

gol128@sptums.com :

(CIS IOM)  
NIOSH

( )  
± / (PVC)  
( ) :

(P< / )

IOM

IOM "

( / ± / ) (P< / )  
( / ± / ) ( / ± / )  
( / ± / ) ( / ± / )  
CIS (P> / )

Kerr)

( et al. 2002; James and Zalk 1998

National

Institute of Occupational Safety and Health (NIOSH), U.S. Environmental Protection Agency (EPA), International Agency for Research on Cancer (IARC)

(EPA 1998)

Ashley et al. 2003; James and Zalk 1998; )  
Kriech et al. 2004; Tsai and Vincent 2001;  
( Predicala and Maghirang 2003

Occupational "  
Safety and Health Administration (OSHA)

OSHA, ID-) ( )  
( 215 1998; NIOSH 7600 1994

"

Conical Inhalable Sampler (CIS)

(

(EPA 1998)

(Open-face)

Clinkenbeard ) (Closed-face)

( et al. 2002

Baldwin and)

/

American Conference of Governmental Industrial Hyginists(ACGIH)

(Maynard 1998

( )

( TA2 Air Flow )  
/

(Kuo et al. 1997)

: ( : (

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(Tirgar et al. 2006)

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SAS

: ( Institute of Occupational Medicine (IOM)  
CIS

NIOSH

(NIOSH 7600 1994)

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/ (Side by side)

Beckman

DU

M.S.A

) PVC

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SKC

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PCXR3

± /

CIS

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( $p < /$  )

/  $\pm$  /

IOM

IOM

CIS

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(Chen et al. 2002)

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(Werner et al. 1999)

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IOM

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IOM

)

$$E_{IOM} = B \times E_{37mm}$$

E<sub>IOM</sub>

(

B

CIS

-

IOM

( ) Kuo . IOM  
 CIS % % %

(Kuo et al. 1997) IOM  
 IOM

CIS :

) ( )  
 (

IOM IOM

(% / ) (% / ) IOM  
 (% / ) (% / ) CIS  
 Ashley et al. 2003;) (Shin and Paik 2000 IOM

CIS :

:" (CIS IOM )

(P< / )

(Kuo et al. 1997) )

(Kenny et al. 1999) Kenny (

GSP IOM

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GSP

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/

IOM                      CIS                      ( Bonin et al. 1995)

(                      )

CIS                      (Li et al. 2000)

IOM                      .

/ /

Li                      CIS

. (Li et al. 2000)

IOM                      CIS                      )

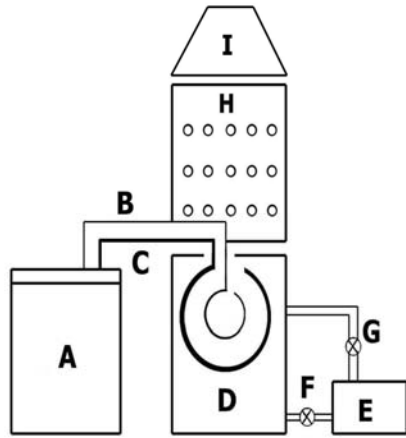
CIS                      (

IOM

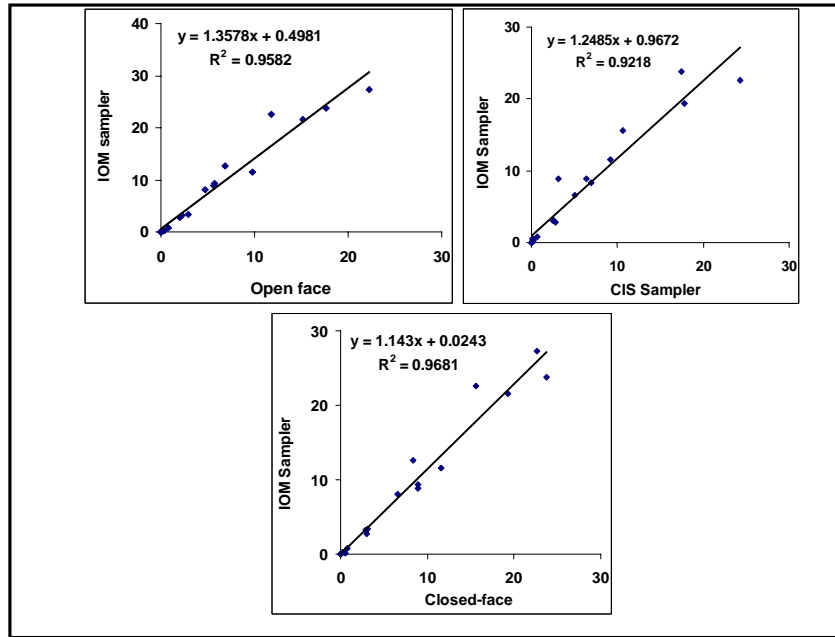
IOM

.(Kenny et al. 1997)

( / " )



E D C B ( ) A  
I H G F



IOM

CIS

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(min)	(cm)	(g/l)
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(N = )

SD ( $\mu\text{g}/\text{m}^3$ )		( $\mu\text{g}/\text{m}^3$ )		
/	/	/	/	Close-face
/	/	/	/	Open-face
/	/	/	/	IOM
/	/	/	/	CIS

**IOM****CIS**

IOM		CIS	
$R^2$	SE/B	B	
/	/	/	CIS
/	/	/	
/	/	/	

:B

: SE/B

:  $R^2$

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