

A low-angle, upward-looking photograph of an aircraft wing, likely from an Airbus A320neo, set against a bright blue sky with scattered white clouds. The wing's leading edge is prominent, and the fuselage is visible on the left side. The overall composition is clean and professional, typical of an Airbus corporate presentation.

Additive Manufacturing Task Group

International Aircraft Materials Fire Test Forum
Atlantic City, October 30th 2018

AIRBUS

Additive Manufacturing Task Group

- FSTG-like approach to Additive Manufacturing
- Identify key variables affecting fire safety requirements
- Simplify methodology of compliance demonstration to account for these key variables
- Final goal may be approved guidance material like the PS

Part design

- “Replica” of conventional part
- Bio-inspired (bone-like) complex structures

Post processing

- For the specimen: e.g. removal of support, or for the part: e.g. grinding/sanding to certain surface quality
- Spatula, fillers, topcoats

Build

- Printing directions
- Raster angle
- Layer thickness
- Thickness
- Infill (%)
- Single specimens vs. cut from bigger plate

Manufacturing technology

- Fused Filament, laser sintering, powder bed etc.
- Printer manufacturer and type
- Layer thickness
- Print speed and temperature

Material

- Material itself is a variable
- ALM type vs. standard type of same material
- Filament thickness

Parameters

- Material
- Printing technique
- Filament thickness
- Printing directions
- Raster angle
- Layer thickness
- Thickness
- Infill (%)
- Single specimens vs. cut from bigger plate



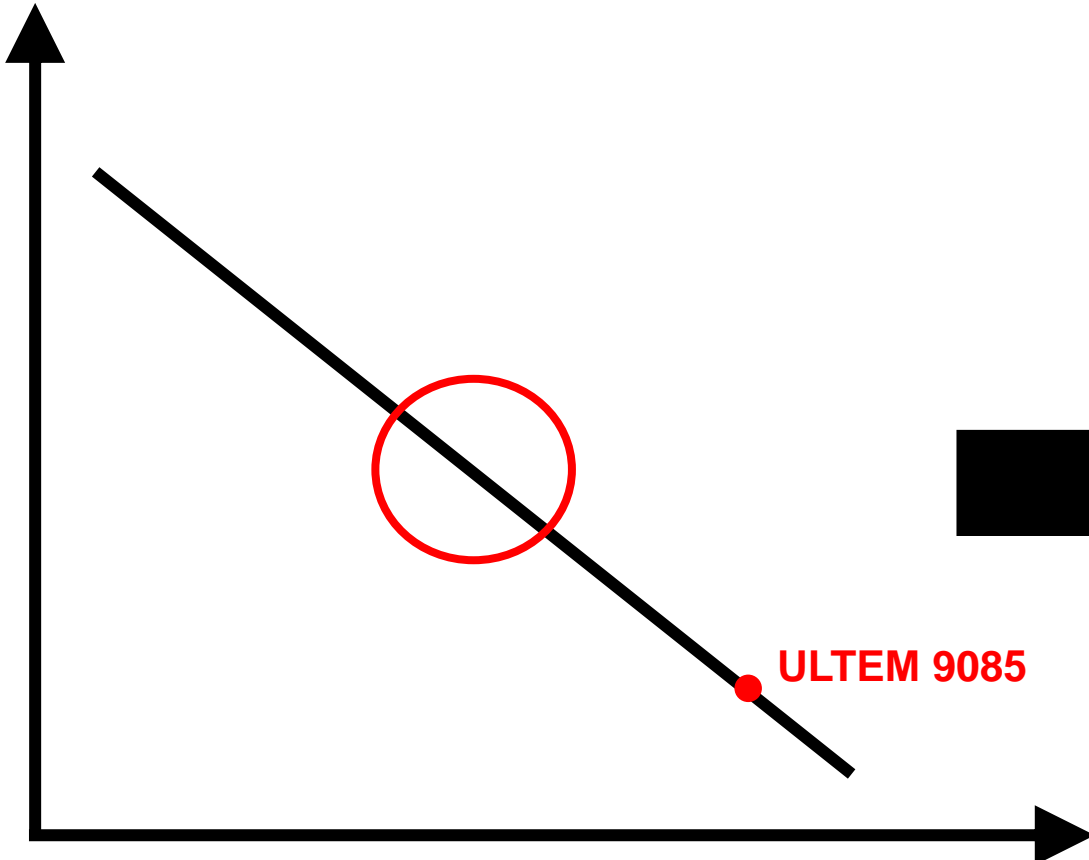
Flammability

~~HR
Smoke
Tox~~

Parameters

1. A
2. B
3. C
4. ...

/ severity of
influencing
factors



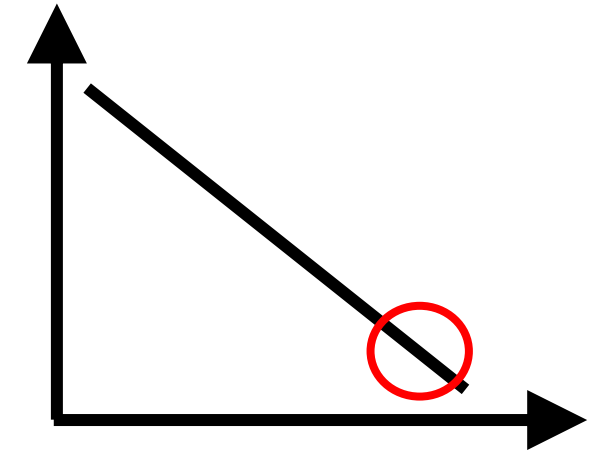
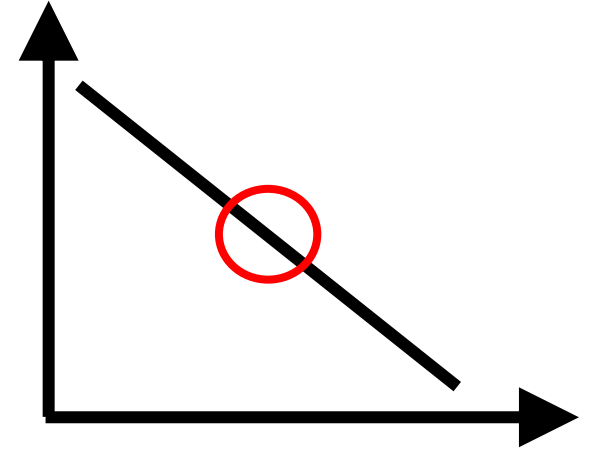
Inherent Fire Safety
performance of a
material



Tests at FAATC
with different
materials in
different directions

To do

- Agree on materials that show just enough susceptibility to factors of interest (starting with printing direction)
 - Move to more exotic printing angles
 - Move to other factors: infill, raster angle...
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- Investigate the possibility to use data from other production methods by showing similarity with specific 3D printing material
 - Original vs. 3rd-party cartridge vs. flat sheet
 - MCC



Thank you