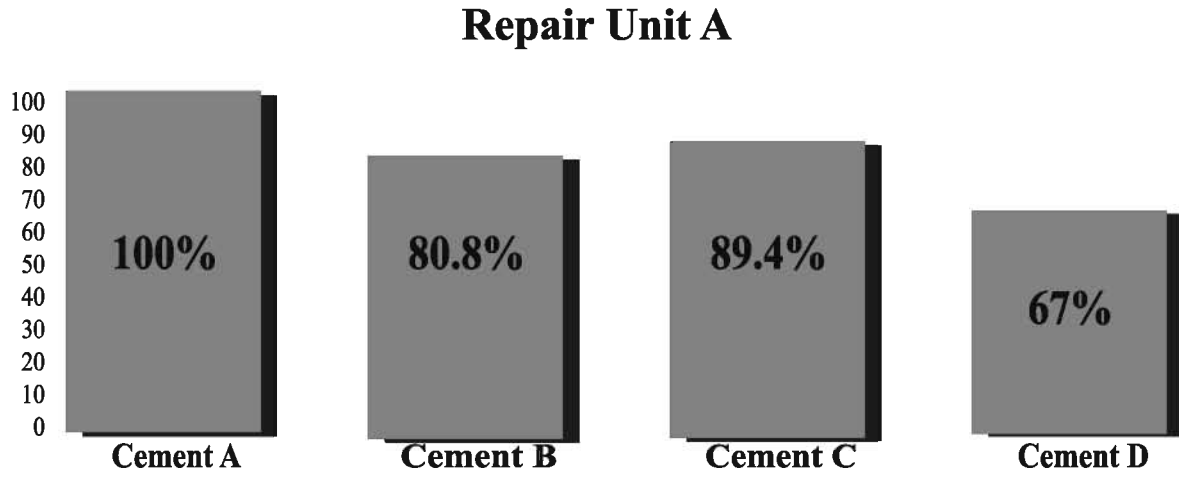


COMPATIBILITY OF REPAIRS AND VULCANIZING FLUIDS

Many times a salesperson faces a situation where the customer is using a competitive brand of vulcanizing fluid with Tech repairs. In most cases, this will cause an incomplete cure of the cushion gum. Chemicals in the vulcanizing fluid and cushion gum that do not react properly will cause this incomplete cure. In order for a repair unit to work at room temperature, the curatives in the cushion gum and the activators in the vulcanizing fluid have to be compatible. We conducted a test on the effects of mixing products from different repair manufacturers. In this test, we used four different brands of repairs and four different brands of vulcanizing fluids. These products were used correctly and then mixed to determine the effects of using competitive vulcanizing fluids with different brands of repair units. In total, there were five samples of each situation tested for a grand total of eighty adhesion samples pulled. All of these samples were allowed to cure for seventy-two hours at room temperature. For this presentation, we labeled each repair A, B, C, and D.

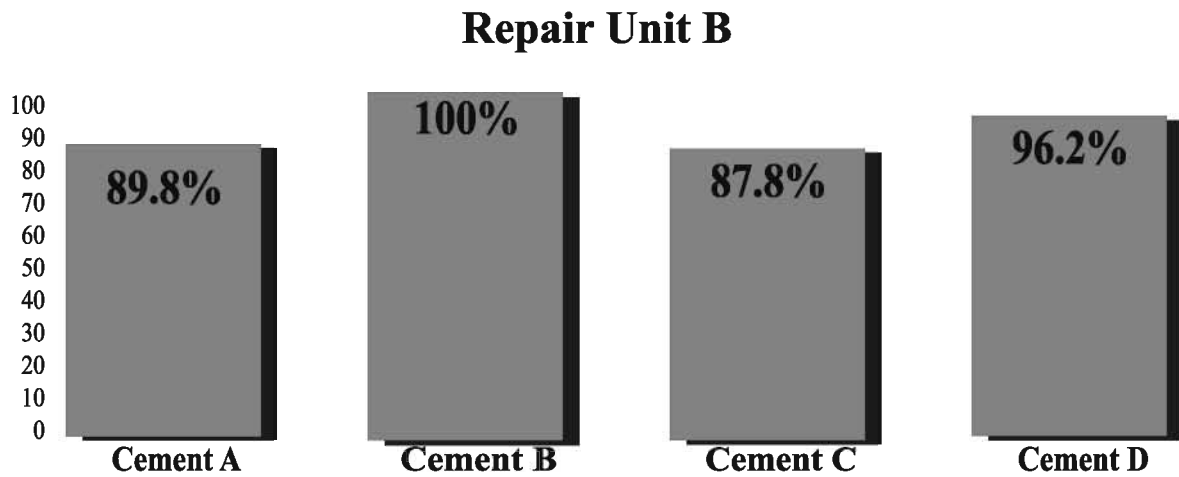
In figure 2, we see the effects of using competitive vulcanizing cements with repair unit (A). We achieved total cure when using the correct cement and had a drop in adhesion when competitive vulcanizing cements were used with repair (A).

Figure 2



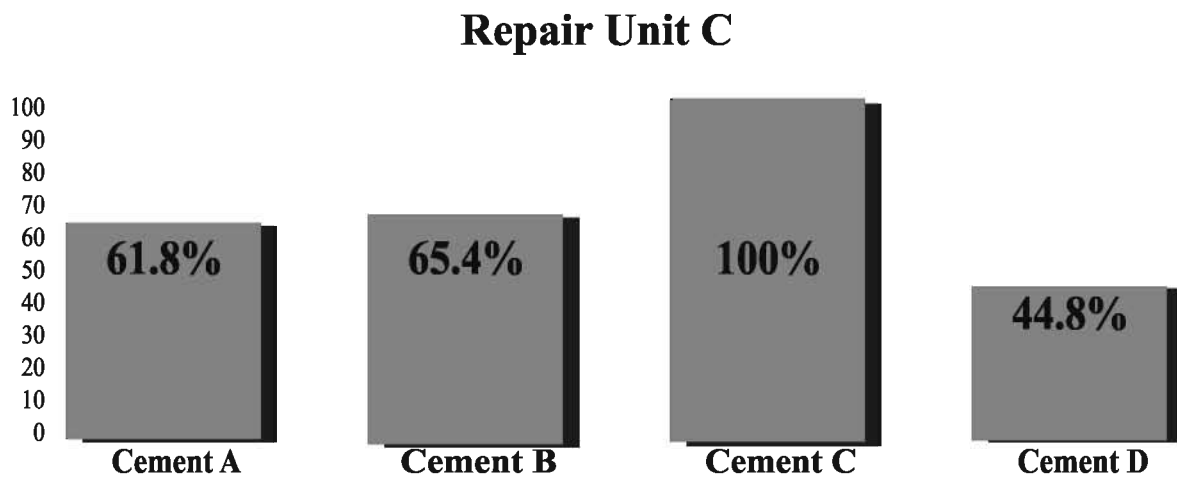
In Figure 3, you can see the effects of mixing vulcanizing cements on repair unit (B). Again, there was a drop in adhesion when competitive vulcanizing cement was used.

Figure 3



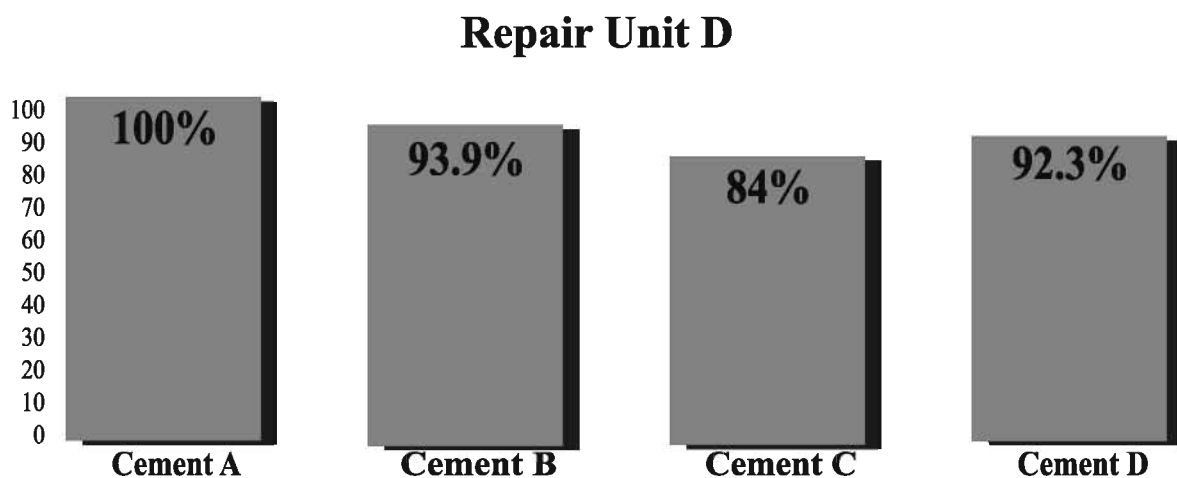
The test in Figure 4, showed the same affects as in the first two tests, the adhesion dropped when products were mixed with repair unit C.

Figure 4



With the last repair unit tested, the results were not the same as the others tested. The adhesion in Figure 5, shows slightly higher with two competitive brands of vulcanizing cements. There is no complete explanation for these results. What we speculate is that this repair manufacturer has not discovered the correct chemical activator for their vulcanizing cement which will properly react with the cushion gum on the repair unit.

Figure 5



To assure a proper repair of the tire it is extremely important to follow proper procedures and use compatible products. We hope that this Technically Speaking has given you the technical data needed to insure cement drying times are followed and repair units are applied using the same manufacture's recommended cement.