**Check One: ☐Project ☒Review ☐Collaboration**

 **☐Workshop ☐Other**

| **Descriptive Title** | Powder Sampling Equipment Review |
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| **Working Title[[1]](#footnote-0)** | Powder Sampling Equipment Review |
| **Technical Area[[2]](#footnote-1)** | Characterization |
| **Date** | June 16, 2025 |
| **Short Description** | IFPRI recently completed a review of in-line and on-line analytical instrumentation (2017, but did not include a review of on-line (extractive) sampling equipment and associated sampling systems. We would like a review done to identify the modern equipment, applications, range of suitability, and vendors that provide sampling equipment that is designed for use in powder processing industries. |
| **Objectives** | 1. Review and provide examples of on-line sample system equipment and applications used across industrial powder processing applications.
	1. Provide examples of equipment, model numbers, and vendors, along with descriptions of their design and indented use.
2. Identify the functions of the equipment (i.e. pumps, agitators, vacuums, rotating sample probes, etc), and applications when they are suitable.
3. When appropriate, provide insight and context when certain equipment designs should not be used and why.
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| **Scope** | In scope:Equipment and applications used to extract:* Dry powders, powder/liquid suspensions, and/or mixtures of powders/liquids while they are being processed or transported in production settings.
* Samples for on-line analysis of powders or suspensions
* Samples to be collected in a container and sent to QC labs for off-line analysis. If rotating containers are available (for time point collection), please review the options available.
* Free flowing powders (>200 microns) or cohesive powders (0-200 micron diameter)

Additional insight we’d like on the equipment reviewed: * Temperature, pressure, and viscosity ranges
* Designs to mitigate cross contamination (i.e. self-cleaning capabilities)
* Application Scale (pilot vs commercial systems)
	+ Ability to integrate/control equipment with production plant controls and automation.

Out of scope: * Analytical Instrumentation
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| **Recommended Contractors (2 or 3)** |
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| Kim Esbensen | KHE Consulting | khe.consult@gmail.com |
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| **Submitted By:** |
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| Pete Bergstrom | Sila |
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| Daniel Fawcett | Lincoln Electric |
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feedback:

* simon- integrating optical sensors with sampling systems
* make the rotating/incremental sampling non specific to rotating sampler
* include “at line” measurements
1. Title used in meeting agendas and file archives [↑](#footnote-ref-0)
2. One or more from the following list: W = wet systems; D = dry systems; F = particle formation; SR = size reduction; M = modeling; SE = systems engineering [↑](#footnote-ref-1)