



863 Valley View Road, Eighty Four, PA 15330  
Tel: 724-941-9704 Fax: 724-941-1369

RECEIVED Office of  
Standards, Regs,  
and Variances

2003 MAR 18 AM 11:34

**To: MSHA Office of Standards, Regulations, and Variances** MSHA  
**Re: Comments on the Information Collection Requirements** U.S. Dept of Labor  
**30 CFR parts 70, 75, and 90 (Federal Register 6 March 2003)**

3 pages total being submitted

18 March 2003

I am pleased to respond to your request for comments in the Federal Register, Vol. 68, No. 44 in the **MSHA Proposed Rules** published 6 March 2003. I wish to comment on the approach of approving sampling devices. Specifically, I wish to comment on page 10806 of the above-mentioned document, where it states "MSHA also solicits comments on an alternative approach based on the International Standards Organization (ISO) definition of **respirable dust**."

I strongly urge MSHA to adopt the definition of a **respirable** dust sampler put forth by ISO. The ISO definition has **also** been adapted by ~~the~~ European Standardization Committee (CEN), the UK Health and Safety Executive (**HSE**) ~~the~~ American Conference of Governmental industrial Hygienists (**ACGIH**) and US National Institute for Occupational Safety and Health (NIOSH). The **adoption** of ~~this~~ international definition of **respirable dust** samplers by MSHA will go a long way in bridging ~~the~~ global disconnect in **respirable** sampling methodologies.

As a US governmental agency, I urge MSHA to follow the **lead** of US NIOSH in characterizing **respirable dust samplers** ~~for silica in line with the ISO definition~~. In the NIOSH Manual of Analytical Methods, 4<sup>th</sup> edition, NIOSH **specifies** the definition of **respirable dust** to be "aerosol collected by a sampler with a 4 **um** median cut point" (See Method 0600 for **Particulates** Not Otherwise Regulated, Respirable.) In **this** method and all methods for respirable dust, NIOSH gives a choice of cyclones at **various flow rates** designed to achieve the ISO definition of **respirable dust samplers** i.e. a 4 **um median cut point**:

- 10-mm nylon cyclone at 1.7 L/min (currently used by US MSHA)
- Higgins-Dewell cyclone at 2.2L/min
- Aluminum cyclone at 2.5 L/min
- **or equivalent**

**This approach is desirable for many reasons:**

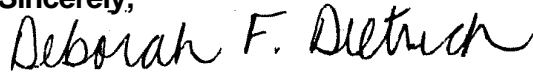
1. Adopting the ISO definition would bring **MSHA into alignment with health and safety professionals** in most ~~of~~ the rest of the world,
2. Adopting the ISO definition, would **allow** for the comparison of exposure data and the comparison of health effects throughout the world.

AB14-comm-1

3. Adopting the ISO definition would bring MSHA into alignment with specifications of US NIOSH.
4. Having a performance based standard, allows new technology to be introduced and to be used by government and employers, This would include technology that collects a sample for subsequent analysis such as a cyclone sampler or a direct-reading instrument. The manufacturer of the sampler or direct-reading instrument could supply test data to the Secretary for verification that the sampler/monitor meets the performance requirements set forth in the ISO definition of respirable dust samplers.

Thank you for considering my comments.

Sincerely,



Deborah F. Dietrich, CIH  
Corporate Industrial Hygienist  
[skcdebbie@aol.com](mailto:skcdebbie@aol.com)  
SKC Inc.  
863 Valley View Road  
Eighty Four, PA 15330

**PARTICULATES NOT OTHERWISE REGULATED, RESPIRABLE 0600**

**DEFINITION:** aerosol collected by sampler with 4- $\mu$ m median cut point

CAS: None

RTECS: None

METHOD: 0600, Issue 3

EVALUATION: FULL

Issue 1: 15 February 1984  
Issue 3: 16 January 1988OSHA: 5 mg/m<sup>3</sup>  
NIOSH: no REL  
ACGIH: 3 mg/m<sup>3</sup>**PROPERTIES:** contains no asbestos and quartz less than 1%; penetrates non-ciliated portions of respiratory system**SYNONYMS:** nuisance dusts; particulates not otherwise classified

SAMPLING		MEASUREMENT	
<b>SAMPLER:</b>	CYCLONE + FILTER (10-mm nylon cyclone, Higgins-Dewell [HD] cyclone, or Aluminum cyclone + tared 5- $\mu$ m PVC membrane)	<b>TECHNIQUE:</b>	GRAVIMETRIC (FILTER WEIGHT)
<b>FLOW RATE:</b>	nylon cyclone: 1.7 L/min HD cyclone: 2.2 L/min Al cyclone: 2.5 L/min	<b>ANALYTE:</b>	mass of respirable dust fraction
<b>VOL-MIN:</b>	20 L @ 5 mg/m <sup>3</sup>	<b>BALANCE:</b>	0.001 mg sensitivity; use same balance before and after sample collection
<b>-MAX:</b>	400 L	<b>CALIBRATION:</b>	National Institute of Standards and Technology Class S-1.1 or ASTM Class 1 weights
<b>SHIPMENT:</b>	routine	<b>RANGE:</b>	0.1 to 2 mg per sample
<b>SAMPLE STABILITY:</b>	stable	<b>ESTIMATED LOD:</b>	0.03 mg per sample
<b>BLANKS:</b>	2 to 10 field blanks per set	<b>PRECISION:</b>	<10 $\mu$ g with 0.001 mg sensitivity balance; <70 $\mu$ g with 0.01 mg sensitivity balancer [3]
ACCURACY			
<b>RANGE STUDIED:</b>	0.5 to 10 mg/m <sup>3</sup> (lab and field)		
<b>BIAS:</b>	dependent on dust size distribution [1]		
<b>OVERALL PRECISION (<math>\hat{S}_r</math>):</b>	dependent on size distribution [1,2]		
<b>ACCURACY:</b>	dependent on size distribution [1]		

**APPLICABILITY:** The working range is 0.5 to 10 mg/m<sup>3</sup> for a 200-L air sample. The method measures the mass concentration of any non-volatile respirable dust. In addition to inert dusts [4], the method has been recommended for respirable coal dust. The method is biased in light of the recently adopted international definition of respirable dust, e.g.,  $\approx$  +7% bias for non-diesel, coal mine dust [5].

**INTERFERENCES:** Larger than respirable particles (over 10  $\mu$ m) have been found in some cases by microscopic analysis of cyclone filters. Over-sited particles in samples are known to be caused by inverting the cyclone assembly. Heavy dust loadings, fibers, and water-saturated dusts also interfere with the cyclone's size-selective properties. The use of conductive samplers is recommended to minimize particle charge effects.

**OTHER METHODS:** This method is based on and replaces Sampling Data Sheet #29.02 [6].