ISO/TS 21152:2024-12 (E)

Guidance on water conservation techniques of circulating cooling water in thermal power plants

Contents

Page

Foreword ..... **iv**

Introduction ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms, definitions and abbreviated terms **1**

3.1 Terms and definitions 1

3.2 Abbreviated terms 1

4 General **2**

5 Circulating cooling water quality recommendations **2**

5.1 Water quality recommendations of make-up water 2

5.2 Water quality recommendations of circulating cooling water system 2

6 Technical guidance for water conservation of circulating cooling tower **4**

6.1 Basic guidance 4

6.2 Guidance for treatment of circulating cooling with water quality stabilizer 4

6.2.1 General 4

6.2.2 Scale and corrosion inhibition technology 4

6.2.3 Microbial control technology 5

6.3 Technical guidance for increasing cycles of concentration 6

6.3.1 General 6

6.3.2 Lime treatment 6

6.3.3 Weak acid cation resin treatment 7

6.3.4 Membrane treatment 7

6.4 Technical guidance for reducing water loss 8

7 Guidance for managing water conservation of circulating cooling water **8**

7.1 Guidance for detection and measurement instrumentation 8

7.2 Water utilities management 9

Annex A (informative) **Dynamic simulation test of scale and corrosion inhibitor** **10**

Annex B (informative) **Make-up water quality recommendations of circulating cooling water** **13**

Annex C (informative) **Scale and corrosion inhibition test of water treatment agents (laboratory evaluation test)** **15**

Annex D (informative) **Calculation of cycles of concentration** **18**

Annex E (informative) **Carbonate hardness limit selection test and cycles of concentration limit test** **19**

Annex F (informative) **Calculation of side-stream filtration volume and side-stream softening desalination volume** **20**

Annex G (informative) **Calculation of concentration change with time in intermittent dosing** **22**

Bibliography **23**