



## Spike Withdrawal from Douglas Fir Crossties

Late in 2012, researchers from Oregon State University's Department of Wood Science & Engineering in Corvallis, Oregon, reported on tests to determine the force necessary to withdraw spikes from Douglas fir crossties after two years' exposure. The tests are part of an ongoing multi-year study, including ties pressure-treated with creosote, ties pressure-treated with ACZA preservative, and untreated ties.

In the report, entitled "*Effect of initial preservative treatment on spike performance in Douglas-fir ties: Two year results*," authors J.J. Morrell, Connie Love, and Milo Clauson found that treating of the crossties with Chemonite® ACZA had no negative impact on spike withdrawal compared to creosote-treated crossties.

The condensed table below comes from the report.

### Spike Withdrawal Resistance *force required to withdraw spikes from Douglas fir railway ties<sup>a</sup>*

| Treatment | Withdrawal Force (lbs.) |                          |             |                           |                          |
|-----------|-------------------------|--------------------------|-------------|---------------------------|--------------------------|
|           | Before Exposure         | After 1 Year of Exposure |             | After 2 Years of Exposure |                          |
|           |                         | Above Ground             | On Soil     | Above Ground              | On Soil                  |
| ACZA      | 3753 (788)              | 5905 (1269)              | 5704 (1401) | 6340 (1634) <sup>b</sup>  | 6941 (1868) <sup>b</sup> |
| Creosote  | 3269 (641)              | 4359 (1562)              | 4686 (2309) | 5189 (1754)               | 5408 (1574)              |
| None      | 3576 (1023)             | 4964 (1621)              | 5260 (1619) | 5146 (1367)               | 5755 (1617)              |

<sup>a</sup>"Before Exposure" withdrawal values based upon 30 replicates. One- and two-year exposure values represent means of 15 replicates per treatment. (Values in parentheses show one standard deviation.)

<sup>b</sup>Values differ significantly from creosote ties in the same exposure at  $\alpha=0.05$ .

More tests are planned after additional years of exposure.

Copies of the full report are available from Lonza Wood Protection, 5660 New Northside Dr., Suite 1100, Atlanta, GA 30328. Other information is available at [www.Chemonite.com](http://www.Chemonite.com).