On-site partial discharge diagnostics of medium voltage power cables

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Resume
Ce Rapport compare deux méthodes d'essai à haute tension pour des câbles à moyenne tension, utilisant (a) des tensions à 50 Hz CA, (b) des ondes oscillantes à haute tension. Les deux méthodes détectent des décharges partielles (DP). Aussi, fondé sur les résultats de détection de DP, on traitera des aspects importants pour l'interprétation de données au regard de la détermination de la condition de l'isolation électrique du câble.

INTRODUCTION
On-site after-laying tests on medium voltage power cables are increasingly important issues for power utilities. Therefore, during a limited time interval e.g. 5 minutes up to 60 minutes voltages of 1.0 till 2.0 at AC power frequencies are applied to the cable sample.

Abstract
This paper compares two methods for HV on-site testing and PD analysis of in medium voltage power cables:
(1) energizing using 50 Hz AC voltages,
(2) charging using HV oscillating waves.
Based on results of PD detection and advanced analysis important data interpretation aspects for insulation condition determination are discussed.

It is known from practice, that occasionally cables may breakdown despite the fact that they have passed all withstand voltage tests. In that case such failures are mostly related to insulation defects, which occur in the cable or cable accessories. The presence of such defects even if they are discharging does not imply that a test of several minutes at enhanced voltage stress is