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## GB/T 33540.4-2017

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### Lubricants for wind turbine - Part 4: Hydraulic oils

风力发电机组专用润滑剂

第4部分：液压油

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## Lubricants for wind turbine - Part 4: Hydraulic oils

### 1 Scope

This part of GB/T 33540 specifies the product variety and identification, requirements and test methods, inspection rules, marking, packaging, transportation and storage of hydraulic oil for wind turbines.

This part applies to the hydraulic oils used in such hydraulic systems as braking, transmission and pitching for wind turbines.

### 2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

GB/T 260 Petroleum products - Determination of water

GB/T 265 Petroleum products - Determination of kinematic viscosity and calculation of dynamic viscosity

GB/T 1884 Crude petroleum and liquid petroleum products - Laboratory determination of density - Hydrometer method

GB/T 1885 Petroleum measurement tables

GB/T 1995 Petroleum products - Calculation of viscosity index

GB/T 2433 Petroleum products - Lubricating oils and additives - Determination of sulphated ash

GB/T 2541 Petroleum products; Computation table for viscosity indices

GB/T 3141 Industrial liquid lubricants - ISO viscosity classification

GB/T 3535 Petroleum products - Determination of pour point

GB/T 3536 Petroleum products - Determination of flash point and fire point - Cleveland open cup method

GB/T 4756 Method for manual sampling of petroleum liquids

GB/T 4945 Standard test method for acid and base number of petroleum products and lubricants by color indicator titration

GB/T 5096 Petroleum products - Test method for copper strip corrosion

GB/T 6540 Petroleum products - Determination of color

GB/T 7304 Standard test method for acid number of petroleum products by potentiometric titration

GB/T 7305 Standard test method for water separability of petroleum oils and synthetic fluids

GB/T 11143 Standard test method for rust-preventing characteristics of inhibited mineral oil in the presence of water

GB/T 12579 Determination of foaming characteristics of lubricating oils

GB/T 12581 Standard test method for oxidation characteristics of inhibited mineral oils

GB/T 14039 Hydraulic fluid power - Fluids - Method for coding the level of contamination by solid particles

GB/T 14832 Test methods for compatibility between hydraulic fluids and standard elastomeric materials

DL/T 432 Determination of particulate contamination in oil

NB/SH/T 0306 Assessment for bearing capacity of lubricating oil - FZG visual observation

NB/SH/T 0870 Determination of dynamic viscosity and density of petroleum products as well as calculation of kinematic viscosity - Stabinger Viscometer

SH/T 0103 Standard test method for shear stability of polymer containing fluids using a European diesel injector apparatus

SH 0164 Petroleum products - Rules for packaging, storage, transportation and handover acceptance

SH/T 0209 Determination of thermal stability of hydraulic oil

SH/T 0210 Hydraulic oil filterability test method

SH/T 0301 Determination method for hydrolytic stability of hydraulic liquid (Glass bottle method)

The type inspection is carried out in the following cases:

- a) In case of new product putting into production or product finalization authentication;
- b) In case of major changes of raw materials, processes and so on that may affect the product quality;
- c) In case of major difference between the exit-factory inspection results and the last type inspection results.

## **5.2 Batching**

Under the conditions that the raw material and process are not changed, each can or kettle of products is deemed as a group (batch).

## **5.3 Sampling**

CONDUCT sampling in accordance with GB/T 4756, AND the sampling volume shall comply with the volume requirements for the samples for exit-factory inspection or type inspection and reservation.

## **5.4 Judgment rules**

If the exit-factory inspection results and the type inspection results comply with the technical requirements of Chapter 4, this batch of products shall be deemed as qualified.

## **5.5 Re-inspection rules**

If there is an item of exit-factory inspection and type inspection failing to comply with the technical requirements of Chapter 4, FOLLOW the requirements of GB/T 4756 to re-take double number of samples for the purposes of re-inspection. If the re-inspection results still fail to comply with the technical requirements in Chapter 4, this batch of products will be deemed as disqualified.

# **6 Marking, packaging, transportation and storage**

The marking, packaging, transportation and storage, and handover acceptance of this product shall follow the requirements of SH 0164.

\_\_\_\_\_ **END** \_\_\_\_\_

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