

# ISO 10270:2022-02 (E)

## Corrosion of metals and alloys - Aqueous corrosion testing of zirconium alloys for use in nuclear power reactors

---

<b>Contents</b>		<b>Page</b>
<b>Foreword</b>		<b>iv</b>
<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Normative references</b>	<b>1</b>
<b>3</b>	<b>Terms and definitions</b>	<b>1</b>
<b>4</b>	<b>Principle</b>	<b>2</b>
<b>5</b>	<b>Significance</b>	<b>2</b>
<b>6</b>	<b>Interference</b>	<b>2</b>
<b>7</b>	<b>Reagents and materials</b>	<b>2</b>
<b>8</b>	<b>Apparatus</b>	<b>3</b>
<b>9</b>	<b>Hazards</b>	<b>3</b>
<b>10</b>	<b>Sampling, test specimens and test units</b>	<b>3</b>
<b>11</b>	<b>Preparation of apparatus</b>	<b>4</b>
<b>12</b>	<b>Calibration and standardization</b>	<b>4</b>
12.1	High mass gain coupon preparation	4
12.2	Autoclaves	4
12.3	Use of control coupons	7
12.4	Calibration	7
<b>13</b>	<b>Conditioning</b>	<b>7</b>
13.1	Test water quality	7
13.2	Autoclave load restrictions	8
13.3	Test conditions	8
13.3.1	Temperature	8
13.3.2	Pressure	8
13.3.3	Time	8
13.3.4	Tests	8
13.4	Specimen preparation	8
13.4.1	Etched specimens	8
13.4.2	As-manufacturer specimens	8
<b>14</b>	<b>Procedure</b>	<b>8</b>
14.1	Inspection of specimens	8
14.2	Dimensions, weight and inspection	9
14.3	Autoclaving	9
14.3.1	Placing of test specimens	9
14.3.2	Venting method A	9
14.3.3	Venting method B	10
14.3.4	Closed system method C	10
14.3.5	Refreshed autoclaving, method D	11
14.4	Post-test measurements and inspection	11
<b>15</b>	<b>Calculation or interpretation of results</b>	<b>11</b>
15.1	Calculation of mass gain	11
15.2	Visual interpretation of surface appearance	12
15.3	Invalid tests	12
<b>16</b>	<b>Test report</b>	<b>12</b>
<b>Annex A (informative) Guide to specimen preparation</b>		<b>13</b>
<b>Bibliography</b>		<b>16</b>