

Reliability and high temperature performance in Nuclear Power Plants

ABB and DuPont™ NOMEX® improve reliability and thermal performance
in power transformers

Application

- Generator excitation transformer in nuclear power plant substation.

Requirements

- 5 MVA units.

Configuration

- Liquid-filled, hybrid insulation systems with NOMEX® brand paper and cellulosic pressboard.

Characteristics

- higher-temperature performance
- higher overloadability
- longer operating service life
- increased reliability under demanding operating conditions

ABB increases reliability with NOMEX® insulation systems

Alone or in hybrid solutions with cellulosic pressboard, systems based on NOMEX® thermal technology maintain excellent electrical, thermal and mechanical characteristics over a transformer's service life. Negligible ageing, high resistance to shrinkage and compression, excellent dynamic mechanical strength of NOMEX® brand paper all help ensure coil structures will remain tight and are able to withstand short-circuit forces, even after years of service.



ABB transformer coil insulated with NOMEX® brand paper ready to ship and install.

ABB improves high temperature capability with NOMEX® brand paper

NOMEX® paper allows transformers to be built with higher capacity or increased overload tolerance in a given unit size, improving the capability to operate efficiently at high temperatures.

ABB increases service life time with NOMEX®

Since transformers were first invented, their design and manufacturing processes have been in constant evolution to meet the changing needs of the users and the distribution networks. This has benefited from the parallel evolution of

materials. ABB know-how allied to DuPont NOMEX® Thermal Technology, already proven in motors, generators and dry-type transformers for over thirty years, offer a variety of solutions including liquid filled and hybrid insulation transformers with extended service life.

Conclusions

Customer feedback indicates that, at critical stages of nuclear power generation, NOMEX® brand paper and pressboard help ABB transformers deliver following benefits to the operators: longer service life with higher reliability, reduced vulnerability, more overload capacity and



Installed ABB substation power transformer rated 5 MVA.

operational flexibility, reduced load and no-load losses and increased power for a given unit size or available space.

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Product safety information is available upon request.

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