



**SLOVENSKI STANDARD**  
**oSIST prEN 15076:2020**

**01-september-2020**

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**Kemikalije, ki se uporabljajo za pripravo bazenske vode - Natrijev hidroksid**

Chemicals used for treatment of swimming pool water - Sodium hydroxide

Produkte zur Aufbereitung von Schwimm- und Badebeckenwasser — Natriumhydroxid

Produits chimiques utilisés pour le traitement de l'eau des piscines - Hydroxyde de sodium

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**Ta slovenski standard je istoveten z: prEN 15076**

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**ICS:**

13.060.25	Voda za industrijsko uporabo	Water for industrial use
71.100.80	Kemikalije za čiščenje vode	Chemicals for purification of water

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 15076**

June 2020

ICS 71.100.80

Will supersede EN 15076:2013

English Version

## Chemicals used for treatment of swimming pool water - Sodium hydroxide

Produits chimiques utilisés pour le traitement de l'eau  
des piscines - Hydroxyde de sodium

Produkte zur Aufbereitung von Schwimm- und  
Badebeckenwasser - Natriumhydroxid

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

<b>Contents</b>	<b>Page</b>
<b>European foreword</b> .....	<b>3</b>
<b>Introduction</b> .....	<b>4</b>
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Terms and definitions</b> .....	<b>5</b>
<b>4 Description</b> .....	<b>5</b>
<b>4.1 Identification</b> .....	<b>5</b>
<b>4.2 Commercial form</b> .....	<b>6</b>
<b>4.3 Physical properties</b> .....	<b>6</b>
<b>4.4 Chemical properties</b> .....	<b>7</b>
<b>5 Purity criteria</b> .....	<b>8</b>
<b>5.1 General</b> .....	<b>8</b>
<b>5.2 Composition of commercial product</b> .....	<b>8</b>
<b>5.3 Impurities and main by-products</b> .....	<b>8</b>
<b>5.4 Chemical parameters</b> .....	<b>9</b>
<b>6 Test methods</b> .....	<b>9</b>
<b>7 Labelling - Transportation - Storage</b> .....	<b>9</b>
<b>7.1 Means of delivery</b> .....	<b>9</b>
<b>7.2 Labelling according to the EU legislation</b> .....	<b>9</b>
<b>7.3 Transportation regulations and labelling</b> .....	<b>10</b>
<b>7.4 Marking</b> .....	<b>10</b>
<b>7.5 Storage</b> .....	<b>11</b>
<b>Annex A (informative) General information on sodium hydroxide</b> .....	<b>12</b>
<b>A.1 Origin</b> .....	<b>12</b>
<b>A.2 Use</b> .....	<b>12</b>
<b>Annex B (normative) General rules relating to safety</b> .....	<b>13</b>
<b>B.1 Rules for safe handling and use</b> .....	<b>13</b>
<b>B.2 Emergency procedures</b> .....	<b>13</b>
<b>Bibliography</b> .....	<b>14</b>

## European foreword

This document (prEN 15076:2020) has been prepared by Technical Committee CEN/TC 164 “Water supply”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15076:2013.

In comparison with the previous edition, the following technical modifications have been made:

- a) modification of 7.3 on transportation regulations and labelling, adding the sentence “The user shall be aware of the incompatibilities between transported products.”;
- b) modification of 7.4 on marking. The requirements of marking are also applied to the accompanying documents.

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## **Introduction**

In respect of potential adverse effects on the quality of water intended for human consumption caused by the product covered by this document:

- a) this document provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;
- b) it should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

NOTE 1 Conformity with this document does not confer or imply acceptance or approval of the product in any of the Member States of the EU or EFTA. The use of the product covered by this document is subject to regulation or control by National Authorities.

NOTE 2 This product is a biocide and needs to comply with the relevant legislation in force. In the European Union, at the time of publication, this legislation is Regulation (EU) No 528/2012 [1].

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## 1 Scope

This document is applicable to sodium hydroxide solution used directly or for the production of formulations for treating swimming pool water. It describes the characteristics and specifies the requirements and the corresponding test methods for sodium hydroxide. It gives information on its use for treating swimming pool water.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 896, *Chemicals used for treatment of water intended for human consumption — Sodium hydroxide*

## 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/ui>
- IEC Electropedia: available at <http://www.electropedia.org/>

## 4 Description

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### 4.1 Identification

#### 4.1.1 Chemical name

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Sodium hydroxide.

#### 4.1.2 Synonym or common name

Caustic soda.

#### 4.1.3 Relative molecular mass

40,0.

#### 4.1.4 Empirical formula

NaOH.

#### 4.1.5 Chemical formula

NaOH.

#### 4.1.6 CAS-Registry Number <sup>1</sup>

1310-73-2.

#### 4.1.7 EINECS reference <sup>2</sup>

215-185-5.

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<sup>1</sup> Chemical Abstracts Service Registry Number.

<sup>2</sup> European Inventory of Existing Commercial Chemical Substances.

## prEN 15076:2020 (E)

## 4.2 Commercial form

The product is available as flakes, pearls, solid, or as an aqueous solution of different concentrations. For safe handling and use and emergency procedures of sodium hydroxide, refer to Annex B.

## 4.3 Physical properties

### 4.3.1 Appearance

Solid: the product is white, deliquescent.

Liquid: the product is a clear solution, slightly turbid colourless solution, slightly viscous.

### 4.3.2 Density

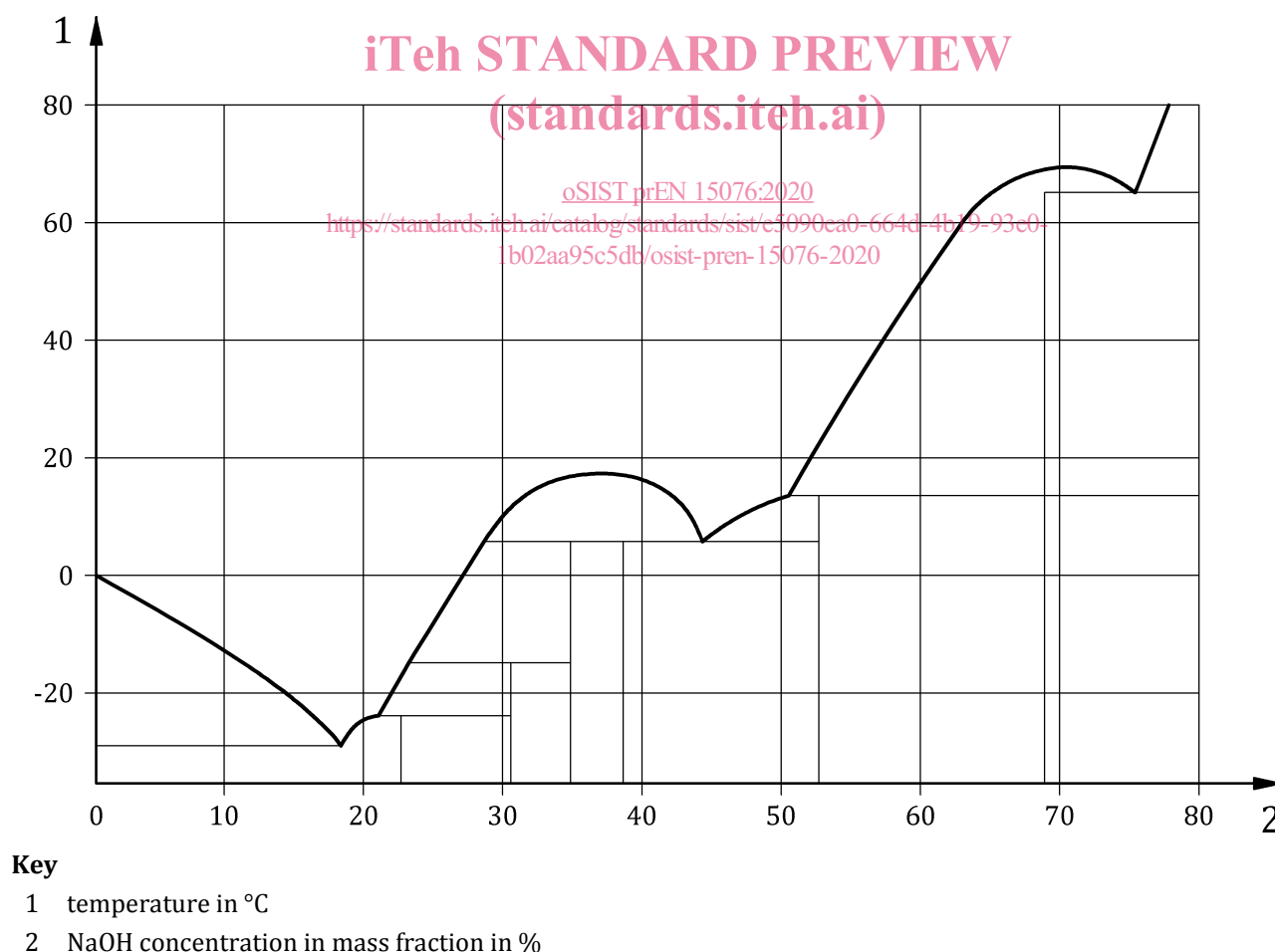
Solid: the density of this product is 2,1 g/cm<sup>3</sup>.

The bulk density of pearls is 1,2 kg/dm<sup>3</sup>.

Liquid: the density of solution is 1,52 g/ml for a product concentration of mass fraction of 50 % at 20 °C.

### 4.3.3 Solubility in water

The product is highly soluble at all temperatures above 20 °C (partial crystallization occurs above concentration of mass fraction of 55 % (see Figure 1).



**Figure 1 — Solubility of sodium hydroxide**



#### 4.3.4 Vapour pressure

Solution of concentration of mass fraction of 50 %:

- 120 Pa at 20 °C;
- 450 Pa at 40 °C;
- 5 000 Pa at 80 °C.

#### 4.3.5 Boiling point at 100 kPa

145 °C for a solution of concentration of mass fraction of 50 %.

NOTE 100 kPa = 1 bar.

#### 4.3.6 Crystallization point

+12 °C for a solution of concentration of mass fraction of 50 % (see Figure 1).

#### 4.3.7 Specific heat

3 220 J/(kg K) at 20 °C for a solution of concentration of mass fraction of 50 %.

#### 4.3.8 Viscosity (dynamic)

For a solution of concentration of mass fraction of 50 %:

- 100 Pa.s at 20 °C;
- 25 Pa.s at 40 °C;
- 5 Pa.s at 80 °C.

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#### 4.3.9 Critical temperature

Not applicable.

#### 4.3.10 Critical pressure

Not applicable.

#### 4.3.11 Physical hardness

Not applicable.

### 4.4 Chemical properties

The solutions of sodium hydroxide are strongly alkaline.

Dilution of sodium hydroxide is very exothermic.

For additional information on sodium hydroxide, see Annex A.

## 5 Purity criteria

### 5.1 General

This document specifies the minimum purity requirements for sodium hydroxide used for the treatment of water for swimming pools. Limits are given for impurities commonly present in the product. Depending on the raw material and the manufacturing process, other impurities can be present and, if so, this shall be notified to the user and when necessary to relevant authorities.

Users of this product should check the national regulations in order to clarify whether it is of appropriate purity for treatment of water for swimming pools, taking into account raw water quality, required dosage, contents of other impurities and additives used in the products not stated in this product standard.

Limits have been given for impurities and chemical parameters where these are likely to be present in significant quantities from the current production process and raw materials. If the production process or raw materials lead to significant quantities of impurities, by-products or additives being present, this shall be notified to the user.

### 5.2 Composition of commercial product

The product shall contain not less than a mass fraction of 96 % of NaOH for the solid form. Typical concentration for solutions of sodium hydroxide is either a mass fraction of 50 % or 30 %, and shall be in any case within the manufacturer's stated tolerance.

### 5.3 Impurities and main by-products

The product shall conform to the requirements specified in Table 1.

The concentration limits refer to pure NaOH, mass fraction of 100 %.

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**Table 1 – Impurities**

Impurity	Limit in mass in fraction in % of NaOH
Sodium chloride (NaCl) <sup>a</sup> max.	2,4
Sodium carbonate (Na <sub>2</sub> CO <sub>3</sub> ) <sup>b</sup> max.	0,4
Sodium chlorate (NaClO <sub>3</sub> ) <sup>c</sup> max.	0,7
<p><sup>a</sup> Too high concentrations can cause problems with some ion exchange resins.</p> <p><sup>b</sup> Sodium carbonate is formed in contact with atmospheric carbon dioxide.</p> <p><sup>c</sup> The presence of any oxidising agent in sodium hydroxide is to be avoided.</p>	