

AN INVESTIGATION ON CRACKING OF GLASSPANES DUE TO AIR OVERPRESSURE

A.J.Prakash, Md.Nabinllah & Prof. Bharat B. Dhar
Central Mining Research Station, Dhanbad-826001
(India)

ABSTRACT

The study is an approach made in simulating air overpressures induced by surface blasting from those produced during gallery blasting in the laboratory, and experiments conducted on a portable window with a view to establish the sound pressure Level (SPL) for cracking of window glasspanes.

Eight different strengths of commercial explosives normally being used in blasting practices, were fired in the cannon of explosive gallery . SPL recorded on the seventh channel of a Digital seismograph (SINCO-6) provided with FFT facility, are compared with those produced from surface blastings conducted in different Indian geomining conditions. They are found alike in frequency characteristics.

A model of portable window provided with two replaceable glass panes has been designed and fabricated for the experiment in the explosive gallery. Stresses developed on the glass panes and the SPL in different stages were monitored to study the threshold level of damage.

The first crack has been observed in the glass panes at the SPL of 162.3 dB (-3.97Kpa) and in the 5-20 Hz frequency band.