

DRAFT TANZANIA STANDARD

Draft for comments only

CDC6 (5014)P3

Water for Construction - Specification

TANZANIA BUREAU OF STANDARDS

0 Foreword

This Draft Tanzania Standard is being prepared by the Water Quality Technical Committee, under the supervision of Chemicals Divisional Standards Committee and it is in accordance with the procedures of the Bureau.

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 Draft Tanzania Standard is being 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 standard, if the final value, calculated or observed is to be rounded off, it shall be done in accordance with TZS 4 Rounding off numerical values.

In the preparation of this Draft Tanzania Standard assistance was drawn from the following:

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

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.

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

1.0 Scope

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

2.0 Normative reference

The following referenced documents are indispensable for the application 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.

- 2.1 ISO 5667-4: Water quality -- Sampling -- Part 4: Guidance on sampling from lakes, natural and man-made
- 2.2 ISO 5667-6: Water quality -- Sampling -- Part 6: Guidance on sampling of rivers and streams
- 2.3 ISO 5667-9: Water quality -- Sampling -- Part 9: Guidance on sampling from marine waters
- 2.4 FTZS 1844: Water quality -- Determination of pH.
- 2.5 ASTM D 5907: Standard test methods for filterable matter (total dissolved solids) and non-filterable matter (total suspended solids) in water.
- 2.6 ISO 9963-1: Water quality -- Determination of alkalinity -- Part 1: Determination of total and composite alkalinity.
- 2.7 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.
- 2.8 TZS 861 (Part 1) (1st Ed)/ ISO 11923: Water quality – Determination of suspended solids by filtration through glass-fibre filters.
- 2.9 ASTM D1067: Standard Test Methods for Acidity or Alkalinity of Water

3.0 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
1.	Alkalinity, ml/100ml sample ml	Not more than 25 ml of 0.02N H ₂ SO ₄	ISO 9963-1:
2.	pH, <i>min</i>	6	FTZS 1844
3.	Total Dissolved Solid, mg/l, <i>max</i>	1000	ASTM D 5907
4.	Total Suspended Solid, mg/l, <i>max</i>	2000	TZS 861-1
5.	Sulphate, mg/l, <i>max</i>	400	TZS 1130-1
6.	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
7.	Acidity, ml/100ml sample	Not more than 5 ml of 0.02N NaOH	ASTM D1067 -
8.	Oil, % of water volume, <i>max</i>	2	-
9.	Phosphate as P ₂ O ₅ , mg/l, <i>max</i>	100	TZS 1130 - 1
10.	Nitrate as NO ₃ ⁻ , mg/l, <i>max</i>	500	TZS 1130 - 1

4.0 Sampling

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