Increase the intrinsic flame retardant performance of a spray applied polyurea coating

Polyurea application driven development
Challenges ahead, prepare for the future

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1. Market
   i. Trends
   ii. Regulation and normalization

2. Product development
   i. Suprasec 2154
   ii. Product details

3. Summary

4. Question and answers
Market

What are our challenges?
Population will reach 9 billion people by 2050
Challenges ahead
The future will be different

- Buildings will change dramatically
- Are we really ready for (climate) change?

“Fear for Future of Native ladybird”
Oxford Mail 8 Feb 2012

Success and reward do not come automatically
How to become well adapted to the future changes?
Huntsman has created many of these MDI segments

Core Science specialists working on R&D programs

Lateral thinking to create differentiated technologies

Strong pipeline of new product innovation
Construction Products Regulation (the CPR) is to ensure reliable information on construction products in relation to their performances. This is achieved by providing a “common technical language”, offering uniform assessment methods of the performance of construction products.

- The Construction Products Regulation
  - 305/2011/EU - CPR

- The Construction Products Directive
  - 89/106/EEC – CPD
• EN 13501
• As raw material provider we must be aware of these regulations.
New product development

Introducing Suprasec 2154
New product development

Objectives

1. Increase the flame retardant performance
2. Minimal diff. in properties
3. Application requires a 1:1 volume ratio
4. Offer a toolbox for formulators
5. Use non-halogenated FR additives
6. 15% NCO prepolymer as Suprasec 2054
7. Fire testing with 2 resins for cross ref.
New product development
Development program

Objective
• Screen and selecting the FR market
• Review of the test and norms
• Screening of selected FR in prepolymer trial
• Fire testing
• Mechanical and analytical testing to ensure product stability

Results
• Small selection of FR allows prepolymer fase
• Mechanical properties ok
• Stability ok
• Combination of different FR possible provides the best fire resistance
• Retain different FR and start scale up process for spray trials
New product development
Development program

Objective
- Review FR behavior in scale up
- Evaluate the spray ability
- Fire testing

Results
- Hot spray trial are successful
- Reactivity has not changed significantly
- Fire testing ok
## New product development
### Development program

<table>
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<tr>
<th>Test</th>
<th>Norm</th>
<th>Slabs</th>
<th>Spray</th>
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**New product development**  
Suprasec 2154 – reactivity

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New product development
Suprasec 2154 – Mechanical

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New product development
Picture on 2154 flame test
Summary

Conclusions
Suprasec 2154 is a new 15% NCO prepolymer for polyurea.

– That provides an original FR capacity
– Uses non-halogenated flame retardant
– Ensures the 1:1 ratio for hot spray application
– Is the first new prepolymer, offering a toolbox for formulators and applicators.
Questions

and answers!
Thank you