DUSTECH
MetaFLO Technologies

Biopolymer solution used for effective dust suppression

Case Study

Application of **DusTech**

LOCATION

Ribas do Rio Pardo - MS - Brazil

PROJECT SUMMARY

In a large-scale operation in the pulp forestry sector, the client faced a critical challenge: excess dust generated by heavy truck traffic on its internal roads. This condition directly impacted operational safety, contributing to the occurrence of accidents and generating complaints from neighboring properties, which reported losses in their agricultural activities.

The traditional solution—frequent water application—proved unsustainable, requiring about 600,000 liters per day to keep the roads under control. In addition to the high cost, it was necessary to repeat the process every two hours, with low effectiveness in controlling dust.

With the implementation of DusTech, it was possible to transform this scenario: there was a significant reduction in water consumption, an increase in the interval between wetting, and an improvement in operational efficiency. The result was effective dust control, with reduced operating costs and significant progress in environmental sustainability.

CONTEXT AND CHALLENGES

To keep the operation within environmental and legal standards, it was essential to:

Ensure effective dust suppression, minimizing the risk of accidents and reducing impacts on neighboring properties;

Drastically reduce water and fuel consumption, optimizing the use of water trucks and logistics costs;

Increase the durability of applications by reducing the need for frequent interventions.

INITIAL SCENARIO (BEFORE DUSTECH)

- **Daily water consumption per segment:** 60,000 liters
- **Wetting interval:** every 2 hours
- **Operational logistics:** 6 water trucks per day, per stretch
- **Length of treated area:** 15 km
- **Total water consumption per day:** 600,000 liters

This traditional model, based on constant reuse of water, had high operating costs, low performance over long periods and a large environmental impact.

Solution Implemented:

To face the challenge effectively, the technical team opted for the application of MetaFLO's **DusTech** technology, recognized for its high performance in dust control with low environmental impact.

This strategic choice allowed us to combine operational efficiency, sustainability and cost reduction, ensuring greater durability in applications and lower demand for water resources.

The decision was motivated by the need to drastically reduce water consumption in daily wetting, without compromising dust control performance. With the application of **DusTech**, the operation now has a longer-lasting treatment, with less frequency of reapplication, directly contributing to:

- ✔ **Greater logistics efficiency.**
- ✔ **Less use of natural resources.**
- ✔ **Reduced operating costs.**
- ✔ **Compliance with environmental and community requirements.**

Implementation Details:

- **Applied product:**
  DusTech
- **Dosage per phase:**
  1st application: 3%
  2nd application: 1%
  3rd application: 0.75%
- **Treated area:**
  15 km of internal road
- **Application method:**
  Distribution via water truck
- **Equipment used:**
  20,000 L water truck with "peacock tail" system
- **Soil type:**
  Fine and compacted
- **Climatic conditions:**
  Beginning of the dry period, requiring long-lasting solutions




Results Achieved

The application of the **DusTech** solution generated significant gains in efficiency, sustainability and operational savings, exceeding the project's expectations.

Drastic reduction in application logistics:
From 6 to only 2 water trucks per day, optimizing resources and freeing up the fleet for other service fronts.

Intelligent use of water:
67% savings in water consumption, contributing directly to the preservation of natural resources and reduction of environmental impacts.

Fuel efficiency:
76% reduction in fuel use, with a direct impact on reduced emissions and operating costs.

More autonomy between applications:
Extended wetting interval to 18 hours after the third application, significantly reducing the need for reinterventions.

Effective and long-lasting dust suppression:
Consistent dust control, promoting road safety, improved air quality and greater satisfaction of surrounding communities.

CONCLUSION

The application of DusTech has brought an effective and sustainable solution for dust control in a large-scale forestry operation. The use of technology has made it possible to optimize logistics, significantly reduce the use of natural resources and increase the efficiency of operational activities.

SOLUTION HIGHLIGHTS

- **Reduction in water and fuel use**
- **Decreased frequency of applications**
- **More efficient and long-lasting dust suppression**
- **More road safety and lower environmental impact**
- **Reduction of operating costs by more than 65%**
- **Compliance with legal and community requirements**

DUSTECH
MetaFLO Technologies

This experience reinforces DusTech as a complete solution for operations that require performance, economics and environmental responsibility

Innovation that drives your success!

MetaFLO's Industrial Solutions

MetaFLO develops solutions that combine technical efficiency, process optimization, and operational gains for a variety of projects.

Our technologies are applied to projects seeking greater performance, cost-effectiveness, and reliability, always focusing on concrete and sustainable results.

Our team is available to present you our solutions and explain how we can contribute to the success of your project.

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