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**Technical requirements of water collecting device for wet  
cooling tower  
(English Translation)**

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## Foreword

This standard is in accordance with GB/T 1.1-2009 "Guidelines for Standardization Part 1: Standard Structure and Compilation" Drafting of rules.

Please note that certain contents of this document may involve patents. The issuing agency of this document is not responsible for identifying these patents.

This standard was proposed by the China Electricity Council.

This standard is under the jurisdiction of the Power Plant Steam Turbine Standardization Technical Committee.

The main drafting organizations of this standard. Changzhou Jintan Plastic Factory, Xi'an Thermal Power Research Institute Co., Ltd., China Power Engineering Consultants Group Southwest Electric Power Design Institute Co., Ltd.

## 1 Scope

This standard specifies the manufacturing, quality inspection, packaging, storage and transportation of related products for wet cooling tower high-position water collection devices the basic requirements.

This standard is applicable to the splash guard of polypropylene material and the water collecting slope of polyvinyl chloride material in the high-position water collection device of wet cooling tower.

Board and fiber reinforced plastic (glass reinforced plastic) materials such as sinks.

## 2 Normative references

The clauses in the following documents become clauses of this standard after being quoted in this standard. For all dated reference documents, all subsequent amendments (excluding errata content) or revisions do not apply to this standard, however, it is encouraged to follow this standard the parties to an agreement will study whether the latest versions of these documents can be used. For undated references, the latest the version applies to this standard.

GB/T 1033.1 Determination of the density of plastic non-foam plastics Part 1: Immersion method, liquid pycnometer method and titration method GB/T 1040.2 Determination of tensile properties of plastics Part 2: Test conditions for molding and extrusion plastics GB/T 1447 Test method for tensile properties of fiber reinforced plastics GB/T 1449 Test method for bending performance of fiber reinforced plastics GB/T 1462 Test method for water absorption of fiber reinforced plastics GB/T 1463 Fiber-reinforced plastic density and relative density test method GB/T 2406.1 Determination of combustion behavior of plastics by oxygen index method Part 1: Guidelines GB/T 2576 Test method for insoluble content of fiber reinforced plastic resin GB/T 2577 Test method for resin content of glass fiber reinforced plastics GB/T 2828.1 Sampling Inspection Procedures by Attributes Part 1: Batch-by-Batch Inspection Sampling Searched by Acceptance Quality Limit (AQL) Sample plan GB/T 3854 Barcol hardness test method for fiber reinforced plastics GB/T 6671 Thermoplastic pipe longitudinal shrinkage determination GB/T 8924 Test method for burning performance of fiber reinforced plastics Oxygen index method DL/T 933 Cooling tower water spray filler, water remover, spray device performance test method

## 3 Terms and definitions

Water collecting device Installed under the high-position water-receiving cooling tower's sprinkling filler to collect falling water to achieve a high-level interception combination, composed of a water-receiving inclined plate and a water-proof it is composed of splasher, sink and other components.

Anti-splashing packs it is a device that is laid on the water-receiving sloping board to prevent the water droplets falling from the water-sprinkling filler from splashing.

Cladding plate

Installed at a certain inclination between the sprinkling filler and the water collection trough, intercepts and diverts the water droplets falling from the sprinkle filler to the corrugated plate of the water collection trough.

Collecting gutter

Installed under the water collecting sloping plate to collect the cooling water flowing out of the water collecting sloping plate, the glass fiber reinforced plastic water tank is generally U-shaped flow section.

Splashing water rate the percentage of water splashing outside the splash guard in unit time to the circulating water volume.

## 4 General

### 4.1

The products of wet cooling tower high-position water collection device shall meet the following requirements during long-term production and operation.

- a) Does not soften and deform under the condition of 65°C water temperature;
- b) It has sufficient rigidity, strength and good aging resistance. Under normal operating conditions, the product geometry the shape, performance index and installation and connection should be kept stable for a long time;
- c) No rupture or water leakage within the normal service life;
- d) It should have good flame retardant properties;
- e) The normal service life of the splash guard should be no less than 12 years; the normal service life of the water collection ramp should be no less than 20 years;

The normal service life of the tank should not be less than 30 years.

### 4.2

The overall mechanical properties of the water collection sloping plate, water collection trough and their supporting parts should meet the requirements of structural strength design calculations to ensure cooling the operation of the tower is safe.

### 4.3

In addition to complying with this standard, the products of the wet cooling tower high-position water collection device should also comply with the current national and industry regulations, Specifications and related regulations.

## **5.1 Splash guard**

### **5.1.1**

General technical requirements.

- a) The splash guard should be UV-resistant and corrosion-resistant, and will not be deformed or damaged under water scouring within the normal service life;
- b) The appearance and color of the splash guard should be uniform, plasticization, no obvious color difference and overheated color. There should be no obvious Defects such as injuries, impurities, and discoloration lines;
- c) The geometric dimensions should meet the design requirements. The module has a regular contour, the allowable deviation of the width dimension is  $\pm 3\text{mm}$ , and the length dimension the allowable deviation is  $\pm 5\text{mm}$ , and the allowable deviation of the height dimension is  $\pm 2\text{mm}$ .

### **5.1.2 Physical and mechanical properties**

The physical and mechanical properties of the splash guard should meet the requirements of Table 1.

## **5.2 Water collecting inclined plate**

### **5.2.1**

General technical requirements.

- a) The water-receiving inclined plate should be anti-ultraviolet, corrosion-resistant, and will not deform or crack under long-term water scouring;
- b) The appearance and color of the water collecting inclined board should be uniform, plasticization, no obvious color difference and overheated color;
- c) The surface of the water collecting inclined plate should be smooth and flat. There should be no bubbles with a diameter of more than 2mm and a particle size of less than 1mm the number of impurities on the surface, bubbles below 2mm in diameter and impurities within 1mm in diameter should not exceed 30/m<sup>2</sup>, the dispersion degree should not exceed 5/(10cmx10cm);
- d) The geometric dimensions of the water-receiving inclined plate should meet the design requirements, the outer contour should be a regular rectangle, and the allowable width deviation is  $\pm 3\text{mm}$ , the allowable deviation of length is  $\pm 4\text{mm}$ , and the thickness should not be less than 3mm.