



RESEARCH NOTES HIGHWAY DIVISION RESEARCH SECTION

1174 CHEMEKETA STREET NE. SALEM, OREGON 97310 503-378-2318

RSN 85-2

VERGLIMIT -- A RESEARCH PROJECT TO PROVIDE SAFER WINTER ROADS REMAINS EXPERIMENTAL

Verglimit: from the French expression "limite' le verglas" (end slippery ice)

Verglimit is the name for a multi-component anti-icing flake which is added to an asphalt concrete wearing surface. As tires travel over the road, a chemical is released continuously and retards the formation of ice and snow on the road's surface. Verglimit, which is produced in Germany, has been primarily used in Europe with very favorable reports. It was the subject of an experimental project in Oregon in 1983, with somewhat disappointing results.

Oregon chose as test sites two bridges known to have icing problems, the Salmon River Bridge, 12 miles east of Sandy on the Mount Hood Highway, and the Quartz Creek Bridge, 47 miles northwest of Portland on the Sunset Highway. These bridge decks were overlaid with a routine waterproofing membrane and a 1 1/2 inch Verglimit admixture in late September, 1983, with no construction difficulties.

Post-construction inspections were made periodically during the next year. The first inspection on the Quartz Creek bridge showed the Verglimit to be effective in melting snow and reducing the formation of ice on the decks. However, minor raveling was noticed in the wheel tracks and spalling had begun at several joints. Within one month, it was noted that approximately 20 percent of the eastbound lane had been patched because of raveling, and the remainder of the bridge had many areas of distress.

On the Salmon River Bridge, deterioration was evident a month and a half after construction, and within two months the pavement had become severely deteriorated and there were areas where the waterproofing membrane was exposed. To remedy this situation, the entire eastbound lane was covered with a one inch lift of commercial asphalt concrete. The effort proved to be futile, however, since one year after construction, contracts had to be let to remove the entire bridge deck and place a new overlay using conventional mix on both decks.

In trying to determine the reason for the overlay failures, it was discovered that the Verglimit aggregate gradation did not meet the gradation specified in the mix design and the void content was far in excess of the manufacturer's recommendations due to improper compaction.

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SUMMARIES AND ABSTRACTS OF CURRENT HIGHWAY RESEARCH

Even though the overlays failed, there was ample evidence that the material did reduce icing and snow on the decks. Moreover, no traffic accidents occurred on these bridges while the Verglimit surface was present. This was the desired result and reinforced the findings of other states testing the compound. The premature failure was attributed to failure of the materials to meet the specifications and failure of the specifications to adequately address the manufacturer's design and construction criteria.

The Research Section hopes to continue to experiment with Verglimit, as it has performed very successfully in New York, Colorado and Canada, and other areas that have tried it. Highway Division personnel who have a specific site where a Verglimit overlay could be tested to reduce ice-related accidents should submit experimental proposals to the Research Section.

For further information on Verglimit, contact Oregon State Highway Division Research Section, and ask for any of the following reports:

"Verglimit -- Experimental Features Final Report" by William Quinn, Leon Brock and Gordon Beecroft, Oregon State Highway Division, Research Section, May 1985

"Anti-Icing Compound for Bridge Decks and Road Surfaces" Progress Report by H. J. Fromm, Senior Research Officer, Engineering Research and Development Branch, Ministry of Transportation and Communications, Ontario, Canada, 1979

"Performance of an Ice Retardant Overlay" Final Report no. CDOH-DTP-82-6, by Robert LaForce, Colorado Department of Highways, 1982

NOTE: A very informative videotape on Verglimit is also available on loan from the Research Section.

Experimental Features Project OR 83-04 and OR 83-05