

# **ASSOCIATION OF SOUTHERN AFRICAN NATIONAL ROAD AGENCIES (ASANRA)**

## **INNOVATIONS IN ROAD TECHNOLOGY**

### **ROAD TECHNOLOGY ABSTRACT**

TITLE OF INNOVATION

ECORoads (A SOIL STABILIZER LIQUID CHEMICAL)

DEPARTMENT OF ROADS through the research section did carry out a half kilometer trial section. The soil was tested for IP values in order to calculate the dilution ratio and the chemical makes use of the in situ materials. The Ecoroads trial was first carried as a research project in 2010 and DCP, CBR, moisture content, visual survey assessment and triaxial tests were carried over a period of 2 yrs. Ecoroads 191 pail soil strengthener cost \$6.080 per liter and total cost \$60 800.00 was committed for the research project.

Strong soil stabilizer but can work best with soils of low clay content. The product is from the USA military developed for temporary air strips at their desert military bases. The product is enzyme based the enzyme is responsible for binding the soil particles but under strong UV exposure the chemical disintegrates causing the soil stabilizer to break into pieces. The chemical is environmentally friendly

and non hazardous to use but may cause irritation to the skin. Therefore use of protective clothing is required.

### **CONCRETE PAVEMENTS**

In 1985 the UK Unit of the Transport Research Laboratory assisted the Ministry of Transport in Zimbabwe to design and construct four trial sections of concrete road pavement with a total length of 1.44km. The objective was to demonstrate the viability of concrete pavements in a region where they are not used and to generate enough data to prepare suitable specifications for the conditions found in the drier region of Africa. This report described the designs, summarizes the condition surveys that have taken place since the road was opened to traffic and draws initial conditions concerning design and materials specifications.

## **PVC/MODIFIED TAR TRIALS IN ZIMBABWE**

In 1994, application of modified tar was undertaken on the 16th March. The research project carried out trials of about 10km for reseal demonstrations. The objective of the research project was to cut cost of the expensive pavement by making use of tar from the local coal mine. The project failed due to massive stripping by the PVC-tar and at high temperature. In some regions the product caused bleeding problem. The project was terminated and the PVC-tar could not be used for maintenance and the product was poisonous to use as it caused eye irritation, and was declared a carcinogen by WHO due to high level of tar.

## **THE ECOBOND**

The Romix industries products were developed with intentions of building better roads through the applications of innovative products. In 2004 the Ecobond was introduced to the Ministry of Transport to carry out a research project. Trial section was chosen on a gravel road and 1.2km was covered with Ecobond. The polymer blend allows for binding of practically any soil particle regardless of the quality of grading of material, as its unique property but failed to meet these specifications. The trial section was monitored only for short period due to poor performance of the product.

## **EMACOL COLDMIX FOR MAINTENANCE**

In 2010 the Emacol product was introduced to research section of the Ministry of Transport through a local agent. The intention of the product is to patch pothole, reseals and construction of parking areas. Trials sections were carried out by producing High Volume road and Low volume road and the product is still under monitoring. Laboratory tests were also carried out to support the trial section. The objective of the research was to cut cost of running an asphalt plant as compared of mixing Emacol product with designed stone grading to produce a coldmix for road maintenance. The product is mix thoroughly with stone and quarry dust and heating is not required, therefore saves the consumption of diesel used to power the asphalt plant.