

# ISO/TR 20580:2022-07 (E)

## Preparation of metallographic specimens

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
<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>Preliminary preparation .....</b>	<b>1</b>
<b>4.1</b>	<b>Selection of metallographic specimens .....</b>	<b>1</b>
<b>4.1.1</b>	<b>General .....</b>	<b>1</b>
<b>4.1.2</b>	<b>General studies or routine work .....</b>	<b>1</b>
<b>4.1.3</b>	<b>Study of failures .....</b>	<b>1</b>
<b>4.2</b>	<b>Selection of type of section to be examined .....</b>	<b>2</b>
<b>4.3</b>	<b>Size of metallographic specimens .....</b>	<b>3</b>
<b>4.4</b>	<b>Cutting of metallographic specimens .....</b>	<b>3</b>
<b>4.5</b>	<b>Marking of metallographic specimens .....</b>	<b>3</b>
<b>4.6</b>	<b>Cleaning .....</b>	<b>3</b>
<b>4.7</b>	<b>Mounting .....</b>	<b>3</b>
<b>4.7.1</b>	<b>General .....</b>	<b>3</b>
<b>4.7.2</b>	<b>Mechanical mounting .....</b>	<b>4</b>
<b>4.7.3</b>	<b>Plastic mounting: .....</b>	<b>4</b>
<b>5</b>	<b>Grinding .....</b>	<b>5</b>
<b>5.1</b>	<b>Planar or rough grinding .....</b>	<b>5</b>
<b>5.2</b>	<b>Fine grinding .....</b>	<b>5</b>
<b>5.2.1</b>	<b>General .....</b>	<b>5</b>
<b>5.2.2</b>	<b>Manual methods .....</b>	<b>5</b>
<b>5.2.3</b>	<b>Automated methods .....</b>	<b>6</b>
<b>6</b>	<b>Polishing .....</b>	<b>6</b>
<b>6.1</b>	<b>General .....</b>	<b>6</b>
<b>6.2</b>	<b>Mechanical polishing .....</b>	<b>6</b>
<b>6.2.1</b>	<b>Rough polishing .....</b>	<b>6</b>
<b>6.2.2</b>	<b>Fine polishing .....</b>	<b>6</b>
<b>6.3</b>	<b>Electrolytic polishing .....</b>	<b>6</b>
<b>6.4</b>	<b>Chemical polishing .....</b>	<b>7</b>
<b>6.5</b>	<b>Vibratory polishing .....</b>	<b>7</b>
<b>7</b>	<b>Microstructure revelation .....</b>	<b>7</b>
<b>7.1</b>	<b>General .....</b>	<b>7</b>
<b>7.2</b>	<b>Optical method .....</b>	<b>7</b>
<b>7.3</b>	<b>Etching method .....</b>	<b>7</b>
<b>7.3.1</b>	<b>Chemical etching [13] .....</b>	<b>7</b>
<b>7.3.2</b>	<b>Electrolytic etching [21] .....</b>	<b>7</b>
<b>7.3.3</b>	<b>Constant potential etching .....</b>	<b>8</b>
<b>7.3.4</b>	<b>Ion sputtering etching (cathode vacuum etching) .....</b>	<b>8</b>
<b>7.3.5</b>	<b>High temperature relieving etching .....</b>	<b>8</b>
<b>7.4</b>	<b>Interference layer method .....</b>	<b>8</b>
<b>Annex A (informative)</b>	<b>Etchants for metals .....</b>	<b>9</b>
<b>Bibliography .....</b>		<b>16</b>