

Polymer Laboratory Weekly Meeting Summary – 15.8.2024

➤ General information:

- Polymer laboratory barbecue next week
- Section meeting next Tuesday on:
 - o Achievements of building 927
 - o Achievements of Polymer Lab
- PSI visit by C. Urscheler and C. Scheuerlein:
 - o Psi are focused currently on particle-reinforced wax impregnations and stress-managed coils.
 - o Posters noted on various magnets which exhibit no training.
 - o C. Urscheler and C. Scheuerlein went to see main accelerator and resin lab.
 - o Concept of alumina particle dispersion involves polar groups in the wax forming micelles around alumina particles (45 Vol.%), producing a homogeneous dispersion of particles.
 - o Visit report to be produced.

➤ Operation & Services:

- Kirtana cable finished, impregnated with POLAB-Mix, there is one currently being impregnated.
- A silicone-based mould coating for RF cavity resistor project is being prepared.
- Septa first impregnation with POLAB-mix being conducted tomorrow. Around 20 to make.
- SLA:
 - o Miniatures of the Science Gateway ordered by the DG
 - o Order of 80 parts, another for 20
 - o Makrolon part ordered
 - o Drone component ordered
- Models of encapsulated cables being prepared. We aim to improve the surface quality of the 3D-Printed moulds and include writing.
- SMC109 has been handed over. Both it and the previous one had evidence of some void content. Could be worth impregnating one vertically in the TELSTAR machine.
- Received grids for storage area.
- Carried out partial discharge tests on Boris tube, which had evidence of surface discharges, as well as internal discharges at 10kV. A new test geometry will be attempted to avoid the occurrence of surface discharges. See attached presentation for results.
- PEEK electrical testing (breakdown/spectroscopy) samples for Stefano Marzari ready.

➤ Projects (R&D):

- Viscosity tests performed on CTD101K with alumina particles, evidence of significant sedimentation of particles after around 30 minutes. The location from which the epoxy was taken affected the viscosity.
- SilicaFume could stop sedimentation but increases viscosity significantly.
- 10-stack with a double-layer of reacted quartzel insulation.
- Plates of desized (plasma) quartzel tissue being prepared for mechanical tests.
- FTIR Measurements by C. Urscheler and V. Schenk to determine the chemical composition of chemicals found in the lab.