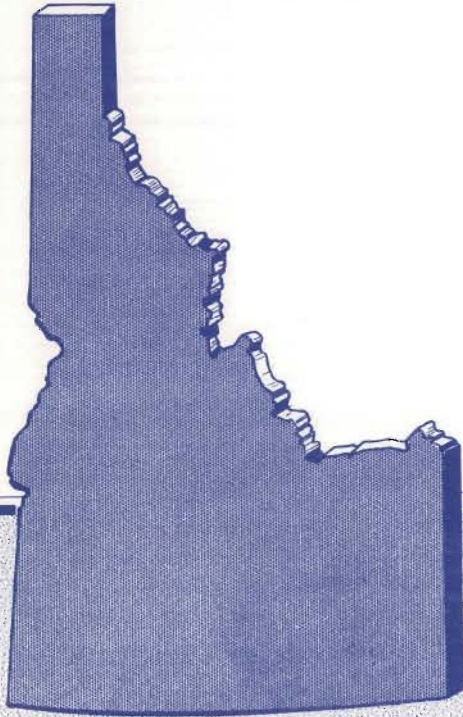


EVALUATION OF GILSABIND

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RESEARCH PROJECT NO. 46



STATE OF IDAHO DEPARTMENT OF HIGHWAYS

EVALUATION OF GILSABIND

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During 1967, the Department conducted a series of field tests of Gilsabind to determine its value to the Department in extending the life of pavements. Its use was intended to seal cracks, stop ravelling or to rejuvenate the asphalt. Several sections of highway were selected in Districts 1, 2 and 6 to receive the Gilsabind treatment. The sections tested are as follows:

District One

I-15 - South Pocatello Interchange, northbound off-ramp
I-15W - American Falls Bypass-Eastbound lane, shoulder, M.P. 272.8
400' long
I-15W (US-30) - Rock Creek - Massacre Rocks, M.P. 262.7 center of
spread, 1/2 mile long
US-91-191 - Chubbuck - Fort Hall, M.P. 82.6 at center of spread
approximately 3/4 mile long
Center Street Underpass, Pocatello

District Two

US-93 - North from Junction with I-80N, M.P. 53.8 - M.P. 54.5
I-80N - at Jerome M.P. 177 - M.P. 177.6
US-93 - Blue Lakes Boulevard M.P. 49.2 - M.P. 49.7

District Six

I-15 - South of Broadway I.C., SBL (Passing), M.P. 17
NBL (Travel), M.P. 17, approximately
US-26 - Business East of Broadway I.C. Sealed Shoulder, M.P. 129.2 East
I-15 - Broadway I.C. Northbound off-ramp
I-15 - Broadway I.C. Southbound off-ramp

The rate of application was approximately 0.10 gal./sq. yd. of pavement. No reports concerning the application, the traffic control required, time for the Gilsabind to penetrate the surface, etc. were received from the Districts. Observations were made after approximately one year's service. In general, little if any, improvement was observed from the use of Gilsabind. Copies of observations from the test Districts are in the Appendix.

A promising use for Gilsabind is as a binder for sand or chips for the improvement of skid resistance of flushing or otherwise low skid resistant pavements. A test was made on Karcher Lane in District 3, September 30, 1968, applying Gilsabind at approximately 0.10 gal./sq. yd., allowing it to set for 10-20 minutes and then spreading a damp sand over it at 15# to 20# per square yard. After rolling traffic was allowed to return. Three weeks later, on October 21, this section was examined and sand retention was very good. The skid numbers of this section were as low as 12, according to tests made during July 1968. After the Gilsabind-sand application the skid number was estimated to be at least 35, and possibly 45 or more.

The following year, the section was again flushing. This was to be expected as the wheelpaths had extreme flushing prior to the treatment. This treatment is only a temporary measure and does not stop flushing and does require follow up with a more permanent treatment, or another Gilsabind treatment. It did provide good skid resistance during the winter, following application.

The cost of Gilsabind appears to be high when compared to other treatments. The cost of material alone for the test sections in Districts 1, 2 and 6 was about 65 cents per gallon. A planned use of Gilsabind on a section of ravelling highway was abandoned due to the cost of the material.

Conclusions

From the limited testing done and field observations made by Department engineers, it may be concluded that pavements treated by Gilsabind were not improved; cracking persisted, the ravelling was not halted, there was no tightening up of the surface observed.

The cost of Gilsabind appears to prohibit its use for normal purposes. It may be justified for special treatments if additional tests prove it will work.

Gilsabind was successfully used with sand to provide a temporary skid resistant surface.

A P P E N D I X

GILSABIND EVALUATION
April 19, 1968

US-93 - North of I-80N I.C. M.P. 53.8 to 54.5

The Gilsabind treatment appears to have helped the mat in the vehicle wheelpaths with a denser surface texture. There are longitudinal and transverse cracks in the mat throughout the section. Gilsabind provided no apparent improvement for the cracked areas. A seal coat is recommended for this section to seal mat from water penetration.

Interstate 80N at Jerome M.P. 177 to 177.6

The Gilsabind made no apparent improvement in the new plantmix surface. The surface is a darker color, but indicates very little difference in surface texture. There are some cracks in the mat that is characteristic of adjacent untreated sections.

GILSABIND EVALUATION
May 1, 1968

The following comments are offered concerning Gilsabind test sections applied in District Six last summer.

The product was applied to two ramps on the Broadway Interchange in Idaho Falls, to a section of the southbound passing lane and a section of the northbound travel lane on I-15 south of Idaho Falls. A short section of the westbound travelway and sealed shoulder of US-26 Bus. 91 just east of the interchange was also treated.

Permeability tests were not run on the test sections prior to application, so none have been run on the sections this spring. Permeability tests taken on the Interstate last year did not indicate that the test would give conclusive results. Although the Interstate test sections will be covered with the plantmix seal project this summer, the US-26 Bus. 91 portion will still be available for inspection and any further tests desired.

From observations, it is the opinion of the District Maintenance Engineer and the District Materials Engineer, that the product has benefited the pavement very little if any. This is more evident in the heavier traveled sections, where the Gilsabind has naturally worn off the exposed aggregate, leaving the surface with much the same appearance as before. This, of course, was to be expected, but the material does not seem to have completely sealed the small voids and depressions between the aggregates. It appears to have weathered off considerably and the aggregate is no more firmly bound than that of the untreated sections. In fact, the aggregate seems to be less firmly bound in some sections. This is definitely true of the coarse chip seal which

was treated on the US-26 Bus. 91 shoulder. The darker surface may have absorbed more heat as the aggregate particles were pried out in about 70° temperature on a clear afternoon. However, the asphalt around the treated aggregate appeared to have less "life" than the untreated portion on the sealed shoulder section.

From these observations only, it would appear that the product had little affect as a seal and conditioner on the sections tested.