Classification:

Title: Novel HNS production and characterization for slapper detonators

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SAND2015-8219PE

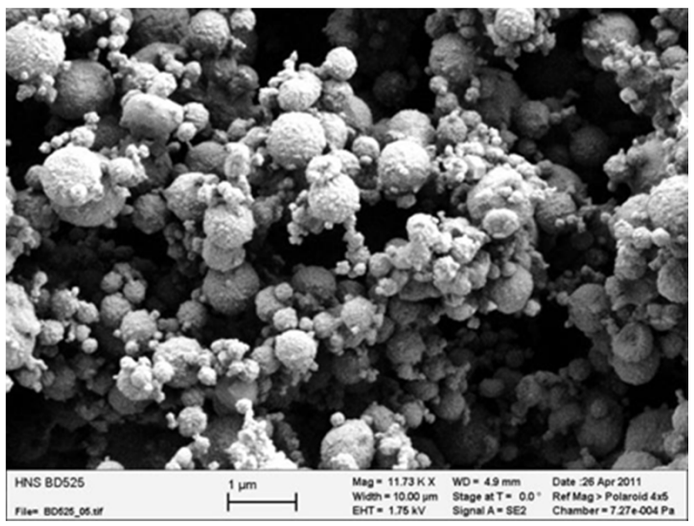
Aims/Objectives

Explore novel routes for obtaining and characterizing HNS powders for EFI detonators.

1. Make small particle HNS powders using carbon dioxide assisted nebulization and standard spray drying.
2. Characterize the material and compare to historical HNS-FP.

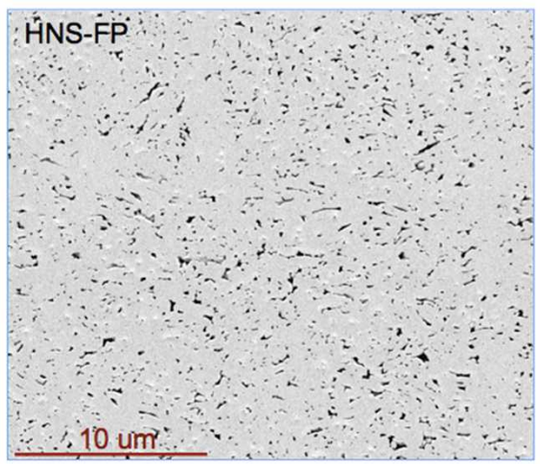
Participants

Ryan R. Wixom, SNL
Peter Hotchkiss, SNL
Alex Tappan, SNL
Mike Bowden, AWE
Adam Hazelwood, AWE

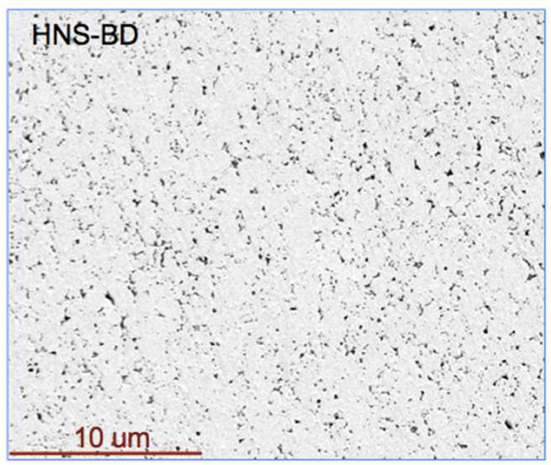


Deliverables

Ion mill cross-sections of 90% TMD pellets
Mean dia = 300 nm / Residual DMF < 0.05%



Normalized Threshold = 1.0 V
Sigma = 0.0039



Normalized Threshold = 1.015 V
Sigma = 0.0126

Outline Programme

1. Make powders via CAN-BD (done)
2. Make powders via spray-drying (done)
3. Characterize residual solvent (done)
4. Characterize morphology/microstructure (50%)
   - SNL CANBD mtl characterized.
5. Compare performance to HNS-FP
   - SNL has done limited threshold testing

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