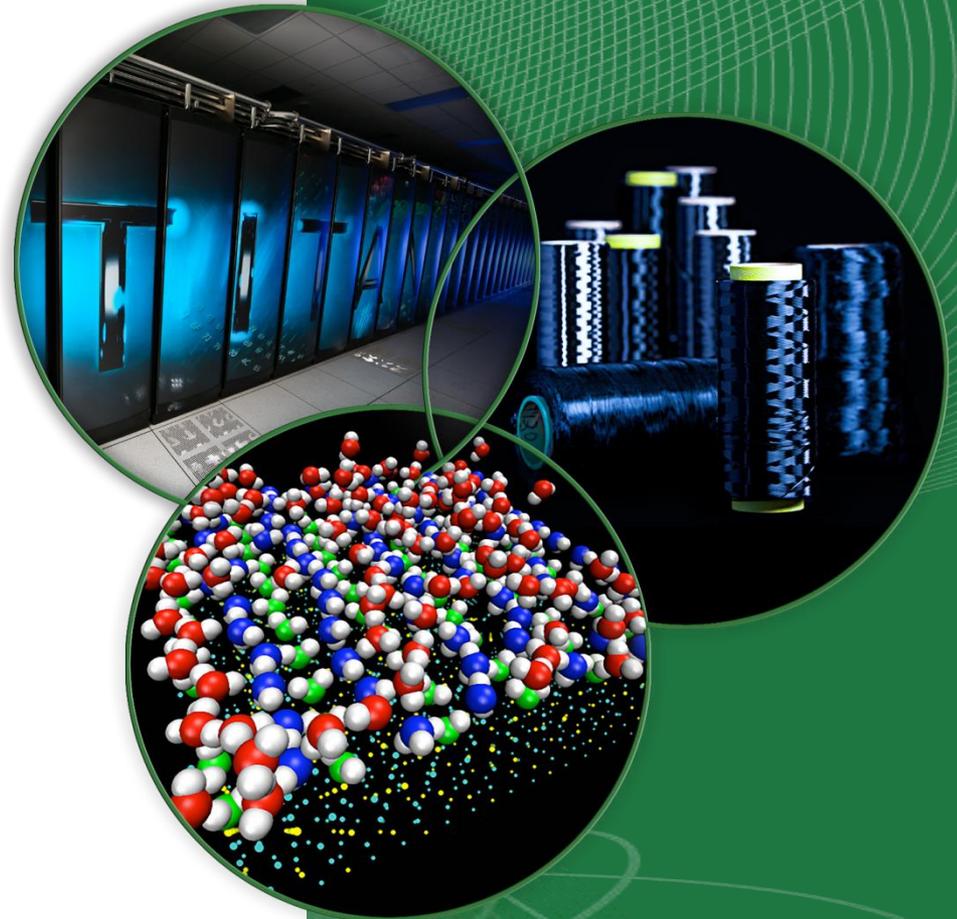


Addressing fire risk in biomass handling and storage

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Government-Industry partnership

Biomass Industry Panel on Codes & Standards



Energy Efficiency &
Renewable Energy



ABENGOA

POET



Vista Consulting Group

Objectives

- Understand fire behavior in biomass feedstocks
- Improve codes/standards to better reflect current knowledge of biomass fire risk and industry practices
- Develop training and reference materials for design professionals, code/standards developers, and code officials

To date, 7 successful ICC fire and building change proposals

- Clarify that biomass is NOT a hazardous material
- Clarification to allow for large stacks and piles
- Add bioenergy feedstocks to wood chapters
- Add biomass categories for sprinkler design



Proposal to add biomass to NFPA sprinkler discharge standard rejected

- *Prompted fire commodity classification tests*

100% success rate for IBC and IFC proposals.
Virtually unheard of!

Feedstock type and bale shape significantly impact fire growth



Stover rectangular bales



Switchgrass rectangular bales



Stover round bales



Observations

- Switchgrass burns much better than stover
- Lower density of round bales enabled fire more access to O₂
- After netwrap was burned away, outer layers of round bales fell away exposing fresh material to fire

Based on these data, proposal to add bales stover and switchgrass to sprinkler discharge standard is in development



Next steps

Fire risk in storage

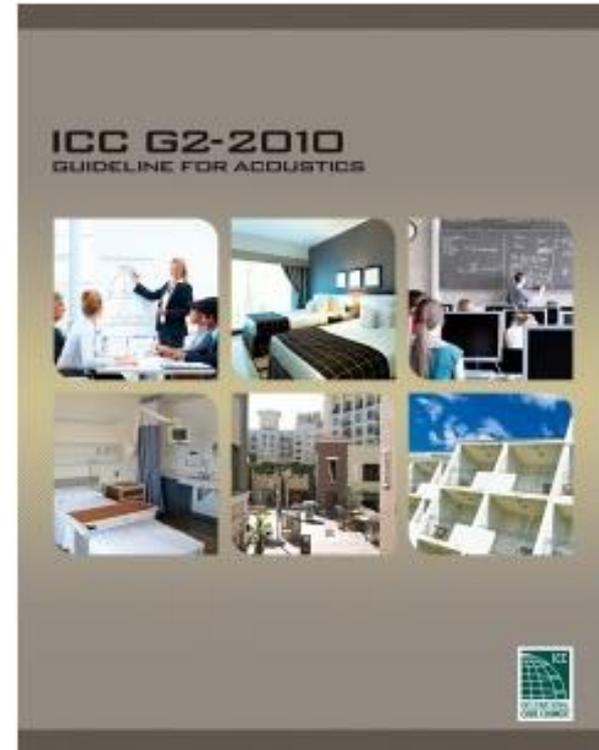
Working with industry to plan fire stack experiments for spring 2017



Corn stover, Moscow, KS
(photo from: <http://biobasedchems.blogspot.com>)

ICC Technical Document

Assist engineers and reviewers in applying Codes for biomass-handling facilities



Oak Ridge National Laboratory:

Discovery and innovation
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