

|            |                                                                                         |                                             |
|------------|-----------------------------------------------------------------------------------------|---------------------------------------------|
| <b>STN</b> | <b>Chemikálie používané pri úprave vody na pitnú vodu</b><br><b>Modifikované škroby</b> | <b>STN</b><br><b>EN 1406</b><br><br>75 8301 |
|------------|-----------------------------------------------------------------------------------------|---------------------------------------------|

Chemicals used for treatment of water intended for human consumption - Modified starches

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/18

Obsahuje: EN 1406:2017

Oznámením tejto normy sa ruší  
STN EN 1406 (75 8301) z januára 2010

**126264**



EUROPEAN STANDARD

EN 1406

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2017

ICS 71.100.80

Supersedes EN 1406:2009

English Version

## Chemicals used for treatment of water intended for human consumption - Modified starches

Produits chimiques utilisés pour le traitement de l'eau destinée à la consommation humaine - Amidons modifiés

Produkte zur Aufbereitung von Wasser für den menschlichen Gebrauch - Modifizierte Stärken

This European Standard was approved by CEN on 11 September 2017.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

**EN 1406:2017 (E)**

| <b>Contents</b>                |                                                              | <b>Page</b> |
|--------------------------------|--------------------------------------------------------------|-------------|
| <b>European foreword</b> ..... |                                                              | <b>4</b>    |
| <b>Introduction</b> .....      |                                                              | <b>5</b>    |
| <b>1</b>                       | <b>Scope</b> .....                                           | <b>6</b>    |
| <b>2</b>                       | <b>Normative references</b> .....                            | <b>6</b>    |
| <b>3</b>                       | <b>Description</b> .....                                     | <b>6</b>    |
| <b>3.1</b>                     | <b>Identification</b> .....                                  | <b>6</b>    |
| <b>3.1.1</b>                   | <b>Chemical names</b> .....                                  | <b>6</b>    |
| <b>3.1.2</b>                   | <b>Synonyms or common names</b> .....                        | <b>6</b>    |
| <b>3.1.3</b>                   | <b>Relative molecular mass</b> .....                         | <b>6</b>    |
| <b>3.1.4</b>                   | <b>Empirical formulae</b> .....                              | <b>7</b>    |
| <b>3.1.5</b>                   | <b>Chemical formulae</b> .....                               | <b>7</b>    |
| <b>3.1.6</b>                   | <b>CAS Registry Numbers</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>9</b>    |
| <b>3.3</b>                     | <b>Physical properties</b> .....                             | <b>9</b>    |
| <b>3.3.1</b>                   | <b>Appearance</b> .....                                      | <b>9</b>    |
| <b>3.3.2</b>                   | <b>Density</b> .....                                         | <b>9</b>    |
| <b>3.3.3</b>                   | <b>Solubility</b> .....                                      | <b>9</b>    |
| <b>3.3.4</b>                   | <b>Vapour pressure</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</b> .....                            | <b>9</b>    |
| <b>3.3.10</b>                  | <b>Critical pressure</b> .....                               | <b>9</b>    |
| <b>3.3.11</b>                  | <b>Physical hardness</b> .....                               | <b>10</b>   |
| <b>3.4</b>                     | <b>Chemical properties</b> .....                             | <b>10</b>   |
| <b>4</b>                       | <b>Purity criteria</b> .....                                 | <b>10</b>   |
| <b>4.1</b>                     | <b>General</b> .....                                         | <b>10</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>11</b>   |
| <b>5</b>                       | <b>Test methods</b> .....                                    | <b>11</b>   |
| <b>5.1</b>                     | <b>Sampling</b> .....                                        | <b>11</b>   |
| <b>5.2</b>                     | <b>Analyses</b> .....                                        | <b>11</b>   |
| <b>5.2.1</b>                   | <b>General</b> .....                                         | <b>11</b>   |
| <b>5.2.2</b>                   | <b>Main product</b> .....                                    | <b>11</b>   |
| <b>5.2.3</b>                   | <b>Impurities</b> .....                                      | <b>12</b>   |
| <b>6</b>                       | <b>Labelling - Transportation - Storage</b> .....            | <b>12</b>   |
| <b>6.1</b>                     | <b>Means of delivery</b> .....                               | <b>12</b>   |
| <b>6.2</b>                     | <b>Labelling in accordance with the EU legislation</b> ..... | <b>12</b>   |
| <b>6.3</b>                     | <b>Transportation regulations and labelling</b> .....        | <b>13</b>   |
| <b>6.4</b>                     | <b>Marking</b> .....                                         | <b>13</b>   |
| <b>6.5</b>                     | <b>Storage</b> .....                                         | <b>13</b>   |

|                |                                                                    |           |
|----------------|--------------------------------------------------------------------|-----------|
| <b>6.5.1</b>   | <b>Long term stability .....</b>                                   | <b>13</b> |
| <b>6.5.2</b>   | <b>Storage incompatibilities.....</b>                              | <b>13</b> |
| <b>Annex A</b> | <b>(informative) General information on modified starches.....</b> | <b>14</b> |
| <b>A.1</b>     | <b>Origin .....</b>                                                | <b>14</b> |
| <b>A.1.1</b>   | <b>Raw materials .....</b>                                         | <b>14</b> |
| <b>A.1.2</b>   | <b>Manufacturing process .....</b>                                 | <b>14</b> |
| <b>A.2</b>     | <b>Use.....</b>                                                    | <b>14</b> |
| <b>A.2.1</b>   | <b>Function .....</b>                                              | <b>14</b> |
| <b>A.2.2</b>   | <b>Form in which it is used.....</b>                               | <b>14</b> |
| <b>A.2.3</b>   | <b>Treatment dose .....</b>                                        | <b>15</b> |
| <b>A.2.4</b>   | <b>Means of application.....</b>                                   | <b>15</b> |
| <b>A.2.5</b>   | <b>Secondary effects.....</b>                                      | <b>15</b> |
| <b>A.2.6</b>   | <b>Removal of excess product.....</b>                              | <b>15</b> |
| <b>A.3</b>     | <b>Rules for safe handling and use.....</b>                        | <b>15</b> |
| <b>A.4</b>     | <b>Emergency procedures.....</b>                                   | <b>15</b> |
| <b>A.4.1</b>   | <b>First aid .....</b>                                             | <b>15</b> |
| <b>A.4.2</b>   | <b>Spillage .....</b>                                              | <b>16</b> |
| <b>A.4.3</b>   | <b>Fire .....</b>                                                  | <b>16</b> |
|                | <b>Bibliography .....</b>                                          | <b>17</b> |

**EN 1406:2017 (E)****European foreword**

This document (EN 1406:2017) has been prepared by Technical Committee CEN/TC 164 "Water supply", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2018 and conflicting national standards shall be withdrawn at the latest by May 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1406:2009.

The significant technical difference between this edition and EN 1406:2009 is a wider possible degree of substitution. The main modifications are as follows:

- Subclause 3.1.4 empirical formulae;
- Subclause 3.1.5 chemical formulae;
- Subclause 3.3.2 density;
- Subclause 3.3.3 solubility;
- Subclause 4.2 composition of commercial product;
- Subclause A.1.2 manufacturing process;
- Subclause A.2.2 form in which it is used.

Annex A is informative and gives some information on origin, use and handling of modified starches.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## **Introduction**

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

- 1) this European Standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA;
- 2) 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** Conformity with this European Standard 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 European Standard is subject to regulation or control by National Authorities.

**EN 1406:2017 (E)****1 Scope**

This European Standard is applicable to modified starches used for treatment of water intended for human consumption. It describes the characteristics of modified starches and specifies the requirements and the corresponding test methods for modified starches.

**2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 1666, *Starch - Determination of moisture content - Oven-drying methods (ISO 1666)*

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696)*

EN ISO 5377, *Starch hydrolysis products - Determination of reducing power and dextrose equivalent - Lane and Eynon constant titre method (ISO 5377)*

ISO 3165, *Sampling of chemical products for industrial use - Safety in sampling*

ISO 6206, *Chemical products for industrial use - Sampling - Vocabulary*

ISO 8213, *Chemical products for industrial use - Sampling techniques - Solid chemical products in the form of particles varying from powders to coarse lumps*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**