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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

DL/T 805.4-2016

**Guideline for cycle chemistry in fossil plants - Part 4: Feedwater
treatment**

火电厂汽水化学导则 第4部分：锅炉给水处理

(English Translation)

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Foreword

DL/T 805 "Guideline for cycle chemistry in fossil plants" is divided into 5 parts.

Part 1. Oxygenated treatment for feed-water system of boiler;

Part 2. Phosphate treatment for drum units;

Part 3. Caustic treatment for drum units;

Part 4. Feedwater treatment;

Part 5. All volatile treatment for drum units.

This part is the fourth part of the DL/T 805. As compared with DL/T 805.4-2004, except for editorial changes, the main contents of this revision are as follows.

- DELETE ORP terms that are not easily measured accurately.
- ADD testing provisions for chloride ions in feedwater.
- ADD testing provisions for TOCi in feedwater.
- MODIFY the indicators such as hydrogen conductivity, pH, iron, copper and sodium content.
- DELETE the treatment method of OT in the feedwater to the drum boiler having a superheated steam pressure at 12.7 MPa ~ 15.6 MPa.
- ADD the hydrogen conductivity index of feedwater at the start of boiler.

This part was written in accordance with the requirements of GB/T 1.1-2009.

This part was proposed by the China Electricity Council.

This part shall be under the jurisdiction of the Power Industry Electrical
Chemical Standardization Technical Committee.

Drafting organizations of this part. Xi'an Thermal Power Research Institute Co.,
Ltd., Jilin Electric Power Co., Ltd. Electric Power Research Institute.

1 Scope

This part of the DL/T 805 gives the principles and control indicators for the
treatment of feedwater during operation and startup of thermal generator set.

This part of DL/T 805 is applicable to the feedwater treatment of the steam drum
boilers with superheated steam pressures of 3.8 MPa (gauge pressure) and
above as well as the direct flow boilers of 5.9 MPa (gauge pressure) and above.

This part of the DL/T 805 does not apply to the feedwater treatment of gas-
steam combined cycle units.

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 536 Liquid anhydrous ammonia

GB/T 631 Chemical reagent - Ammonia

GB/T 6904 Water used in industrial circulating cooling system and boiler -
Determination of pH

GB/T 6906 Methods for analysis of water for boiler and for cooling - The
determination of hydrazine

GB/T 6909 Analysis of water used in boiler and cooling system -
Determination of hardness

GB/T 12149 Water for industrial circulating cooling system and boiler -

Determination of silica

GB/T 12155 Analysis of water used in boiler and cooling system -

Determination for sodium - Dynamic method

GB/T 13689 Water for industrial circulating cooling system and boiler -

3.4

Flow-accelerated corrosion (FAC)

Under specific conditions, the fast corrosion of carbon steel in high speed water flow.

3.5

Feed water system without copper alloys

The feedwater system whose components and equipment coming into contact with the boiler feedwater do not contain copper or copper alloy.

Note: Metal materials contain less than 1% copper and are considered copper-free materials.

3.6

Feed water supply system with copper alloys

The feedwater system whose components and equipment coming into contact with the boiler feedwater contain copper or copper alloy.

3.7

Total organic carbonion (TOCi)

The sum of the total carbon content in the organic matter and the other heteroatom content of the anion after oxidation.

4.1 The water supply treatment method shall be selected in accordance with the material characteristics, furnace type and feed water quality based on the following principles.

- a) For feed water system with copper alloys, it should use the AVT(R).
- b) For feed water system without copper alloys, it should use the AVT(O).
- c) For the feed water system without copper alloys which is equipped with

condensate polishing device and the feedwater hydrogen conductivity meets the requirements of feedwater oxygenated treatment, it should use the OT.

4.2 Feedwater treatment shall have the following effects.

of the ammonia addition point, with the distance to the ammonia addition point not less than 50 times the condensate pipe diameter. Its pH is controlled in the range of 8.8 ~ 9.1. The second ammonia addition point shall be set on the deaerator down-comer, and downstream the deaerator outlet sampling point, it shall control the pH of the economizer inlet feedwater in accordance with the provisions of Table 1.

7.1.3 The amount of ammonia added should be controlled in accordance with the conductivity of water after ammonia addition.

7.2.1 The quality requirements for hydrazine shall be in accordance with HG/T 3259.

7.2.2 The method of adding hydrazine shall be selected in accordance with the following provisions.

- a) For the feed water system with copper alloys, the hydrazine addition point should be located at the inlet tube of the shaft seal heater, it shall control the hydrazine content of the feedwater at the deaerator inlet to meet the requirements of Table 1;
- b) For the feed water system without copper alloys, the hydrazine addition point should be located at the deaerator down-comer and downstream of the deaerator outlet sampling point, it shall control the hydrazine content of the feedwater at the economizer inlet to meet the requirements of Table 1.