

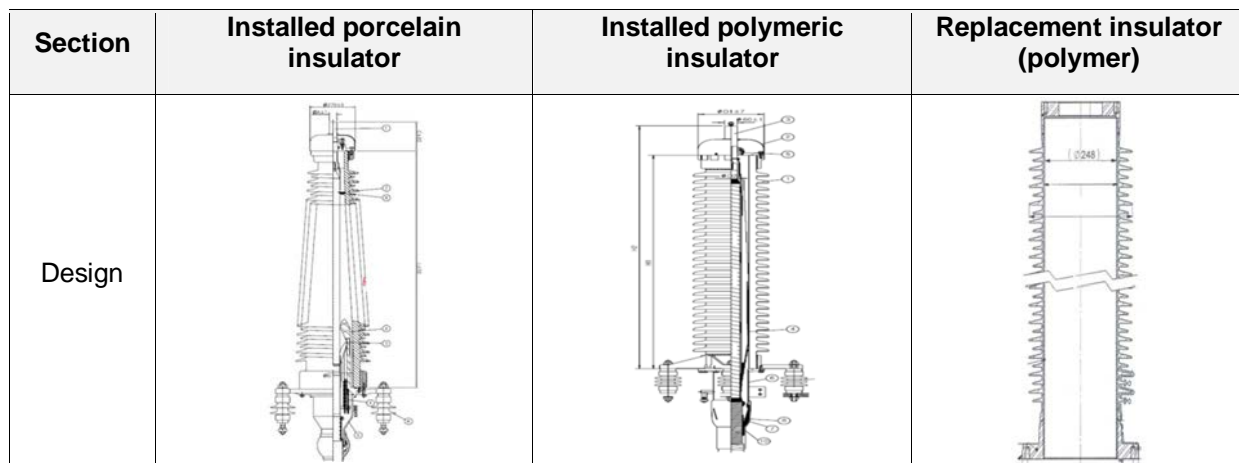
Replacement of porcelain bushings with polymeric bushings in HV underground XLPE cable termination box

Kim JAE SEUNG (1) Roh TAE HYUENG (1) Kim DONG KYU (1) Kim JIN (1) Kim YOUN CHAN (1)

1 KEPCO Company, Yeongdongdaero Gangnam-gu, seoul Korea, kimjae@kepcoco.kr, danpung@kepcoco.kr, dongq@kepcoco.kr, jinyjiny@kepcoco.kr, chanchany@kepcoco.kr

Nowadays, because of the NIMBY syndrome it has trouble in selecting the line route of the overhead transmission line. Further on the reason of its convenience in extension and maintenance, the underground transmission line has been increased. As the underground power system increases, we have endeavored much to secure the high technology of the grid operation and to prevent the cable failure in O&M.

In the past, we applied the porcelain insulators type to XLPE termination box. Now, however, we have installed polymeric insulators type termination box since in 2004. This change was made mainly due to the high possibility of other facilities or lives damage from scattered porcelain by explosion (Secondary damages happened about 5 times). Moreover the polymeric type is lighter, and have the better damp-proofing and stain-proofing compared to the polymeric type.



KEPCO developed the polymeric insulator so that the only insulator would be replaced, instead of replacing the full set of termination box. This improves the cost-efficiency of the replacement of the terminal box dramatically. The developed polymeric insulator is now, in 2014, under the field test for checking its stability. KEPCO is planning to replace all porcelain insulators to polymeric type gradually. The polymeric insulator was tested in accordance with IEC international standard;

- Type test
- Tests on interfaces and connections of end fittings
- Tests on shed and housing material
- Bending test, tests on the tube material, Internal pressure test
- Check of the interface between end fittings and the housing, and so on

As mentioned above, this paper will mainly present the necessity for the replacement of the porcelain insulator, construction methods for the polymeric insulator, and the result of its field test.

KEYWORDS: porcelain insulator, polymeric insulator, replacement insulator, termination box