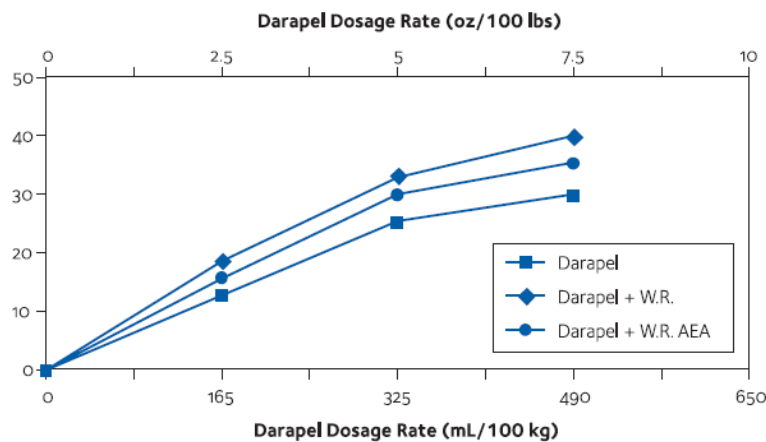


TB-1403 — DARAPEL® Water Repellent Admixture Technical Bulletin

Permanence of Water Repellency

The use of DARAPEL® alone or in conjunction with other admixtures reduces water penetration in hardened concrete. DARAPEL® reduces the permeability of the concrete by inhibiting the free passage of moisture through the capillaries present in the hardened paste. Unlike postapplied treatments, the interior of the concrete containing DARAPEL® repels water even when the exterior surface has been subjected to heavy weathering, thus providing continuous protection.

Graph 1: Effect of Darapel Dosage on Absorption Reduction



Absorption Reduction as a Function of Dosage Rate

To evaluate DARAPEL®'s performance as a water repellent, it was tested in the laboratory alone and in combination with water-reducing and air-entraining admixtures. The concretes were prepared according to ASTM C192, moist cured for 28 days, and then dried to constant weight. The concrete samples were then immersed in water for 24 hours and re-weighed. The results are expressed as the percent reduction in absorption relative to a control (not containing DARAPEL®) sample. The results are found in Graph 1.

It is important to remember that DARAPEL® admixture is a water repellent, not a waterproofer. Under these particular test conditions (completely submerged in water) all capillaries in the aggregates and cement paste will eventually fill with water. This is a natural event and can only be prevented by completely sealing the concrete.

Used in ready-mixed or precast concrete, DARAPEL® will provide the most cost-effective level of water repellency at 400 mL/100 kg (6 oz/100 lbs) of cementitious. Lesser amounts will provide proportionate levels of protection. It should be noted that the use of water reducers also help reduce the porosity of the concrete paste, thus increasing the percent reduction in absorption at a given dosage rate of DARAPEL®.

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