

# SILICA DUST LEVELS IN AN OPEN-PIT COAL MINE

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## INTRODUCTION

A study was carried out to establish exposure levels to free silica in an open-pit coal mine in northern Colombia and to verify the control measures implemented by this mine. The intent was to determine, based on sampling, calculation, and analysis of silica concentrations, the exposure levels to free silica within different Similar Exposure Groups (SEG). Further objectives were to propose conclusions and recommendations related to the control of occupational hazards.

## METHODOLOGY

The sample group consisted of 4,182 workers who were classified as at risk, and distributed across 89 Similar Exposure Groups (SEGs). Seven hundred and twenty-seven (727) samples of free silica were gathered, classified by working day and by SEG according to the guidelines established and recommended in Colombian legislation and to the international guidelines proposed by the American Industrial Hygiene Association (AIHA). The sampling methods followed were those proposed by the National Institute of Occupational Health and Safety (NIOSH) and the Occupational Safety and Health Administration (OSHA).

## RESULTS

The laboratory reported that 92% of the free silica tests in the Mine and 98.2% of the tests in the port revealed free silica levels below the limit of detection (LOD). Of the 89 Similar Exposure Groups (SEGs), 80 (89.9%) were found to be below action level and 2 above action level (a blasting operative and a drilling technician). In addition, 7 (7.9%) registered levels below limit of detection (LOD), both for solid state silica and free silica (classification below action level).

### Group of risk

### Percent of the TLV

A	Below 20% of TLV
B	Between 20% and 50% of TLV
C	Between 50% and 100% of TLV
D	More Than 100% of TLV

