

# POSITION STATEMENT

## DUSTAT CT4



*Highly recommended concentrate for the control of fine dust emission from all coal handling and stock-piling circumstances.*

Dustat CT4 is a plant-based organic concentrate based on lignins, a natural, plant material extracted from timber processing. The product is biodegradable and biologically friendly.

The use of Dustat CT4 for dust control is environmentally safe and is more environmentally "friendly" than any other dust control mechanism.

### Effect:

The effectiveness of Dustat CT4 is gained from four mechanisms that combine to produce a highly efficient product for static and dynamic, control of fine dust emissions.

- Low surface tension wets the hydrophobic coal particles quickly and efficiently.
- High agglomeration power binds finer particles together forming heavier less dust-producing aggregates.
- Strong hygroscopic strength creates and maintains a moist micro-environment that sustains a residual dust control effect.
- High resistance to leaching away with rain or watering.

### Safety:

Classified as a non-hazardous substance in accordance to GHS protocols, Dustat CT4 is thus defined as non-toxic and non-hazardous. It is safe to use, posing no dangers to any personnel involved with its handling. Dustat CT4 is also non-corrosive to equipment and infrastructure.

### Environmental considerations:

Dustat CT4 offers an environmentally acceptable method of controlling dust. It does not contain petroleum fractions, oil, heavy metals or other materials that may impact on the surrounding environment or produce harmful by-products during subsequent processing operations.

Dustat CT4 is based on modified wood polymer (lignin) technologies and is safer to use for the control of fine dust emissions, than any competing class of chemicals.

Lignin is a complex organic polymer found in the tissues of plants. It is nature's binder and exists in the cell walls of trees and plants – it is the binder that makes the cell walls sturdy and strong.

As such, the overall impact on the environment, from applying Dustat CT4 for coal handling dust emissions, is negligible. Toxicity towards plants is insignificant and Dustat CT4 is non-toxic to animals.

Lignosulfonates have been used in plant propagation, animal feeds and converted into human foods for more than 40 years without toxicity or environmental concerns. People consume lignin every day, in the cells walls of the fruits and vegetables included in their diet.

Dustat CT4 is renewable, bio-based, and sustainable.

Based on published data for lignosulphonates Dustat CT4 displays the following environmental credentials:

- **Biodegradable:** The sugars and carbohydrates which make up the Dustat CT4 chemistry are readily biodegraded.
- **Low Marine Toxicity:** The cut-off point for LC50 96-hour values for marine (fish) toxicity is taken as 1,000mg/Lt. Compounds with values greater than this are given a value of >1,000 and are considered to have a low order of toxicity. The calculated LC50 96-hour value for Dustat CT4, against rainbow trout, is 3,700.
- **Plant Friendly:** Dustat CT4 is a plant-based product that will not detrimentally affect vegetation. It is not phyto-toxic and may be used to stabilise and protect the soil around new plantings.
- **Mammalian toxicity:** Dustat CT4 is considered to be non-toxic according to the Occupational Safety and Health Administration (OSHA) ruling. Dustat CT4 contains no volatile organic compounds or recognised toxins of any kind.
- **No groundwater contamination:** Data indicates that application rates of up to 30 times the recommended usage produce no discernible effect to groundwater.
- **No trace element toxicity:** Dustat CT4 contains no detectable levels of the EPA listed hazardous toxins.
- **Environmentally Benign:** Dustat CT4, in no way contributes to greenhouse gas generation or ozone depletion.

### **Positive compatibility with downstream coal operations and burning.**

Initially, it should be noted that the level of Dustat CT4, in any downstream use of the treated coal, will be extremely small – and any effect at all will be unlikely. However, Dustat CT4, above all other dust control mechanisms, can only produce positive effects in its association with coal.

Dustat CT4 is base formulated from plant lignin sulphonates.

Lignin is the second most abundant organic material on the earth and approximately 70 million tons of technical lignins are generated per year at pulp-making mills. Nearly all technical lignins are burned to obtain electric power, with just a few per cent used in commercial products.

Lignosulphonates have been historically associated with the burning of coal and are used commonly and extensively as coal binding agents in the manufacture of coal briquettes.

The addition of lignosulphonate to the process provides:

- Increase in compressive strength of both the green and cured briquette.
- Increase in hardness of the finished product.
- Increase in shatter strength.
- No negative effect on the burning or ash residue of the coal.

Fuel rods, using coal fines bound by lignosulphonates, are currently being developed for use in coal-fired boilers. This historical and ongoing use of lignosulphonates negates any adverse indication of the effect that lignosulphonate will have on coal burning.

***Dustat CT4 is based on a natural material extracted from timber processing. The product is biodegradable and biologically friendly. The use of Dustat CT4 for dust control is environmentally safe and is more environmentally friendly than any other dust control mechanism.***

For further information, contact Hammersley Australia through any of the following channels:

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