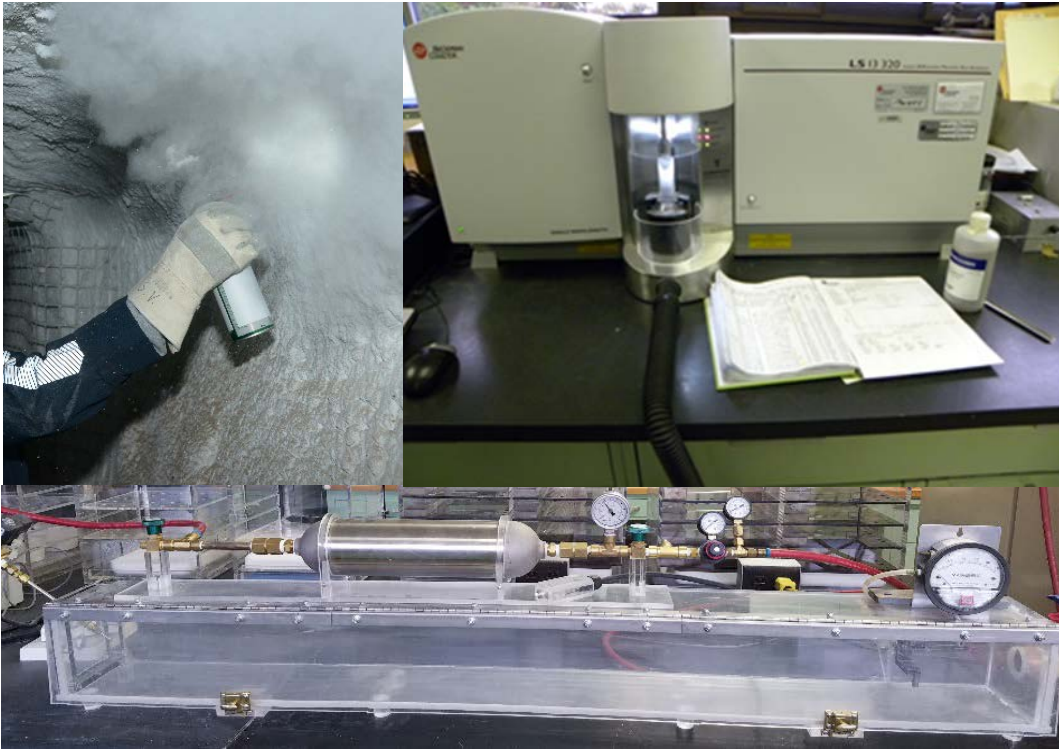


Dust Dispersion Chamber - A NIOSH Method?



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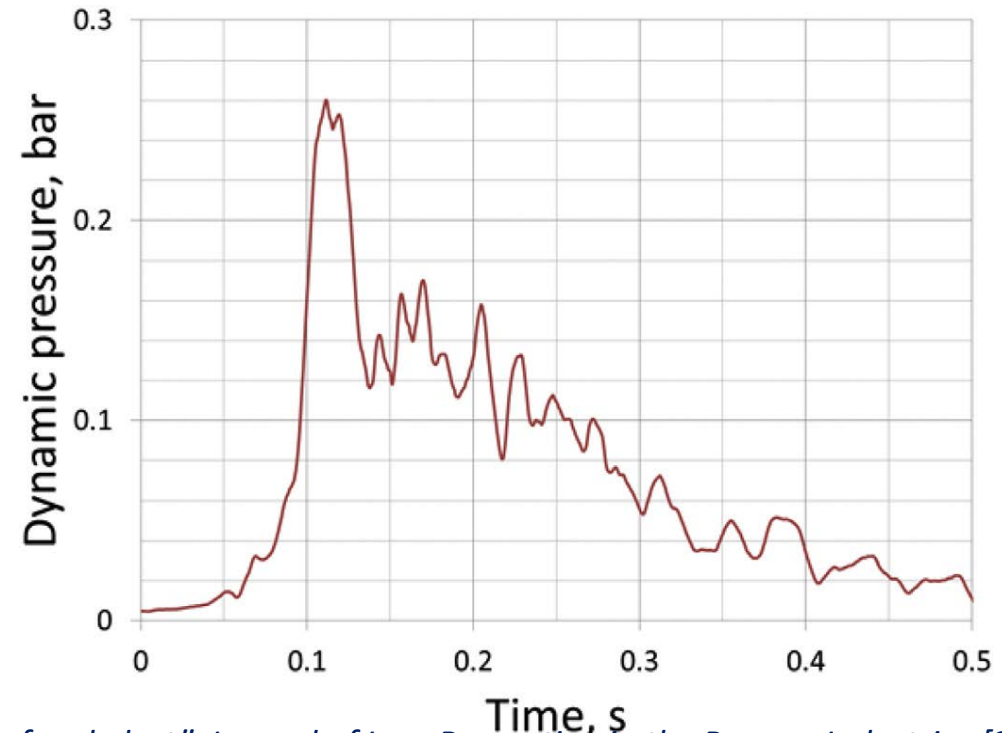
Pittsburgh Mining Research Division

30 CFR 75.2

The rock dust definition states, in part, that “... when wetted and dried will not cohere to form a cake which will not be dispersed into separate particles by a light blast of air ...”

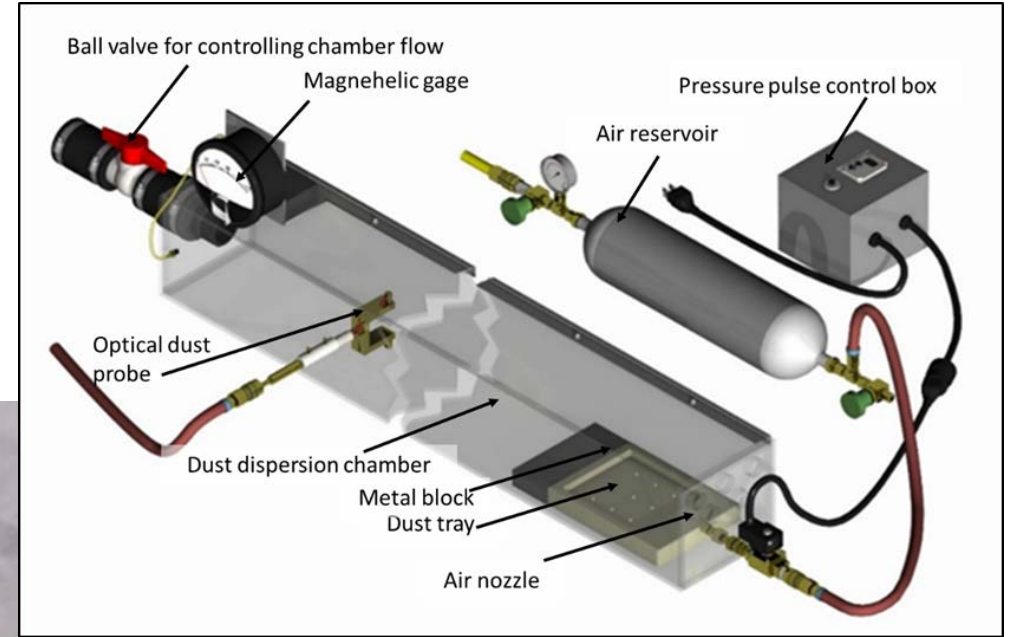
“What is a light blast of air and how should it be administered?”

This dynamic pressure history was produced by a near-limit propagating explosion containing a mixture of 71.4% rock dust and 28.6% pulverized Pittsburgh (PPC) coal dust (#517).



Dust Dispersion Chamber

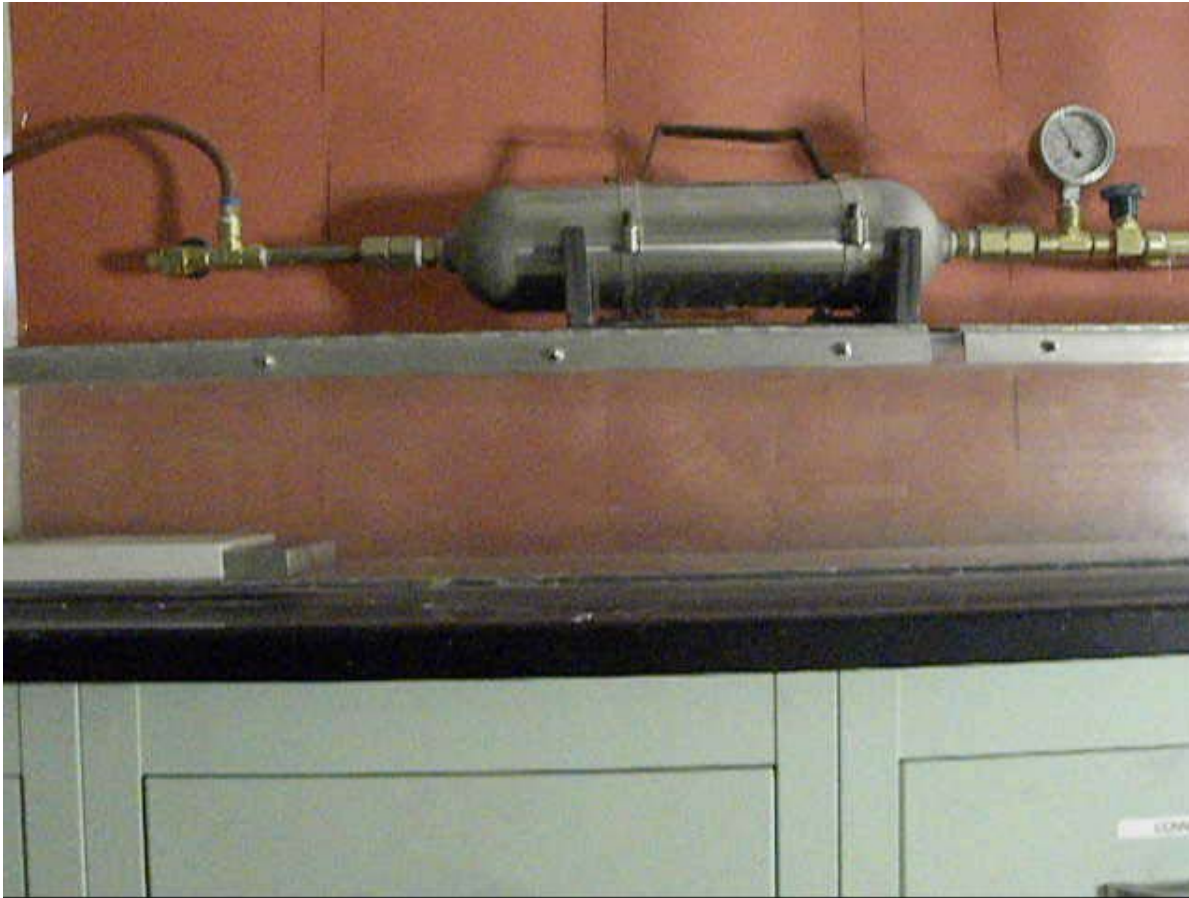
- Generates a reproducible air pulse
- 4.2 psi for 0.3 sec



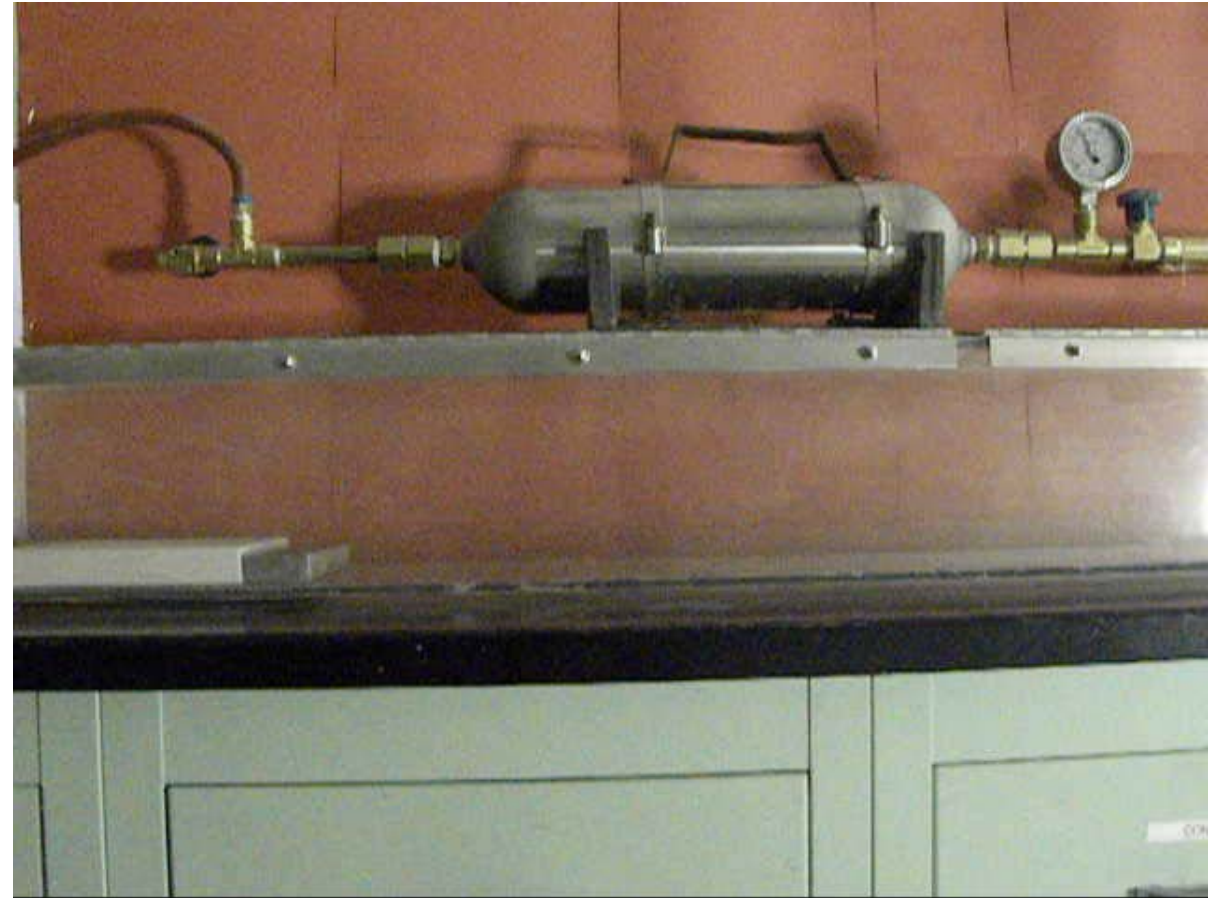
“Design and development of a dust dispersion chamber to quantify the dispersibility of rock dust”, Journal of Loss Prevention in the Process Industries [2016] Vol. 39, pp 7-16, Perera et al.

Dispersion Demonstration

Untreated rock dust (after moisture exposure)

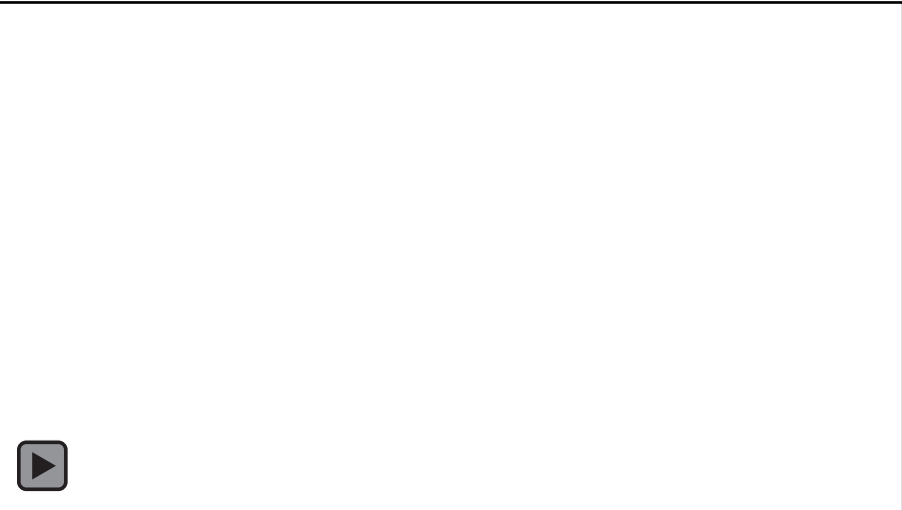
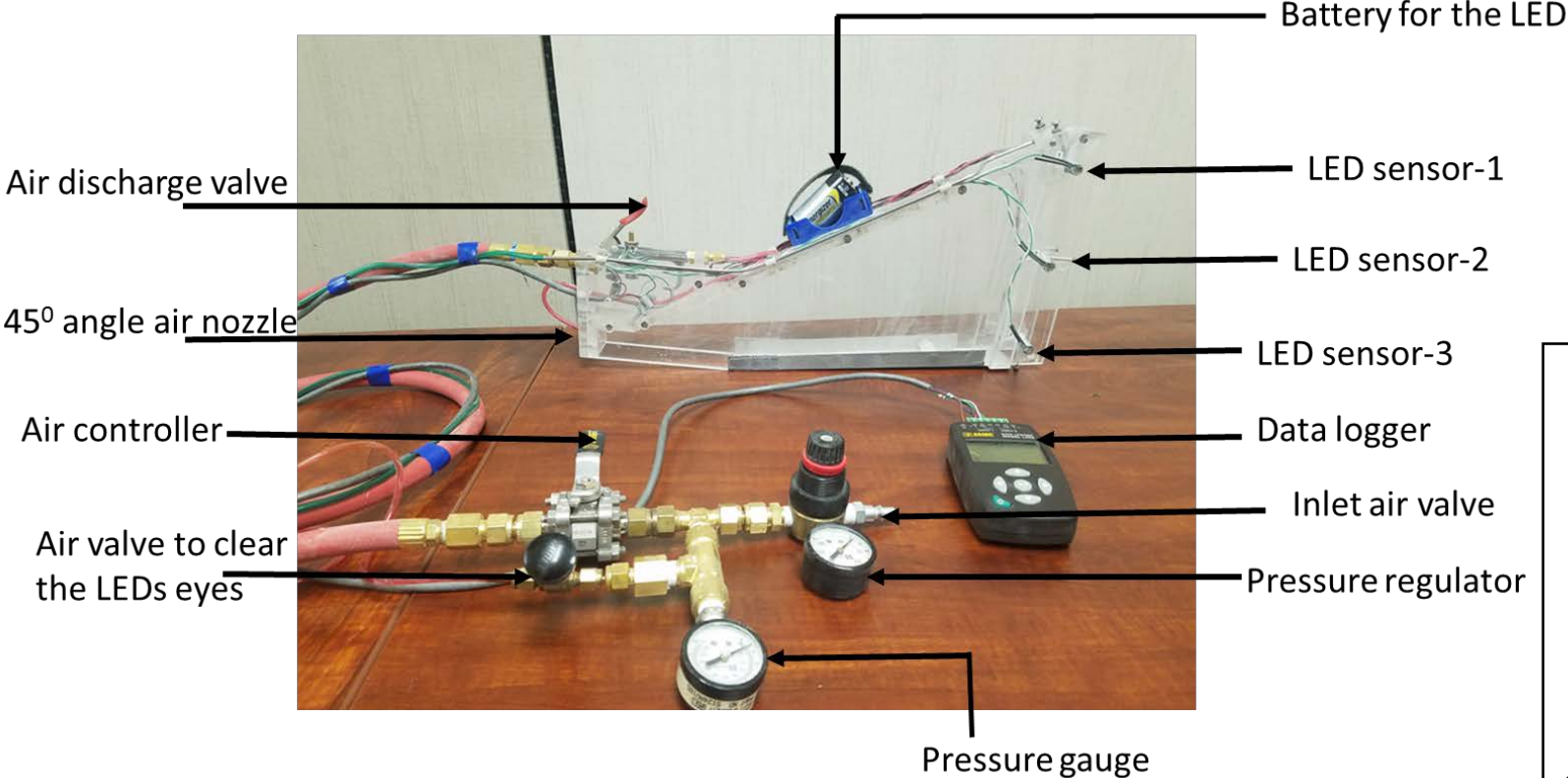


Treated rock dust (after moisture exposure)



Hand-held Dispersibility Apparatus

Potable device will measure the dispersibility of a rock dust (with and/or without the anti-caking additives) applied to the roof and the ribs.



Can the dust dispersion chamber method be developed as a NIOSH Standard Method?

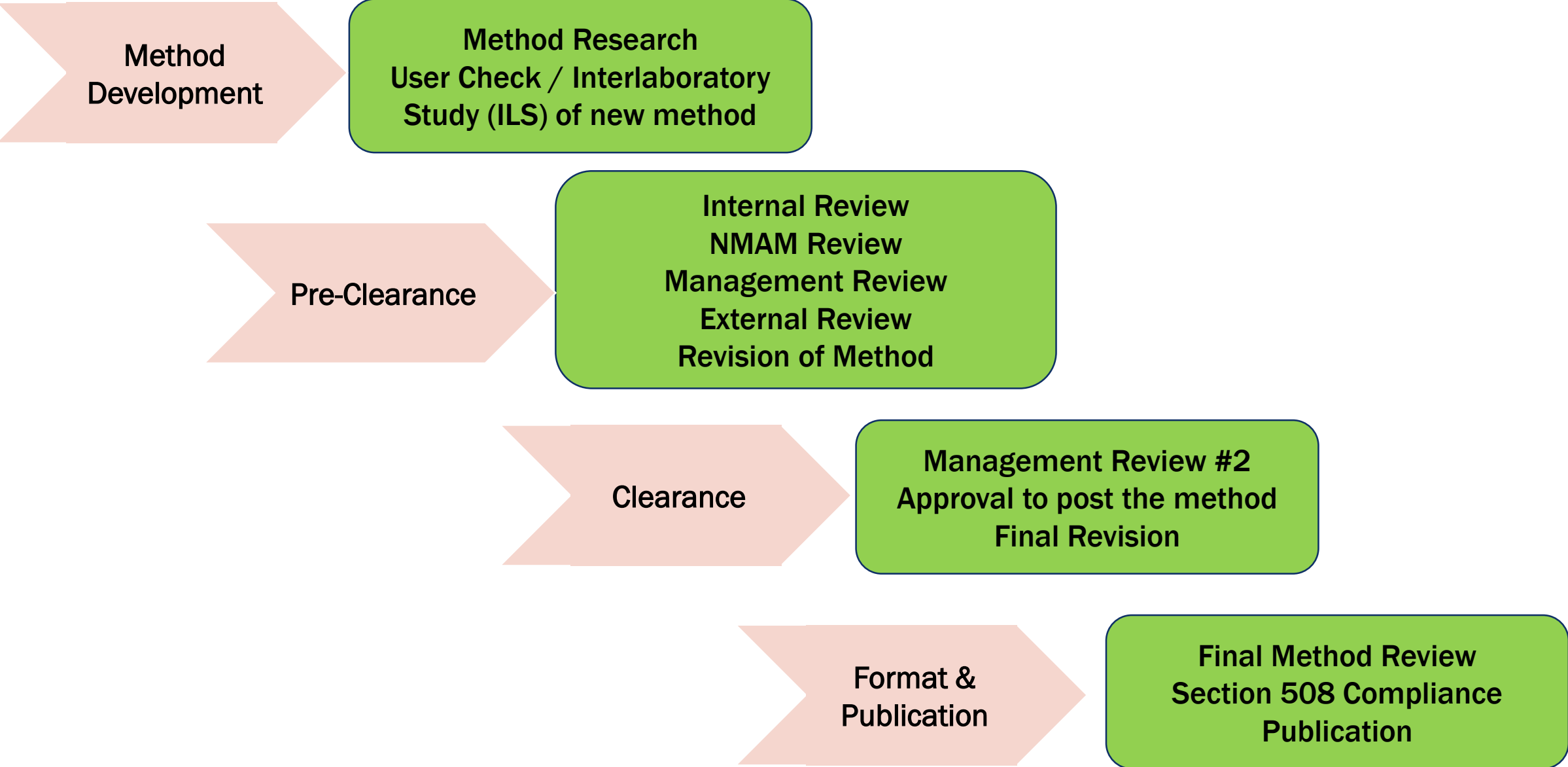
Reference Material

- Universal availability
- Safety
- Cost effectivity
- Repeatability

Identified Reference Material - Preliminary

- Reference dust
- Lycopodium
- White marble dust

NIOSH Manual of Analytical Methods (NMAM) Approval Process



Limitations

- NMAM approval is a multistep process requiring cascading sets of data.
- Data gathered using the NIOSH dispersion chamber should be repeated at a different experimental facility and independently verified.
- Two independent laboratories have agreed to help.
- Due to the current situation, discussions are on hold.



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