

Studies of the chemistry, ageing and adhesion properties of polymers

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Supervisor: Roland PICCIN

Start date: 01.12.2023

Experienced Project Graduate (Quest)

→ Previous experiences:

2016 – 2018 – Master's degree in mechanical and materials engineering

2018 – 2020 – Materials and processes engineer at Airbus Defence & Space

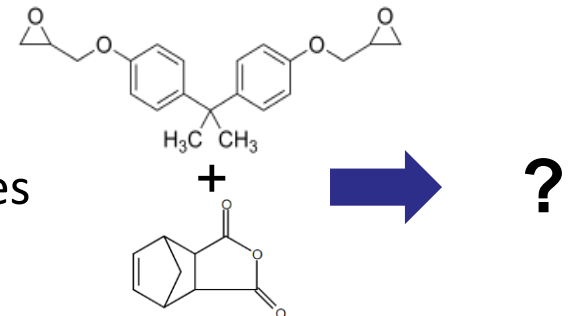
2020 – 2023 – PhD degree on polymer composites for Aeronautics

*1st of December 2023: PhD defense and 1st day at CERN

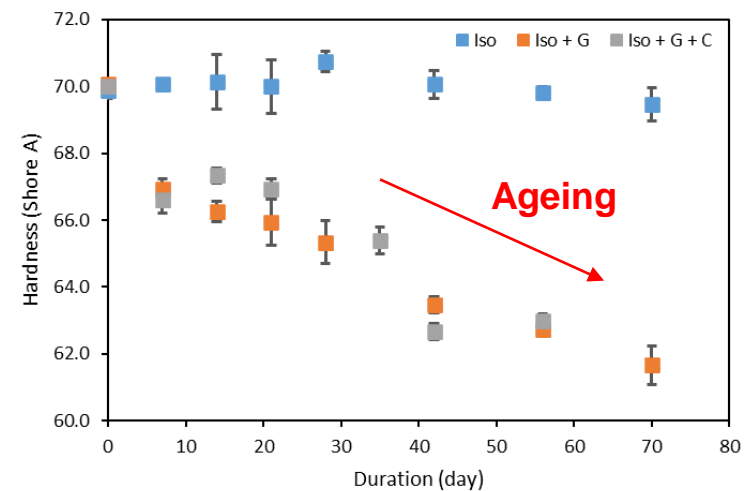
→ Projects at CERN:

- Study of the **polymer chemistry** toward the final properties

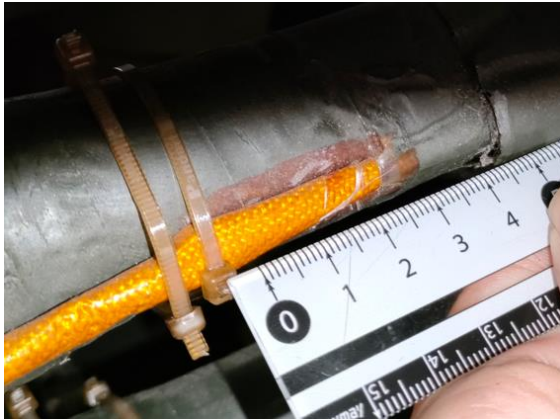
- **Accelerated ageing** of PU jacks used for magnet alignments, reproduce and understand the failures



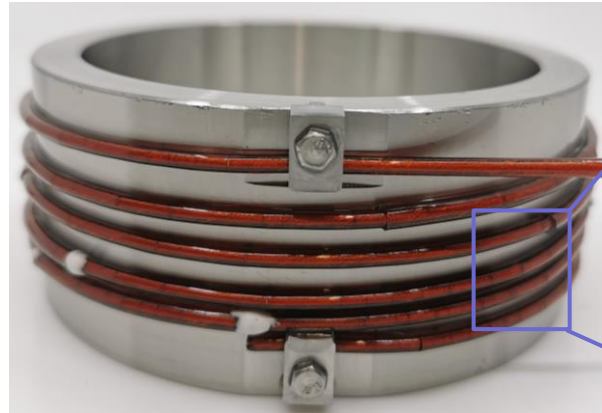
Ageing



- Environmental stress cracking of TPI HV wires in superconducting magnets (ITER project), reproduce the failure conditions and define the limitations



Real case

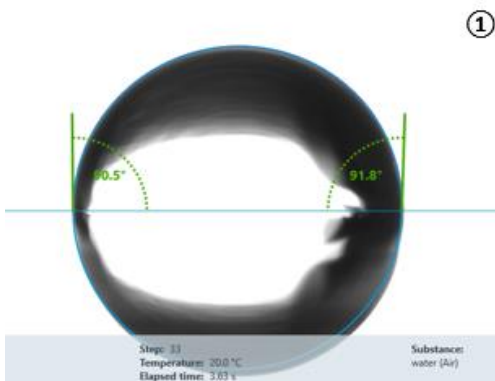


Test set-up

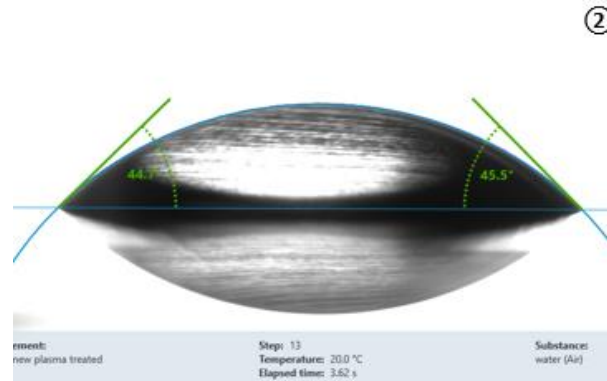


ESC

- Study of the adhesion (surface energy and tension) between several materials with different treatments (e.g. plasma), useful for bonding improvement or coils impregnation



Copper



Copper plasma treated

