

CASE STUDY

DUST CONTROL ON HAUL ROADS

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DST-4_Case_Study_01_Roadway_May_2013

CUSTOMER

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APPLICATION

DST-4 (Dust Control Product) trial on Mange-Garry site

TRIAL CONDITION

The DST-4 was diluted directly into the truck water tank: Dilution of 25L to 5000L water. Site operators were able to easily prepare the solution prior to application. The water tanker was fitted with a rear spray bar with 2mm diameter nozzles allowed an even spray pattern. This method of application produced an even crust as required.



Product Application – View 1



Product Application – View 2

For this trial and application rate of 1L/M² was used, allowing a total area of 5000M² was covered during the trial.

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MAIN RESULTS

The image below shows the roadway before treatment:

Each vehicle passage generates a dense cloud of red dust which is harmful for drivers and the local environment and has a potentially hazardous effect.



Roadway before treatment

The main aim of the trial was to generate a surface crust on the roadway using DST-4 product, literally sticking the dust. This film reduces the airborne dust and reduces any dust being carried by the wind. To achieve this result multiple passes we made over the area.



Crust formation after first application



After second application

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Crust thickness approx 15mm



Good compressive strength

Following the second application of DST-4, airborne dust created by vehicle movement was eradicated. The following images show the efficiency of the product.



Following second treatment



Following third treatment

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CONCLUSIONS

The aim of the trial was fully achieved. The DST-4 bound all the fine particles on the roadway and removed the airborne dust problem when traffic movements occur. The applied dosage of DST-4 was 5000L of mixed solution at 0.5% for 5000m². Future applications of DST-4 can be reduced on treated surfaces, as there is already an improved surface prior to application. Maintaining regular applications will reduce the need to re-apply by at least 1/5th



Before Application



After Application

In Summary:

- Completely removes airborne dust
- Reduction of water tanker usage by 1/5th
 - Saving fuel and water
- Roadway surface more robust than using water alone, maintaining road integrity

Cost Comparison

Actual costs:

Water Truck used 5 times per day, each pass taking 1 hour

Driver charge - £20/hour

Truck fuel consumption – 20LPH; Fuel Cost - £1.09/L

10m³ water truck capacity @ £0.10/m³

Trial: 25L of DST-4/day @ £5.50 per Litre

	Without DST-4	With DST-4
Working Time	5 h	1 h
Personnel Cost	£100.00	£20.00
Fuel Cost	£109.00	£21.80
Water	£5.00	£1.00
DST-4	£0.00	£137.50
Total	£214.00	£180.30

Using DST-4 can give an average weekly cost saving of £202.00