



Research Assignment Project

Study on the Performance of High Voltage Insulator Coating (HVIC) for TNBD (TNB 148/99/53)

Site	ESDD	Hydro	Thickness	Gloss	Visual
Perak	Good	Good	Fair	Good	No mechanical damage
Johor	Good	Good	Fair	Good	
Kelantan	Good	Good	Fair	Good	
Pahang	Good	Good	Fair	Good	

Summary of the ESDD, Hydrophobicity Thickness, Gloss and Visual Inspection after 3 months of installation

	Bad	Fair	Good
ESDD (mg/cm ²)	>0.12	0.06-0.12	<0.06
Hydrophobicity	6-7	4-5	1-3
Thickness Reduction (%)	>10	6-10	<5
Gloss Reduction (%)	>10	6-10	<5

Criteria for the Classifications

Project Overview

Insulators are used to provide clearance between the conductor and the metal structure of the poles. There are two types of insulator configurations, which are suspension type and tension type. One of the key factors that affect the life of the insulator is the environment. A highly polluted area will accelerate the failure of the insulator. A failed insulator will snap from the pole and cause tripping on the system. The project is a research conducted on this new coating material to assess its integrity and performance under various environmental conditions in Malaysia. This is to improve the asset reliability, which eventually will reduce the unplanned outage in TNB due to insulator failure and extend the life of the insulator. In addition, the research is knowledge advancement in insulator maintenance and aims to devise a new method in extending the life of the insulator.

Deliverables

The deliverables as specified by the Customer are as follows:-

1. Presentation on the findings and results of the HVIC coating performance. The presentation will also include proposed maintenance guideline to TNBD for corrosion protection on insulators.
2. Reports on the condition and performance of the high voltage insulator coating applied on 33kV insulators.

Benefits

The initial plan is to coat the whole Rompin line with the proposed HVIC coating based on the manufacturer/supplier recommendation. The project has assessed the coating material and prevented the installation for the remaining poles because of its poor performance. The cost savings was around RM450,000