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To: SKC Product Users

From: Dusty Ott, CIH
Corporate CIH/Technical Services Manager

Saulius Trakumas, PhD
Product Development Manager

Date: April 9, 2026*

Re: Third-party Validation of SKC PPI Impactor Performance

SKC Inc. engaged Rutgers University for a project to evaluate the performance of the SKC PPI Impactor. The project objective is outlined below:

> The goal of this project was to evaluate the performance ability of these PPI models to follow the ISO 7708 and EN 481 criteria for respirable particles as designed.

- **Disposable respirable SKC PPI Impactors operating at 2, 4, and 8 L/min**
  (*referred to in the project reports as 2-L/min-PPI, 4-L/min-PPI, and 8-L/min-PPI, respectively*)
- **Reusable respirable SKC PPI Impactors operating at 2, 4, and 8 L/min**
  (*referred to in the project reports as 2-L/min-Re-PPI, 4-L/min-Re-PPI, and 8-L/min-Re-PPI, respectively*)

> The following impactor performance parameters were determined:
>
> 1. Penetration efficiency as a function of aerodynamic particle diameter when challenged with polydisperse and monodisperse aerosol particles
> 2. 50% cut-off size (d50) when challenged with polydisperse and monodisperse aerosol particles
> 3. Bias map for the investigated samplers

In summary, the Rutgers University study results indicate the following:

> **Both Disposable PPIs and the 2 L/min Reusable PPI** have a 50% cut-off size very close to the expected value of 4.0 µm and a bias within ± 5% for the vast majority of aerosols when operated at their recommended respective flow rates (2 and 4 L/min).
>
> The 50% cut-off size of the **4 L/min Reusable PPI** operated at the recommended 4 L/min flow rate was found to be 4.27 µm with a bias above the recommended +10% for aerosols with large MMAD; however, when used at 4.3 L/min this sampler has a d50 = 3.96 and an average bias of +1.6%.
>
> The **8 L/min Reusable PPI** operated at the recommended 8 L/min flow rate was also found to oversample respirable particles with d50 = 4.27 µm and average bias of 13.6%. The project report indicates that increasing flow rate by approximately 10% brings d50 back to expected range.
>
> PPI Samplers can operate in any orientation, and their ability to follow the respirable convention does not depend on orientation when operated in calm air conditions (wind velocity < 0.5 m/s)

**This is an update to a letter issued August 6, 2020.*

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See the complete project reports at:
https://skcinc.com/media/knowledge/rr/rutgers-report-evaluation-of-skc-ppi-impactor-performance-7-14-2020.pdf

https://skcinc.com/media/knowledge/rr/rutgers-report-evaluation-of-skc-8lpm-ppi-impactor-performance-7-19-2021.pdf

See the published test data at https://skcinc.com/media/knowledge/whi/parallel-particle-impactor%E2%80%93novel-size-selective-particle-sampler-for-accurate-fractioning-of-inhalable-particles-whi.pdf

Based on these findings, we encourage using the identified **4 L/min Reusable PPI Sampler (part number 225-382) at 4.3 L/min and 8 L/min Reusable PPI Sampler (part number 225-383) at 8.6 L/min until further notice.** Please note that if results obtained at the previously recommended 4 L/min and 8 L/min flow rates are in compliance with regulations, the compliance is still valid because when used at those flow rates, the samplers oversample the respirable fraction.

If you have any questions, please contact SKC technical support at skctech@skcinc.com.

Sincerely,

Dusty Ott, CIH

Saulius Trakumas, PhD