

TRANSPORTATION DEPARTMENT DIVISION OF HIGHWAYS

Field Test of Sinmast
Deep Conservation

Research Project 82



MATERIALS and RESEARCH SECTION

IDAHO TRANSPORTATION DEPARTMENT

Boise, Idaho

Field Test of Sinmast
Deep Conservation :

Research Project 82

A. F. Stanley, P. E.
Associate Materials Engineer I

August 1977

Typed By:
Kathy Whitehead

INTRODUCTION

Sinmast Deep Conservation was a solvent cutback epoxy product sold as a penetrating sealer for portland cement concrete and other construction materials. As described in IDH Central Materials Laboratory Special Report ML-3-76-G, a test application of the product was made in the autumn of 1975 on a seven year old structure spanning I-180 between Curtis and Orchard in Boise.

The manufacturer of the sealer, Sinmast of America, Inc., has discontinued operation. A new company, Rocky Mountain Chemical Co., now produces a very similar product.

FIELD EVALUATION JULY 1977

Minor delaminated spots existing at the time of treatment have grown and have begun to break through the deck surface, resulting in surface spalling (Figure 1). Other shallow delaminations have formed but have not yet progressed to the spalling stage. These are easily found with a chain drag. They were not completely delineated during this inspection because of the difficulties of working between traffic light cycles on this one-lane, high traffic volume structure.

DISCUSSION

Based on experience with untreated decks in the Boise area, this treatment has done very little to retard deck deterioration. Damage to other decks in the vicinity has usually progressed from minor delamination to moderate surface spalling within about two to three years.

As mentioned in the initial report, the observed sealer penetration was only on the order of 1/16 inch, so not much binding action could have been expected. Even if applied to a new deck, a material with such shallow penetration would have to be reapplied periodically as surface wear occurred.

To verify the shallow penetration, a volumetric calculation can be made. The contractor used 37 gallons of sealer which was

one-time treatment on a new deck would not give long-term protection against moisture and salt intrusion. Periodic retreatment would be necessary as traffic wear removed the surface layer. In this respect, the material would be similar to boiled linseed oil. This field trial furnished no information about the relative service life of this product versus boiled linseed oil.

RECOMMENDATIONS

This type of product should not be specified as a one-time treatment for long-term concrete bridge deck protection unless the depth to which it penetrates the concrete can be greatly increased. If penetration of 3/4 inch or preferably more could be achieved by modifying the product and/or application procedure, then further field evaluation might be considered.

REFERENCE

Development and Field Evaluation of a Technique for Polymer Impregnation of New Concrete Bridge Deck Surface, FHWA-RD-76-95, W. G. Smoak, prepared for Federal Highway Administration, Sept., 1976.

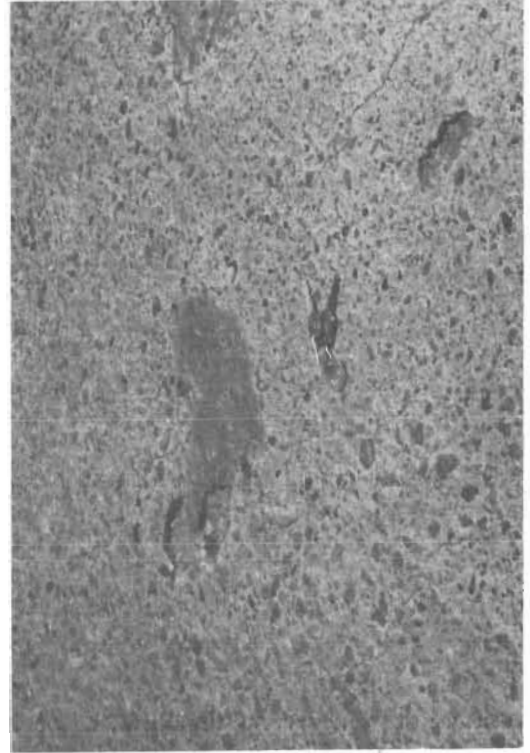
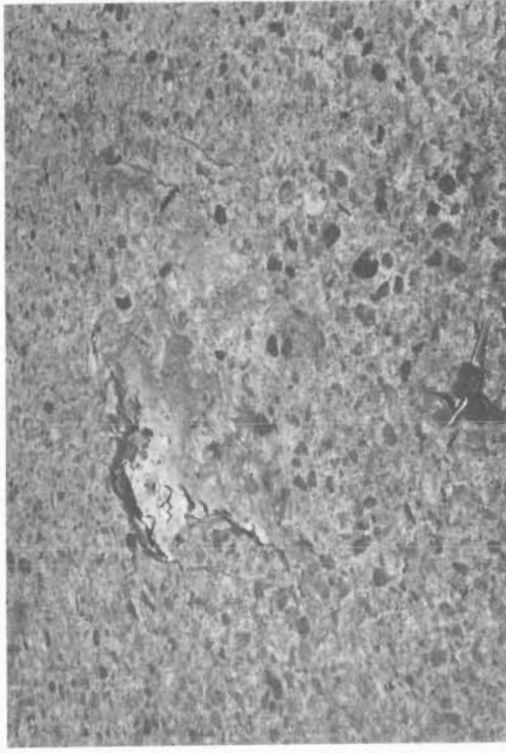


Figure 1
Surface spalling which has occurred less than 2 years after application of the sealer.