

LIFE EXPECTANCY OF RESPIRATOR CARTRIDGES
USED IN B.C. KRAFT PULP MILLS

SUMMARY

The objective of this study was to determine the effectiveness and life expectancy of air-purifying cartridge respirators used for emergency escape in kraft mills.

Acid gas/organic vapour, acid gas/dust/mist, and organic vapour cartridges from three manufacturers were tested using the following laboratory conditions to simulate a mill emergency:

air flow 50 litres/minute (corresponding to a breathing rate under heavy workload).

30-32°C, 90% relative humidity;

10-240 parts per million (ppm) chlorine; or

mixtures of 8-24 ppm chlorine with 13-38 ppm chlorine dioxide; or

mixtures of approximately 100 ppm methyl mercaptan, 150-200 ppm dimethyl sulphide, and either 100 ppm hydrogen sulphide or 50 ppm sulphur dioxide.

Normal work area concentrations are at least 100-times lower than those used to test the cartridges. Tests were run on new cartridges, and on cartridges that had been carried for various times by operators and maintenance men in kraft mills.