

### OBJECTIVES

- Measure respirable, inhalable, and total concentrations of lime dust and paper machine dust at a newsprint mill.
- Determine if the concentrations of respirable and inhalable dust pose a hazard to health.

### SUMMARY

- Dust concentrations in workplace air were measured during normal operations near two lime kilns and a paper machine at a B.C. coastal newsprint mill. The concentrations were low, and were not considered to be a threat to employee health or well-being.
- Dust particles in 81 samples of workplace air from four locations, each monitored for one day, were separated into ten size ranges using a cascade analyser; eight additional samples were collected from the same locations and analysed for total dust using the B.C. Workers' Compensation Board standard filtration method.
- Work area concentrations of total dust, averaged over 6-8 h near two lime kilns, were 0.5 and 0.7 mg/m<sup>3</sup>. Mean daily concentrations from 0.3 to 1.2 mg/m<sup>3</sup> were measured at two locations in a paper machine room.
- The highest concentration of total airborne dust measured (1.2 mg/m<sup>3</sup>), was 2 m from the end of the calendar rolls of the paper machine. Personal exposures to dust would be lower than the area concentration, since employees spent less than 10% of the workday in the operating area and were normally further from the machine than was the sampling equipment.

- Inhalable dust particles, with aerodynamic diameter less than 15 micrometers ( $\mu\text{m}$ ), comprised 20-60% of the total airborne dust. The remaining airborne dust consisted of large particles that would not be drawn into the lungs.
- Respirable particles (less than 2-5  $\mu\text{m}$ ), which are small enough to reach the innermost regions of the lungs, were present at concentrations up to  $0.26 \text{ mg/m}^3$ .
- Recommendations are made on respiratory protection, and on the need to develop of a means to distinguish between the various forms of lime.