

**SHA-015****ON THE PENETRATION OF PARTICLES THROUGH FILTERS AND MASKS**

C. Grima-Olmedo<sup>1\*</sup>, Á. Ramírez-Gómez<sup>2</sup>, L. Medic-Pejic<sup>1</sup>, E. Querol-Aragón<sup>1</sup> and J. García-Torrent<sup>1</sup>

<sup>1</sup>Laboratorio Oficial J.M. Madariaga, Universidad Politécnica de Madrid.

<sup>2</sup>BIPREE Research Group, Universidad Politécnica de Madrid.

*National Symposium on Handling and Hazards of Materials in Industry-HANHAZ2012  
(ANQUEICCE2012, Seville, 24-27 June 2012)*

A wide range of mining activities may generate dust such as removal of overburden material, blasting and drilling operations, operations of crushing and screening, loading and unloading of bulk solids on-site and subsequent transport off-site or even because of the wind action affecting stockpiles and exposed areas. It has been demonstrated that continuous exposure to high levels of dust can lead to occupational illnesses such as pneumoconiosis. In order to prevent pulmonary illnesses the National Institute of Safety and Hygiene at Work (INSHT) recommends the use of filters and masks under certain work conditions. The current normative (EN143:2000 y EN149:2001) proposes a classification of filters and masks based on its efficiency against the penetration of breathable particles. However, there is a lack of data about recommendations of use of the different classes of filters and masks in relation to the work conditions or environment. The worry transmitted to the Laboratorio Oficial José María de Madariaga (LOM) by the delegates of prevention and workers' representatives, in relation to the use of the most adequate type of filter or mask at work led to carry out this research work. Some filters and masks have been tested simulating real work conditions with a device specifically designed for this purpose. Among the results obtained it has been observed a great variability in the efficiency of the filters and masks tested within the same category which makes difficult to establish recommendations of use.

**References**

EN 143: 2000. Respiratory protective devices. Particle filters. Requirements, testing, marking.

EN 149: 2001. Respiratory protective devices. Filtering half masks to protect against particles. Requirements, testing, marking.