

REVISED CORRECTION FACTOR FOR THE RESPICON™ PARTICLE SAMPLER

APPLICATION NOTE ITI-078

A recent study¹ from the University of Florida recommends some changes to the way in which the inhalable fraction is computed when using a RESPICON™ Particle Sampler. Previously, the recommendation was to apply a correction factor of 1.5 to the mass of the third stage sample in order to match the German standard for 'total' dust. However, experimental wind tunnel data from the University of Florida has shown that applying this correction factor results in an overstatement of the inhalable and extra-thoracic fraction when compared to the ISO/CEN inhalable dust standard^{5,6}, particularly for particles greater than 10 microns. In line with this research, TSI now recommends that RespiCon users discontinue applying the correction factor of 1.5 when calculating the inhalable fraction. Accordingly, the RESPICON™ manual,² Microsoft® Excel® spreadsheet file respdata.xls³ and other related TSI documents have been updated and are available on the TSI Web site (see below). For a detailed discussion of the formulae used to analyze RESPICON™ data, refer to TSI Application Note [ITI-051](#)⁴.



Note: With the exception of the respdata.xls spreadsheet file, this change has been previously incorporated into all RESPICON™ sampler related documents from TSI since approximately February, 2000.

References:

1. "Evaluation of Six Inhalable Samplers." Shou-Nan Li, Dale Lundgren, Dave Rovell-Rixx, American Industrial Hygiene Association Journal, Vol. 61, July-August 2000, pages 506-516. (note: This document is available on the TSI web site as Application Note [ITI-076](#))
2. "Model 8522 RESPICON Particle Sampler Operation and Service Manual." rev. C, TSI Incorporated, St. Paul, Minnesota, January 2001, TSI part no. 1980320c.
3. RESPDATA.XLS data analysis spreadsheet in Microsoft Excel format
4. "How a Virtual Impactor Works." TSI [Application Note ITI-051](#), TSI Incorporated, St. Paul, Minnesota, 2000.
5. "Air Quality—Particle Size Fraction Definition for Health-Related Sampling (ISO CD7708)." International Organization for Standardization (ISO): Geneva: ISO, 1992.
6. "Workplace Atmosphere: Size Fraction Definitions for Measurement of Airborne Particles in the Workplace (CEN Standard EN 481)." Comite' Europe' en de Normalisation (CEN): Brussels: CEN, 1992.



To obtain reference documents 1, 3 and 4 listed above as well as additional application information regarding the RESPICON™ Particle Sampler point your browser to <http://www.tsi.com>

To obtain the latest version of the RespiCon Manual (ref. 2) point your browser to [Model 8522 RESPICON™ manual](#).



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