Topic 1: Physical Phenomena, Materials

Material Testing: Impact on Type Tests and Routine Tests

Volker Werle, TenneT, Germany

Workshop Jicable HVDC'16, Friday, August 26, 2016 - Paris - France

Topic 1: Physical Phenomena, Materials

TB 496 states in clause 4.3 Non-electrical type tests:

> *The cable system shall be subjected to the applicable non-electrical type testing as specified in IEC 62067*

This material tests are based on experience in AC cable systems and do not reflect on effects like:

- Change of material properties under the influence of electrostatic fields
- Material diffusion under electrostatic fields
- Aging due to electrostatic fields (e.g. electrophoreses)

In addition all our cable systems undergo fast temperature changes due to the fluctuating wind load. This may also have an impact on the long time perfromance

PQ-Test and Type Tests are performed under the assumption that material incompatibilities will result in a failure of the test.

This may not always be true

Topic 1: Physical Phenomena, Materials

As there are a multitude of materials used, a lot of them supplier dependent, a general approach of material test regimes is needed

Two objectives for material testing :

- Improving the significance of type testing
- routine testing to control quality