

# COMPREHENSIVE REPORT ON DUST SUPPRESSANT

## INTRODUCTION

Bunia an important town in Ituri Region in the eastern part of DRC has its own importance due to the major deployment of MONUC. Beside available airstrip MONUC has constructed eleven helipads for regular operation of its Helicopters to control over the disturbed region and also to support to troops deployed in different places of this region. Out of these eleven helipads eight helipads have been constructed at airport site for the positioning and operation by Bangladeshi helicopters and Russian helicopters. Two other helipads constructed at Ndromo for the positioning and operation of Indian attacking helicopters. Another helipad is also located at Ndromo specifically for MI-26 helicopter.

The helipads located at airport and Ndromo is primarily connected with runway and terminal area by taxiway and further all helipads are connected with main taxiway by sub taxiway. The taxiways play important role in material & equipment transportation, movement of utility vehicles, electrical unit, fuelling etc to helicopters for operation.

The helipads are all constructed by cement –limonite stabilization and working satisfactorily. The taxiways are constructed with limonite duly compacted with watering.

The remaining part of the area has been covered with grass to avoid generation of dust during operation. But huge dust generates from the taxiway and may be come a threat to engines of the helicopters, health hazard for ground operating people.

For suppression of dust once we have brought CBR Plus from South Africa and used in the area of Indian Helipads. But the chemical was not effective and was making slippery surface during rain. It resulted the difficulties to all other supporting units like electrical vehicle unit, fuel truck etc.

Dust generation during helicopters operation being major day-to-day problem has been decided to be treated with other product for suppressing. Accordingly, through website EK-35 of Midwest Industrial Supply Inc has been explored.

## ABOUT EK35

This product is a specially formulated for intense use, continuous life dust control agent by **Midwest Industrial Inc, USA**. This is highly refined synthetic fluid enhanced with natural resins. The chemicals is non hazardous as per the regulations of the United States Occupational Safety and health Administration (OSHA) as well as Environmental Protection Agency (EPA) and Department of Transportation (DOT).

## HOW IT WORKS

EK 35 controls fugitive dust and stabilizes the soil using a patent pending dual mechanism action. First EK35 weights particles and secondly it unequally agglomerates particles using re-workable and cohesive actions. EK35 is applied neat. It has no curing time and applied when the surface is in dry condition.

On such information we have procured little quantity approximately 5000 liters to justify the statement claimed by the manufacturer.

## **LOCATION OF USE**

We have tested the material in the locations of 3 helipads at Airport site and Indian helipad area at Ndromo. Only those much area selected which is sufficient for the available quantity as well as to find the result after application.

## **METHOD OF USE**

First we have cleaned the area with brush and removed all floating dust/ particles. We have also used air compressor for rapid and perfect cleaning. Thereafter, we marked the grid of five square meters to apply material uniformly at the rate of 1litre per sqm. We have used garden shower for uniform sprinkling.

## **OBSERVATION**

The location has been under observation for next fifteen days and the result found very well. Dust is totally eliminated. There was heavy rain in between and no erosion or washout of the top surface has been noticed. It proves that the material is anti erosion effect. The photographs are attached for verification. EK35 is not only a suppressant agent but also improves the CBR values. It has improved the smoothness of the area where applied.

The material can be very well used for helicopter landing & parking zone, unpaved roadways.

## **COST EFFECTIVENESS**

The material outlet cost is \$ 1.79 per liter but transporting and handling cost is almost \$ 3.21 and thus expenditure is \$ 5 per litre . As the rate of use is 1.0 litre per sqm and hence expenditure is \$ 5/- per sqm. No equipment / machineries are required for application as it can be applied manually.

## **DURABILITY**

The application is already 15 days old and was subjected under heavy rain. Experience speaks that one application every year may serve the purpose.

## **CONCLUSION**

The material is suitable for dust suppressant. The base surface where the chemicals applied is well-graded soil with plasticity index below 6. Any other soil where plasticity Index is high i.e value above 10 may required to be tested first before bulk procurement because immediately after rain the surface has experienced slippery. But on dry it becomes very hard.



**Helipads at Bunia airport site.**



**View of helicopter operation after application of EK35**



**The area where EK35 applied**



**The view of Indian helipad treated with EK35**

The dust problem was heavy in Indian helipads and it was a health hazard for the troops who are camped very close to the helipads. The area initially treated with CBR plus and found in effective. Thereafter, in absence of suitable dust suppressant bituminous prime coat applied . But maximum part of the surface was washed in rain. EK35 applied on the areas where there is no bituminous prime coat surface and result is satisfactory.