

## Important information regarding miscibility of Nynas Nova Grades with old Nynas Grades

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To whom it may concern

Nynas is currently introducing new transformer oils, the Nova Grades. The new product range is the result of considerable product development during the years 2005-2007.

The Nova Grades are an answer to a growing demand from markets all over the world. The key benefit of all Nova Grades is the good performance regarding copper corrosion. The Nova Grades also offer good to excellent oxidation stability.

New test methods for corrosion stability have been developed by ASTM and Cigré/IEC respectively. These are soon expected to be part of the oil specifications IEC 60296 and ASTM D3487. By choosing the mentioned Nynas grades you can be assured to receive oil that fulfils the new requirements.

When new requirements based on these tests are introduced a new situation occurs regarding miscibility of old and new grades. In the past the general rule was that different new mineral insulating oils complying with the same specification and class were considered miscible in all proportions. This still applies for all properties except corrosion stability. With classes within transformer oil specifications is meant for example:

- Inhibited IEC 60296/03 general application
- ASTM D3487 Type II

The new requirements for corrosion stability are much more severe than the existing ones and this create a new situation. Small amounts of oil not complying with these requirements may damage this property of the new grades that do comply. In order to secure the excellent corrosion stability of the new grades you need to take certain measures.

Before an oil change, please make sure that all system used for oil handling, including storage tanks, lines, oil treatment equipment, etc are completely emptied before receiving a new grade.

A special case is when manufactured units are impregnated and tested with an old grade and to be filled at delivery site with a new grade. Different options have to be considered for different cases, e.g. flushing, passivation, etc.

For systems where remaining volumes after emptying are uncertain a flushing with the new grade may be necessary. Confirmation of a successful transition is recommended to be made by one of the new corrosion tests.

It is in the interest of Nynas and all customers that the performance of the Nova grades with regard to corrosion is preserved all the way from manufacturing to final application.

Best regards,

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