EASA
European Union Aviation Safety Agency

Environmentally Assisted Cracking (EAC)

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VTOL Structures Expert CT3

STC WORKSHOP

May 16th/17th 2019

Your safety is our mission.

An Agency of the European Union

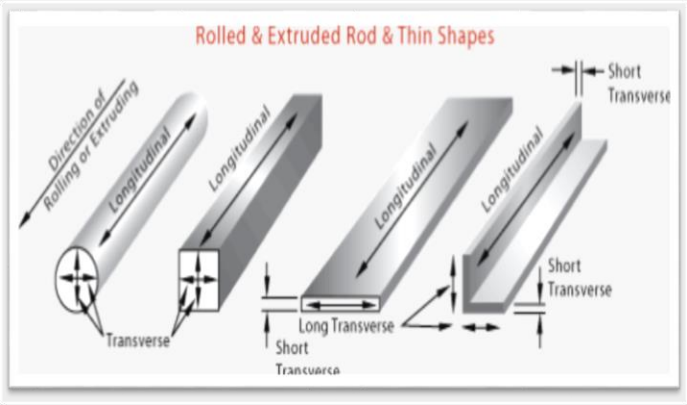
Background

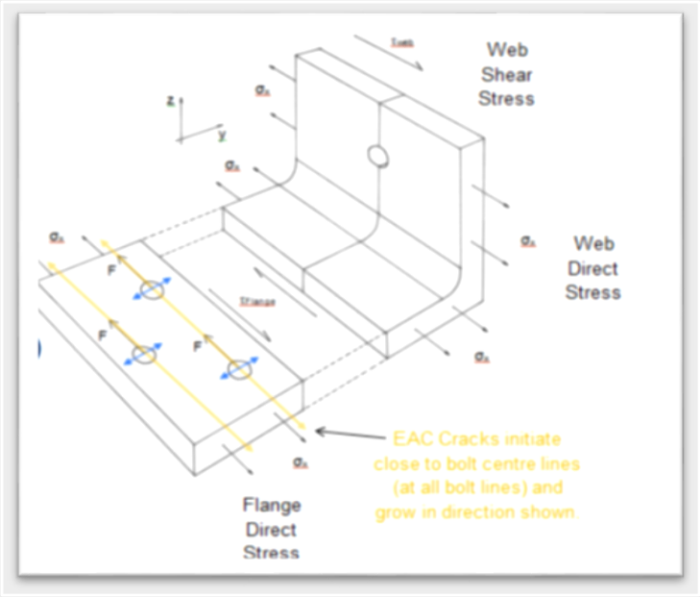
9th International Conference on Aluminium Alloys (2004)

ICAA

New generation of 7XXX thick section alloy

Years after TC……First cracks found

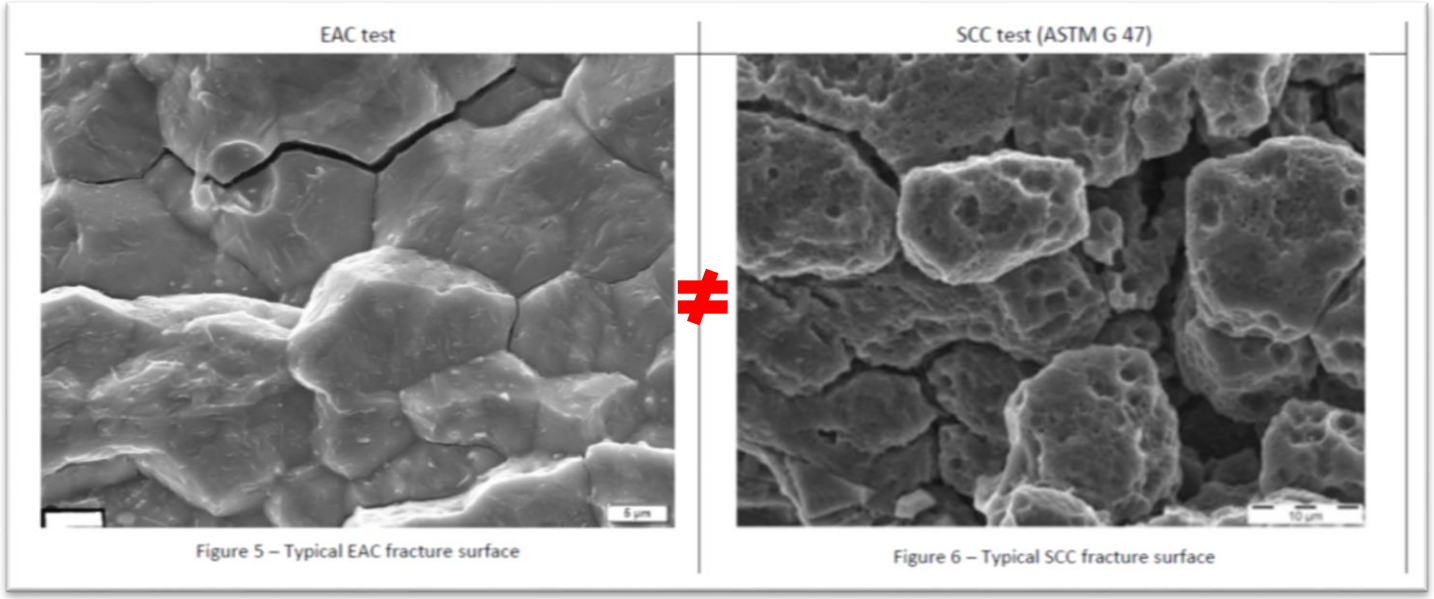




Cracking exists only when material loaded in the **Short Transverse (ST) Direction**!

Root cause: EAC hydrogen embrittlement

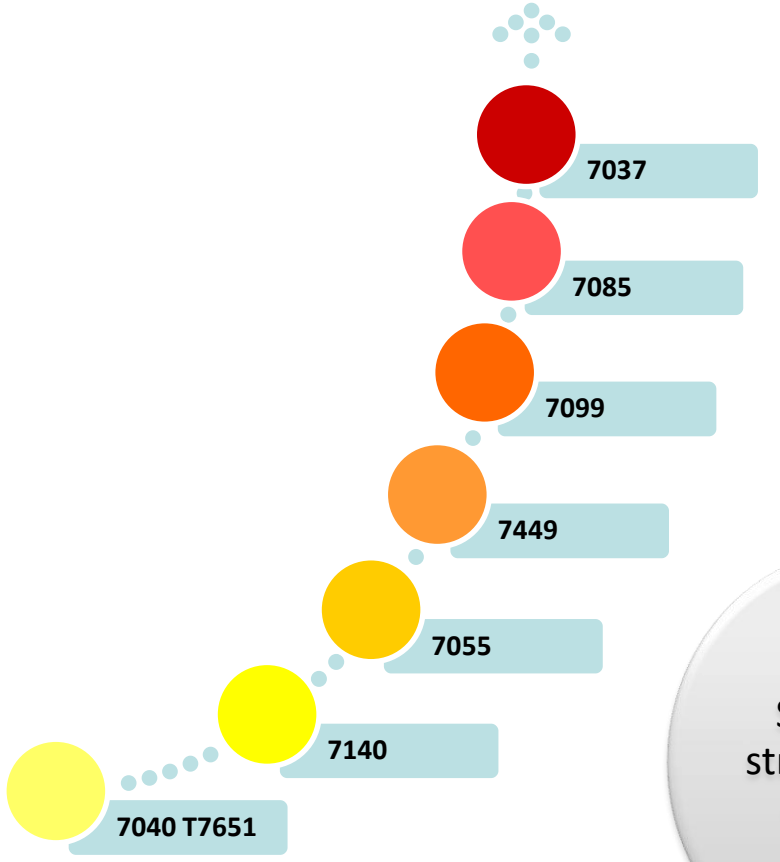
Environmentally Assisted Cracking (EAC): This form of EAC develops in susceptible aluminium alloys, due to hydrogen embrittlement .

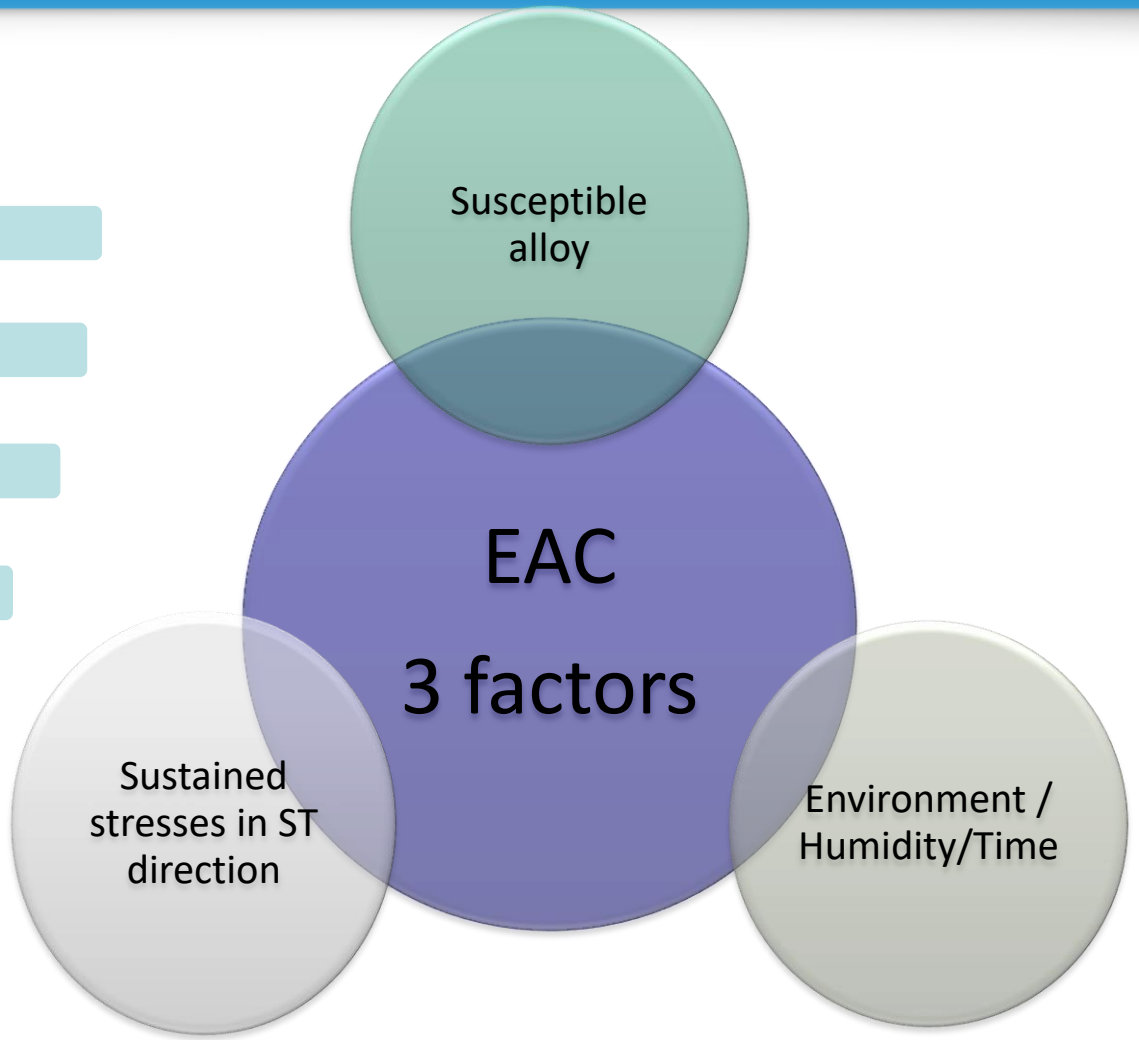


(Fig 5)-Hydrogen absorbed by solid metal at the grain boundary .

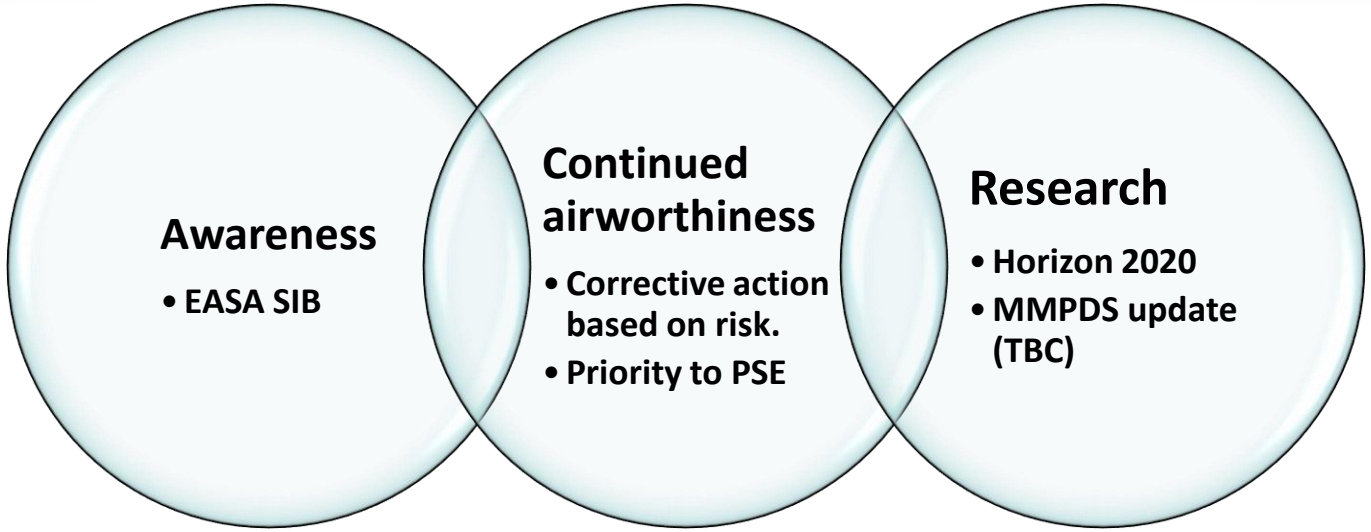
Linked to chemical composition of grain boundary precipitates -> Zinc, Magnesium, Copper

Investigation: Material affected





EAC risk management



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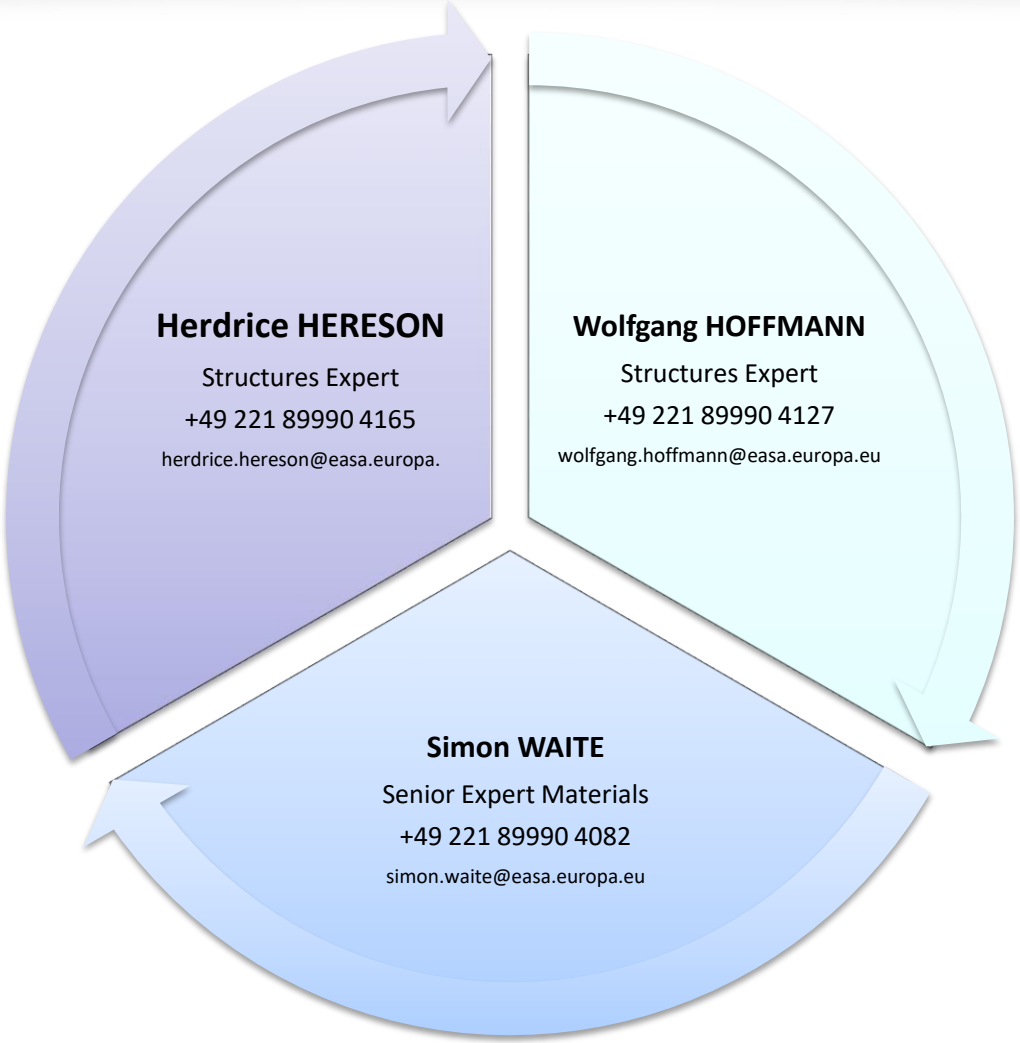
Several affected products – final situation TBC

- 3 EU Large Aeroplanes
- 2 EU rotorcraft
- 2 foreign validation product
- Military products

EASA contact points for EAC



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Thank you for your attention!

Any questions….?

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