

# DIN EN 13176:2015-05 (E)

## Chemicals used for treatment of water intended for human consumption - Ethanol

---

<b>Contents</b>		<b>Page</b>
Foreword .....		5
Introduction .....		6
<b>1</b>	<b>Scope .....</b>	<b>7</b>
<b>2</b>	<b>Normative references .....</b>	<b>7</b>
<b>3</b>	<b>Description .....</b>	<b>7</b>
<b>3.1</b>	<b>Identification .....</b>	<b>7</b>
<b>3.1.1</b>	<b>Chemical name .....</b>	<b>7</b>
<b>3.1.2</b>	<b>Synonym or common name .....</b>	<b>7</b>
<b>3.1.3</b>	<b>Relative molecular mass .....</b>	<b>7</b>
<b>3.1.4</b>	<b>Empirical formula .....</b>	<b>8</b>
<b>3.1.5</b>	<b>Chemical formula .....</b>	<b>8</b>
<b>3.1.6</b>	<b>CAS Registry Number ) .....</b>	<b>8</b>
<b>3.1.7</b>	<b>EINECS reference ) .....</b>	<b>8</b>
<b>3.2</b>	<b>Commercial form .....</b>	<b>8</b>
<b>3.3</b>	<b>Physical properties .....</b>	<b>8</b>
<b>3.3.1</b>	<b>Appearance .....</b>	<b>8</b>
<b>3.3.2</b>	<b>Density .....</b>	<b>8</b>
<b>3.3.3</b>	<b>Solubility in water .....</b>	<b>9</b>
<b>3.3.4</b>	<b>Vapour pressure (at 20 °C) .....</b>	<b>9</b>
<b>3.3.5</b>	<b>Boiling point at 100 kPa ) .....</b>	<b>9</b>
<b>3.3.6</b>	<b>Melting point .....</b>	<b>9</b>
<b>3.3.7</b>	<b>Specific heat .....</b>	<b>9</b>
<b>3.3.8</b>	<b>Viscosity, dynamic .....</b>	<b>9</b>
<b>3.3.9</b>	<b>Critical temperature (for gas) .....</b>	<b>9</b>
<b>3.3.10</b>	<b>Critical pressure (for gas) .....</b>	<b>9</b>
<b>3.3.11</b>	<b>Physical hardness .....</b>	<b>9</b>
<b>3.4</b>	<b>Chemical properties .....</b>	<b>9</b>
<b>4</b>	<b>Purity criteria .....</b>	<b>9</b>
<b>4.1</b>	<b>General .....</b>	<b>9</b>
<b>4.2</b>	<b>Composition of commercial product .....</b>	<b>10</b>
<b>4.3</b>	<b>Impurities and main by-products .....</b>	<b>10</b>
<b>4.4</b>	<b>Chemical parameters .....</b>	<b>10</b>
<b>5</b>	<b>Test methods .....</b>	<b>10</b>
<b>5.1</b>	<b>Sampling .....</b>	<b>10</b>
<b>5.1.1</b>	<b>Relevant standards .....</b>	<b>10</b>
<b>5.1.2</b>	<b>Sampling from drums and bottles .....</b>	<b>10</b>
<b>5.1.3</b>	<b>Sampling from tanks and tankers .....</b>	<b>11</b>
<b>5.2</b>	<b>Analysis .....</b>	<b>11</b>
<b>5.2.1</b>	<b>Ethanol (main product) .....</b>	<b>11</b>
<b>5.2.2</b>	<b>Impurities .....</b>	<b>12</b>
<b>5.2.3</b>	<b>Chemical parameters .....</b>	<b>14</b>
<b>6</b>	<b>Labelling - Transportation - Storage .....</b>	<b>17</b>
<b>6.1</b>	<b>Means of delivery .....</b>	<b>17</b>
<b>6.2</b>	<b>Labelling according to the EU legislation ) .....</b>	<b>17</b>
<b>6.3</b>	<b>Transportation regulations and labelling .....</b>	<b>17</b>

6.4	Marking .....	18
6.5	Storage .....	18
6.5.1	General .....	18
6.5.2	Long term stability .....	18
6.5.3	Storage incompatibilities .....	18
Annex A (informative) General information on synthetic ethanol .....		19
A.1	Origin .....	19
A.2	Use .....	19
Annex B (normative) General rules relating to safety .....		20
B.1	Rules for safe handling and use .....	20
B.2	Emergency procedures .....	20
Bibliography .....		21
Foreword .....		5
Introduction .....		6
1	Scope .....	7
2	Normative references .....	7
3	Description .....	7
3.1	Identification .....	7
3.1.1	Chemical name .....	7
3.1.2	Synonym or common name .....	7
3.1.3	Relative molecular mass .....	7
3.1.4	Empirical formula .....	8
3.1.5	Chemical formula .....	8
3.1.6	CAS Registry Number ) .....	8
3.1.7	EINECS reference ) .....	8
3.2	Commercial form .....	8
3.3	Physical properties .....	8
3.3.1	Appearance .....	8
3.3.2	Density .....	8
3.3.3	Solubility in water .....	9
3.3.4	Vapour pressure (at 20 °C) .....	9
3.3.5	Boiling point at 100 kPa ) .....	9
3.3.6	Melting point .....	9
3.3.7	Specific heat .....	9
3.3.8	Viscosity, dynamic .....	9
3.3.9	Critical temperature (for gas) .....	9
3.3.10	Critical pressure (for gas) .....	9
3.3.11	Physical hardness .....	9
3.4	Chemical properties .....	9
4	Purity criteria .....	9
4.1	General .....	9
4.2	Composition of commercial product .....	10
4.3	Impurities and main by-products .....	10
4.4	Chemical parameters .....	10
5	Test methods .....	10
5.1	Sampling .....	10
5.1.1	Relevant standards .....	10
5.1.2	Sampling from drums and bottles .....	10
5.1.3	Sampling from tanks and tankers .....	11
5.2	Analysis .....	11

5.2.1	Ethanol (main product) .....	11
5.2.2	Impurities .....	12
5.2.3	Chemical parameters .....	14
6	Labelling - Transportation - Storage .....	17
6.1	Means of delivery .....	17
6.2	Labelling according to the EU legislation ) .....	17
6.3	Transportation regulations and labelling .....	17
6.4	Marking .....	18
6.5	Storage .....	18
6.5.1	General .....	18
6.5.2	Long term stability .....	18
6.5.3	Storage incompatibilities .....	18
<b>Annex A (informative) General information on synthetic ethanol .....</b>		<b>19</b>
A.1	Origin .....	19
A.1.1	Raw materials .....	19
A.1.2	Manufacturing process .....	19
A.2	Use .....	19
A.2.1	Function .....	19
A.2.2	Form in which it is used .....	19
A.2.3	Treatment dose .....	19
A.2.4	Means of application .....	19
A.2.5	Secondary effects .....	19
A.2.6	Removal of excess product .....	19
<b>Annex B (normative) General rules relating to safety .....</b>		<b>20</b>
B.1	Rules for safe handling and use .....	20
B.2	Emergency procedures .....	20
B.2.1	First aid .....	20
B.2.2	Spillage .....	20
B.2.3	Fire .....	20
<b>Bibliography .....</b>		<b>21</b>