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DRAFT UGANDA STANDARD

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Caustic Soda (Sodium Hydroxide)—Specification



Reference number DUS 1963: 2018

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Foreword

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(a) a member of International Organisation for Standardisation (ISO) and

(b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and

(c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC ###, [name of committee], Subcommittee SC ##, [name of subcommittee].

This second/third/... edition cancels and replaces the first/second/... edition (US nnn-n:yyyy), which has been technically revised.

US nnn consists of the following parts, under the general title Introductory element — Main element:

- — Part n: Part title
- — Part [n+1]: Part title
- — Part [n+2]: Part title

Introduction

Sodium hydroxide (NaOH) solution, commonly known as caustic soda, is produced through the electrolysis of sodium chloride (salt) brine in diaphragm or membrane cells. Chlorine and hydrogen are co-produced. The caustic soda solution may be clear or slightly cloudy in appearance, depending on the cell process used. It readily absorbs carbon dioxide from the air. It is available commercially as 50% NaOH but other concentrations can be produced.

Caustic soda has a wide variety of applications in many industries, including pulp and paper, aluminum, soaps and detergents, textiles, petrochemicals and chemical processing.

Caustic Soda (Sodium hydroxide) — Specification

1 Scope

This Draft Uganda Standard specifies requirements, methods of test and sampling for caustic soda, pure and technical grade. It covers both solid and lye form.

It does not apply to sodium hydroxide for medical or pharmaceutical use and sodium hydroxide for photographic use.

2 Normative references

The following referenced documents 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.

FDUS ISO 979 Sodium hydroxide for industrial use -- Method of assay

FDUS ISO 981: 1973 Sodium hydroxide for industrial use -- Determination of chloride content -- Mercurimetric method

FDUS ISO 3196:1975 Sodium hydroxide for industrial use -- Determination of carbonates content -- Titrimetric method

DUS 1966: 2018 Sampling and test for sodium hydroxide for industrial use Part 1. Determination of silica content

DUS 1965:2018 Sampling and test for sodium hydroxide for industrial use — Part 2: Determination of copper content

DUS 1964:2018 Standard Test Methods for Chemical Analysis of Caustic Soda and Caustic Potash (Sodium Hydroxide and Potassium Hydroxide)

3 Terms and definitions

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

- ISO Online browsing platform: available at http://www.iso.org/obp

4 Grades

There shall be two grades of the material, namely:

a) Pure

b) Technical

5 Requirements

5.1 General Requirements

- a) The material shall be supplied in the form of lye or solid (including flakes, blocks, sticks and pellets).
- b) The material shall be free from foreign matter, dirt or other visible impurities.
- c) Caustic Soda Lye is a clear to slightly haze liquid
- d) Relative Density of Caustic Soda Lye shall be subject to an agreement between the purchaser and the supplier.

5.2 Specific Quality Requirements

The material shall comply with the requirements given in Table 1, when tested according to the methods prescribed therein.

Characteristic	Pure		Technical		Method
	Lye	Solid	Lye	Solid	
Sodium carbonate (as Na ₂ CO ₃) percent by mass. Max	0.20	0.20	2.00	2.00	DUS 1964
Chloride (as NaCl), percent by					FDUS ISO
mass, Max	0.10	0.10	_	_	981/ DUS 1964
Sulphates (as Na ₂ SO ₄), percent by	0.10	0.10	3.50	3.50	DUS 1964
mass, Max					
Silicates (as SiO ₂), percent by mass,	0.02	0.02	_	_	DUS 1966
Max					
Iron (as Fe), ppm,	10	10	350	350	DUS 1964
Max					
Copper (as Cu), ppm,	1	1	_	_	DUS 1965
Max					
Sodium hydroxide (as NaOH),	99.50	99.50	95.00	95.00	FDUS ISO
percent by mass, on dry basis					979
Note; The requirements in table1 for the lye are based on 50%m/m					

Table 1: Requirements for Caustic Soda

6 Sampling

The material shall be sampled in accordance with Annex A

7 Packaging and labelling

7.1 Packaging

7.1.1 The caustic soda solid shall be packed in polyethylene bags or polyethylene lined gunny bags or steel drums.. The solution shall be supplied in suitable tankers, tank cars or as agreed to between the purchaser and the supplier.

7.1.2 The container shall be capable of being resealed so as to avoid absorption of carbon dioxide and moisture from the atmosphere.

7.1.3 These containers may then be packed in bulk packages that shall contain only one size of container.

7.1.4 Sodium Hydroxide from the same batch shall be packed in one container and, when relevant, in one bulk package.

7.2 Labelling

7.2.1 Containers

Each container shall bear the following information in prominent, legible and indelible marking:

- a) the manufacturer's name and address;
- b) Name of product Caustic Soda (Sodium Hydroxide), and the
- c) grade;
- d) cautionary directions regarding handling, use and safe storage;
- e) Safety precautions
- f) Lot/batch Number;
- g) Net mass/Volume of the contents; and
- h) manufacturing and expiry date
- i) The containers shall be marked with the following caution note: 'CORROSIVE- HANDLE WITH CARE'

7.2.2 Bulk packages/Tanker

Consignment documents accompanying each road tanker or tank car shall bear the following information in prominent, legible and indelible marking:

- a) the information required in terms of 7.2.1(a) and (b);
- b) the number of containers; and
- c) the volume of the contents of each container.

Annex A (Normative Reference)

Sampling of caustic soda, pure and technical

A.1 General Requirements of sampling

A.1.1 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination, particularly from absorption of water and carbon dioxide.

A.1.2 To draw a representative sample, the contents of each container selected from sampling shall be mixed thoroughly by suitable means.

A.1.3 The sample shall be placed in clean, dry and air-tight alkali resistant glass containers.

A.1.4 Each sample container shall be sealed air-tight after filling, and marked with full details of sampling, the date of sampling and the batch number.

A.2 scale of sampling

A.2.1 Lot

All the containers in a single consignment of the material drawn from a single batch of manufacture shall constitute the lot. If a consignment is declared to consist of different batches of manufacture, the batches shall be marked separately and the groups of containers in each batch shall constitute separate lots.

A.2.2 Samples shall be tested from each lot separately for judging the conformity of the material to the specified requirements. The number of container (n) to be selected at random from lots of different sizes (N) shall be in accordance with Table 2.

A.2.3 The container shall be drawn at random from the lot, and to ensure randomness, the following procedure may be adopted;

a) Arrange all the containers in the lot in a systematic manner, and starting from any one, count them as 1,2 up to r, where r is the integral part of *N/n*. Every rth container thus counted shall be included in the sample till the required number of containers specified in col 2 of Table 2 is taken out.

Lot Size	Number of Containers to be Selected
N	n
3 to 50	3
51 to 200	4
201 to 400	5
401 to 650	6
651 to 1 000	7

Table 2 Number of Containers to be selected for Sampling

Bibliography

- 1. BS 4130: 1984 Specification for Sodium hydroxide (technical grades)
- 2. IS 252:1999 Caustic Soda, Pure and Technical- Specification

Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

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