

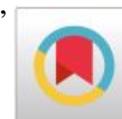


A REVIEW OF EXPERIMENTAL STUDY AND PERFORMANCE OF INSULATOR USING VARIOUS COATING MATERIALS

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Abstract:

Pollution flashover is a critical problem which affects the safety of operation of power system. In order to prevent pollution flashover accidents of outdoor insulation devices, a series of anti-pollution coatings got application. Different alternatives are used to improve the behavior of the electrical insulation used in transmission lines and thus reduce or prevent the transmission line outages caused by pollution.

Keywords:

Word- Insulator, Asbestos Electrical Insulation, Porcelain.

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1. INTRODUCTION

First of all we take a simple pin insulator, the insulator is connected to High voltage source and the voltage is increased gradually. When the breakdown occurs, the reading is noted. After this the insulator is polished with asbestos material and the same procedure of applying the high voltage was followed. In the second phase the insulator was polished with porcelain material and was subjected to high voltage to see the break down. The purpose of performing this experiment on an insulator with and without coatings is to evaluate the performance of the insulator from the point of view of breakdown. It is expectance that with the treatment of insulating materials the breakdown capacity shall increase to a substantiate value.



Figure 1: Asbestos electrical insulation

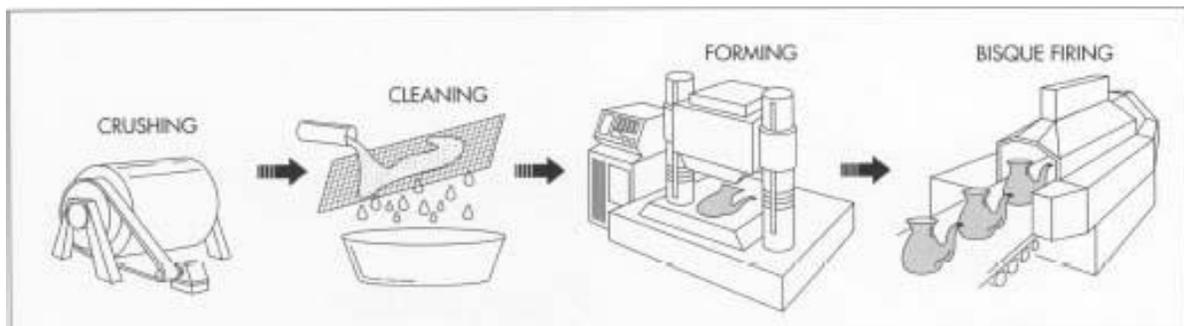


Figure 2: Make porcelain



Figure 3: Coated insulator testing in H.V. Lab

Experiments are to be carried in high voltage lab of JEC (JABALPUR ENGINEERING COLLEGE, JABALPUR) in EE Department Jabalpur.

2. LIST OF PRODUCTS USING ASBESTOS ELECTRICAL INSULATION

Lightweight asbestos insulation is of primary importance on Naval and Maritime ships. Navy cable insulation is of particular importance; it is a combination of asbestos paper and textile products (lap, tape, etc.)

Table 1: Classification of electrical insulation

Class	Insulating Material	Maximum Temperature degF
O	Organic, not impregnated	195
A	Organic, impregnated	220
B	Inorganic, organic binder	265
H	Inorganic, silicone binder	355
C	Completely inorganic	355+

3. REFERENCES

- [1] M. R. Guarniere, A. Posati, J-M George, S. Prat and G. de Simone, "First Experience with Factory Coated Glass Insulators on the Italian Transmission Network", presented at the Insulator News and Marketing Report (INMR) World Congress & Exhibition on Insulators, Arresters & Bushings, Rio de Janeiro, Brazil, 2007.
- [2] R.S. Gorur, J.W. Chang and O. G. Amburgey, "Surface Hydrophobicity of Polymeric Materials used for Outdoor Insulation Applications", IEEE Trans. Power Delivery, Vol. 5, No. 4, pp. 1921-1933, 1990.
- [3] H. M. Schneider, J. F. Hall, C. L. Nellis, S. S. Low and D. J. Lorden, "Rain and Contamination Tests of HVDC Wall Bushings with and without RTV Coating", IEEE Trans. Power Delivery, Vol. 6, No. 3, pp. 1289-1300, 1991.
- [4] S. J. Clarkson, J. J. Fitzgerald, M. J. Owen, S. D. Smith, M. Van Dyke, Synthesis and Properties of Silicones and Silicone-modified Materials, Published by American Chemical Society, Washington, DC, 2003.