

WHAT'S IN YOUR DUST?

CHARACTERISATION OF PARTICULATES IN UNDERGROUND COAL MINES

N. LaBranche¹, BScMinEng MBA MAusIMM(CP) PMP PE RPEQ

1. Research Manger OHS, Minerals Industry Safety and Health Centre, Sustainable Minerals Institute, The University of Queensland, Brisbane Queensland 4072 Email: n.labranche@uq.edu.au

Keywords: respirable dust, black lung, CWP, dust characterisation, mine dust lung disease

ABSTRACT

This re-identification of mine dust lung diseases has prompted much work to be done to improve exposure monitoring and health surveillance in coal miners. In past decades CWP was thought of as a simple relationship of the mass of respirable dust a coal mine worker was exposed to over their career duration. There are even some models based on the idea that there was no exposure risk below 2 mg/m³. It turns out the dose-response relationship is not that simple, and our understanding of particulate matter and its impact upon human health is more limited than we thought. It is now recognised to be inadequate to talk about coal dust in general terms, because both size and chemical content can affect the adverse consequences of excessive exposure.

To better understand the relationship between dust exposure and the health hazard, MISHC has initiated a research project where samples were taken at a number of mines across Australia to characterise the dust present in different mining environments and understand the contribution of the chemical components, particle sizes and shape to the health hazard. This talk will included analysis of the characterisation data collected and what learnings the mines can take from this data to aid in their dust control methodologies.