Abstract

This presentation discusses the use of lithium-based concrete hardener applied over shotblasting as a concrete pavement preservation treatment for locations that are subject to aggregate polishing and rutting due to studded tires, snow chains, and snow plowing. Lithium-based concrete hardeners have long been used to preserve industrial concrete floors from wear due to forklift and other traffic in warehouses and parking lots. However, the concern with the treatment’s ultimate effect on skid resistance has limited its use. This study combines field tests in California, Delaware, and Oklahoma and shows that when the concrete pavement surface is first retextured using shotblasting and then treated with the concrete hardener that not only does it reduce wear/rutting due to abrasion but it also maintains safe skid numbers for periods of up to 3 years. A life cycle cost analysis shows this treatment to be a cost effective pavement preservation tool to extend the life of concrete pavements on roads prone and friction loss due to polishing and rutting.

Keywords: concrete pavement—pavement preservation—rutting—skid resistance—shotblasting