THE INFLUENCE OF MACROTEXTURE OF LIMESTONE AGGREGATES ON PAVEMENT SKID RESISTANCE

BY

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ABSTRACT

It is the aim of the highway engineer to make economic, durable and safe roads. The Polished Stone Value (PSV) of aggregates gives a measure of resistance to the polishing action vehicle under tire under conditions similar to those occurring on the surface of a road. The action of road vehicle tire on road surfaces result in polishing at the top and exposed aggregate surface. The state of polish is one of the main factors affecting the resistance to skidding. Resistance to this polishing action is determined principally by the inherent qualities of the aggregate itself.

The study focused on the measuring of the Skid Resistance Value of limestone aggregate from quarries in Perlis and Perak. To achieve this, four different sizes of samples of limestone was assessed from four quarries (2 Perlis and 2 Perak).The quarries are Pens Industries Sdn. Bhd. (Perlis) – Q1, Chua Teong Chai & Sons Quarry Sdn. Bhd (Perlis) – Q2, Anting Sdn Bhd (Perak) – Q3, Sri Gapis Quarry Sdn Bhd (Perak) – Q4. Petrographic is to determine from the petrographic examination. There are five different type of testing to determine the aggregates properties, which are Los Angeles Abrasion Test, Aggregates Impact Value, Aggregates Crushing Value Test, Flakinest Index Test and Specific Gravity Test. Los Angeles Abrasion Test is to ascertain the degration of aggregates by abrasion and impact. Aggregates Impact Value test is to determine the aggregates impact value of the aggregate. The Aggregates Crushing Value Test is to ascertain the hardness of the aggregate. For Flakinest Index Test is to determine the flakinest index of aggregates and Specific Gravity Test is to determine the specific gravity of the aggregates

The result of Skid Resistance for every quarry has shown some significant value. Wet aggregates reduce the skid resistance of the texture and are very dependent on the surface type. The action between the surface tires will effect at the top and exposed aggregates surface. The relationship of Skid Resistance and Texture Depth is to determine relation between value of skid resistance and the texture depth of Limestone aggregates.

CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

In late this two decade, the increasing of traffic flows and higher speeds on trunk roads, together with concerns about road safety led to research into the relationship between road materials and skid-resistance. It is the aim of the engineer to make economic, durable and safe roads. The focus for safety is the tire or road surface interface.

According to Marek (1972), reported that 50% of the initial skid resistance is lost during the first two years of pavement service and that the single most important factor that affects the reduction of skid resistance is the polishing characteristics of the aggregates and this will be major causes in road accident.

Research by Department of Transportation Specification for Road and Bridges Works, U.K, has make a comparison of five type of aggregates, that is Basalt, Sandstone, Granite, Gritstone and Limestone, showed that the Limestone has a lower value of PSV results.(refer Table 1.1)