



## Effects of particle characteristics on dust dispersion

Concrush Pty Ltd was established in 2002 after recognising the need for a construction and demolition recycling facility in the Lake Macquarie region. Concrush Pty Ltd is a locally owned & operated business based at 21 Racecourse Road, Teralba NSW 2284.

Concrush provides cost effective disposal options for recycling of concrete, asphalt, bricks, pavers, roof tiles, wall and floor tiles, rock, sand, plasterboard and green waste for domestic households and commercial industry.

Concrush recycles these materials into specification and non-specification quality products such as; roadbase, drainage aggregates, pipe bedding and haunch, packing fines, decorative aggregates and mulches, that can be used within the civil and construction industries or for commercial, domestic and household applications.

Concrush's operations have the potential to generate or disturb dust. Concrush employs a multi-pronged approach to minimising dust issues on site, and are committed to identifying and establishing best-practice approaches that will further reduce dust concerns.

To better understand dust generation and dispersion Concrush would like to develop mathematical models:

- To understand the dispersion profile of different types of dust (cement, concrete/brick) generated from their site under different operational conditions, e.g. loading and tipping, crushing, and outside business hours. Concrush would also like to see a comparison of their scenario with other activities that also generate dust.

- To understand how particle characteristics (size and density) effect dust profiles at receiver locations. Concrush works predominantly with mixed products, therefore their stockpiles are composed of a mix of different construction materials with different particle size and density profiles. Current approaches to modelling dust that are standard in the industry do not fully consider the effect of particle size. Concrush would like to better understand how particle size and density affect dispersion. Will particle characteristics lead to a concentration of certain types of particles within dust at different locations?

- To determine the major source of dust generation, whether it is the stockpiles of crushed up materials or the crushing machine or the road that light and heavy vehicles are moving in and out of the site so that if necessary they can provide the protective cover to the right source to protect the dust from dispersion.

To assist in the development of accurate mathematical models, Concrush will provide data on the site layout (GIS information), monitoring data and conditions in which data are sampled, expected particle sizes and particle distribution for materials at the crusher, in the stockpiles and on the road.