Annex F
Use of laboratory test methods

The relevant test method to be used is selected according to the type of pollution at the site, the type of insulator and the type of voltage. The tests given in IEC 60507 and IEC 61245 are directly applicable to ceramic and glass insulators. Up to now, there is no standard test directly applicable to polymeric insulators. As a general rule, the solid layer test is recommended for type A pollution and the salt-fog test for type B pollution.

The pollution severity used in the laboratory test is determined in three steps:

1) The pollution type present and the site pollution severity are determined by assessing the pollution at a site, as described in clause 9 and annexes C, D and E.

2) The site pollution severity level is corrected for any deficiency or inaccuracy in the determination of the SPS. The correction factors shall compensate for:
   - Differences in pollution catch of the insulator used for the site pollution severity measurement and the insulator to be tested, e.g. the influence of shed profiles and diameters;
   - Differences in types of the voltage applied on the insulator used for the site pollution severity measurement and the insulator to be tested, e.g. d.c. or a.c. voltage;
   - Other influences of importance.

3) The required pollution severity at which the laboratory test is performed is derived from the SPS to compensate for the differences between the actual in-service conditions of the insulation and those in the standard tests. These correction factors shall compensate for:
   - Difference in pollution type of the pollution deposit at site and in the test;
   - Differences in the uniformity of the pollution deposit at site and in the test;
   - Differences in the wetting conditions in service and those during the test;
   - The differences in the equipment assembly.

Other influences of importance may include:
   - The effect of ageing on the pollution catch and wettability of the insulation during the expected lifetime
   - The statistical uncertainty of performing a limited number of tests to verify the required pollution severity withstand level.

These are the general principles of this process. Details and guidance on the choice of values for the correction factors are provided in the further parts of this publication.

The use of non standard, or customised, laboratory pollution test methods may be considered, if agreed between the suppliers and customers. More information on such methods can be found in CIGRÉ 158 [1].