

## **INTRODUCTION**

This document serves to provide a copy of the test and inspection report conducted on the 15 May 2017 at Olympus Transmission Station by Ferdinando Salvoldi of Mace Technologies and Pine Pienaar of Eskom Glockner Depot. The aim of the inspection was to ascertain whether the coating that was applied from August to December 2003 to all the switchgear insulation still holds its hydrophobic qualities.

## **TEST TECHNIQUE**

The test is a very simple employing a plastic bottle with a squirt mechanism and clean water in it. The surfaces of the silicon coated porcelain pieces are then sprayed with the clean water and the quality of the hydrophobicity is checked. This in other words means that we want to check the capability of the coating to prevent the continuous wetting of the entire surface of the coated specimen. We also want to observe that there is still an acute angle of contact between the water molecules and the coated surface.

## **RESULTS**

On the day of the inspection there were no equipment bays out of service and we could therefore not climb the structures for closer inspection. Various pieces of equipment insulation were squirted from ground level and observed. The water practically jumped off the surfaces. We also only took a couple photos with a cellular phone of the bottom sections of the insulation, but they are not the best quality pictures. The hydrophobicity is still very good and if you enlarge the attached photos you will observe that on the edges of the insulators the water droplets still bubble up, especially on the added silicon shed extenders which we expected. The contact angle of the water droplets on the surfaces are still more than satisfactory.

If you look at image 0379 you will observe the water droplet collection between shed 1 and 2 from the bottom on a Transformer bushing. It clearly displays a Wettability Class of between WC2 and WC3 which is still very acceptable. When you get to WC5 and WC6 then the silicone rubber coating has reached the end of the advantages and protection it offered.

## **CONCLUSION**

After application of the coating 14 years ago, Mace explained to the Eskom operating staff that we were confident the coating would perform for 10 years and that no cleaning or washing of the coated equipment was necessary. Mace Technologies are therefore very happy that the material has kept on performing well after the 10-year mark and that the surfaces still display a hydrophobic characteristic. It would be prudent to do another check in 2 years' time.

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