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DRAFT ZANZIBAR NATIONAL STANDARD

Water for construction — Specification

DRAFT FOR STAKEHOLDERS COMMENT

ZANZIBAR BUREAU OF STANDARDS

Foreword

This draft Zanzibar National standard has been developed by the Water Quality Technical Committee (TCE1). In accordance with Zanzibar Bureau of Standards general procedures, this draft standard is presented to the public in order to receive any technical comment concerns.

Technical Committee Representatives

This Draft Zanzibar National Standard was prepared by the Water Quality Technical Standard committee which consists of representatives from the following organizations:

Chief Government Chemist Agency (CGCLA)
Department of Environment (DoE)
Department of Irrigation
State University of Zanzibar (SUZA)
Zanzibar Building Agency (ZBA)
Zanzibar Urban Municipal Council (ZUMC)
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Introduction

The quality of the water plays an important role in the preparation of building materials such as concrete. Impurities in water may interfere with the setting of the cement and may adversely affect the strength and durability of the concrete.

This Zanzibar National Standard has been prepared in order to improve the quality of water used for building and construction activities. Within the industry of building and construction, it is accepted that good water quality is used to produce strong and durable structures.

In reporting the results of a test analysis made in accordance with this Zanzibar National Standard, if the final value, calculated or observed is to be rounded off, it shall be done in accordance with ZNS 94, Rounding off numerical values.

In the preparation of this Zanzibar National Standard assistance was drawn from the following documents:

IS 456:2005, *Plain and reinforced concrete code of practice* prepared by Bureau of Indian Standards
Inputs for water quality standards for construction established by Ministry of Water and Irrigation of Tanzania, 2015

TZS 2065: 2017, *Water for construction — Specification*.

Water for construction — Specification

1 Scope

This Tanzania Standard specifies the requirements, sampling and methods of test of water that is used for construction purposes.

2 Normative references

The following referenced documents are indispensable for the application of this Tanzania Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5667-4, *Water quality — Sampling — Part 4: Guidance on sampling from lakes, natural and man made*

ISO 5667-6, *Water quality — Sampling — Part 6: Guidance on sampling of rivers and streams*

ISO 5667-9, *Water quality — Sampling — Part 9: Guidance on sampling from marine waters*

TZS 1844, *Water quality — Determination of pH.*

ASTM D 5907, *Standard test methods for filterable matter (total dissolved solids) and non-filterable matter (total suspended solids) in water*

ISO 9963-1, *Water quality — Determination of alkalinity — Part 1: Determination of total and composite alkalinity*

TZS 4, *Rounding off numerical values*

TZS 1130 (Part 1): *Water Quality — Determination of dissolved anions by liquid chromatography of ions — Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate*

TZS 861:1 (1st Ed) / ISO 11923, *Water quality — Determination of suspended solids by filtration through glass-fibre filters*

ASTM D1067, *Standard test methods for acidity or alkalinity of water*

3 Terms and definitions

There is no term and definition in this Standard.

4 Requirements

Water used for construction purposes shall comply with requirements given in table 1.

Table 1: Requirements of water quality for construction

S/N	Parameters	Limits	Test method
i)	Alkalinity, ml/100 ml sample,	Not more than 25 ml of 0.02N H ₂ SO ₄	ISO 9963-1:
ii)	pH, <i>min</i>	6	TZS 1844
iii)	Total Dissolved Solid, mg/l, <i>max</i>	1000	ASTM D5907
iv)	Total Suspended Solid, mg/l, <i>max</i>	2000	TZS 861-1
v)	Sulphate, mg/l, <i>max</i>	400	TZS 1130-1
vi)	Chloride, mg/l, <i>max</i>	For concrete not containing embedded steel 2000, for reinforced concrete 1000 and for pre-stressed concrete 500	TZS 1130-1
vii)	Acidity, ml/100ml sample	Not more than 5 ml of 0.02N NaOH	ASTM D1067
viii)	Oil, % of water volume, <i>max</i>	2	***
ix)	Phosphate as P ₂ O ₅ , mg/l, <i>max</i>	100	TZS 1130-1
x)	Nitrate as NO ₃ ⁻ , mg/l, <i>max</i>	500	TZS 1130-1
xi)	Organic matter	200	***
xii)	Inorganic matter	3000	***

*** No reference method has been specified, hence currently no restriction on test methods as long as they give reliable results.

5 Sampling

The sample of water taken for testing shall be done in accordance to ISO 5667-4, ISO 5667-6 and ISO 5667-9 (see clause 2) and shall represent the water to be used for construction. The designated water sample for construction shall not receive any treatment before testing.

Bibliography

ASTM C1602, *Standards specification for mixing water used in production of hydraulic cement concrete*, published by American Society for Testing and Materials

EN 1008:2002, *Mixing water for concrete specification* published by European Standardization Organizations

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