



PCD319:2021

DRAFT ZANZIBAR NATIONAL STANDARD

Block loaf (BOFLO) Pan – Specification

DRAFT FOR STAKE HOLDERS COMMENT

ZANZIBAR BUREAU OF STANDARDS

National Foreword

This draft Zanzibar national standard has been developed by Mechanical and Automotive Standard Technical committee. In accordance with ZBS general procedures, this draft standard is presented to the public in order to receive any technical and editorial comment concerns.

This Zanzibar national standard was prepared by Mechanical and Automotive Standard Technical committee which consists of representatives from the following organizations:

Karume Institute of science and Technology (KIST)
Budda Auto Works
Zanzibar Utilities Regulatory Authority (ZURA)
Zanzibar Electricity Corporation (ZECO)
Zanzibar Building Agency (ZBA)
Fire Extinguisher
Ministry of Infrastructure, Communications and Transportation (MoICT)
Government Agency for Tractor and Farmer Machinery Service (GATFS)
Zanzibar Bureau of Standards (ZBS) - Secretariat

Zanzibar Bureau of Standard (ZBS)
P.O.Box 1136
Zanzibar
Tel: +255 24 2232225
Fax: +255 24 2232225
E-mail: info@zbs.go.tz
Web: www.zbs.go.tz

DRAFT FOR STAKE HOLDERS COMMENT

Block loaf (BOFLO) Pan – Specification

1. Scope

This draft Zanzibar standard specifies material, construction and the preferred size of Boflo pan and tray for baking application.

2. Normative references

ZNS 295: 2019, Boflo bread – Specification

ZNS 227: 2017, Aluminum hollowware uncoated utensils — Specification - Part 1: Sufurias and lids

EAS 783:2021 Stainless steel storage tanks — Specification

3. Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

3.1

block Loaf Pan

deep trapezoidal shaped metal used for baking food in the form of loaf.

3.2

block loaf (Boflo)

a local Zanzibar bread obtained by baking fermented dough made from wheat flour (white or brown flour).

3.3

tray

a thin, flat and often rectangular piece of metal that has a low rim and that is used for the purpose of carrying boflo pan.

3.4

rivet

is a permanent mechanical fastener that consists of a smooth cylindrical rod with a head in one end

3.5

flange

is the protruded ridge, lip, rim, collar or rib on an object serving for strengthening or maintaining a boflo pan shape.

Note: the flange size should be 6.35 - 12.7mm for both small and large boflo pans

3.6**binding wire**

is a metal wire used for tying application embedded with flange to impose maximum strength to the boflo pan.

3.7**baking**

is the method of preparing food that uses dry heat on hot ashes, on a hot stones or in an oven.

4. General requirements**4.1 Materials**

4.1.1 The material used for making of boflo pan and tray shall be of aluminum, glass, silicone, ceramic, cast iron, or stainless steel.

4.1.2 The material shall be non-corrosive and good conductor of heat.

4.1.3 The material should be inert to bread.

4.1.4 The material used for loaf pan should have a high melting point.

Table1. Melting Point of Materials

Materials	Melting point(°C)
Aluminum	660
Aluminum alloy	463 – 671
Glass	Approx 1400 - 1600
Silicone	1410- 1414
Cast Iron	1127-1204
Stainless Steel	1510
Ceramics	2000 - 3997

5. SPECIFIC REQUIREMENTS

The material used for making of boflo pan and tray shall be of aluminum, glass, silicone, ceramic, cast iron, or stainless steel. When aluminum material used shall comply with the following specifications in table 2.

Table2. Chemical composition of Aluminum material

Element Composition	Chemical Composition by mass (%) Result	Uncertainty
Aluminium	99.4	±0.431
Silicon	0.219	±0.024
Iron	0.181	±0.002
Manganese	0.026	±0.001
Vanadium	0.025	±0.001
Potassium	0.024	±0.005
Zinc	0.015	±0.000
Titanium	0.014	±0.001
Copper	0.013	±0.000
Osmium	0.011	±0.001
Gadolinium	0.011	±0.000
Ytterbium	0.006	±0.001
Calcium	0.005	±0.001
Chromium	0.003	±0.000
Nickel	0.002	±0.001

6. Construction and Dimensions

6.1 Construction

The boflo pan should be constructed using material as prescribed in clause 5 with trapezoidal shape and flange.

Joint material such as rivets shall meet requirements in clause 5 and strengthening material (supported material) for flange should be non-corrosive.

6.1.1 The plate's material thickness shall not be less than 0.5 mm.

Note: "if the thickness of boflo pan is less than 0.5mm the pan will be too light to be crumbled easily when giving out a boflo, as a consequence will end up with short life span.

6.1.2 Size of pan

The size of small and large block loaf (boflo) pan shall comply with **ZNS 295**

Table 3. Pan internal dimensions

Dimension	Small boflo pan (mm)	Large boflo pan (mm)
a	155	210
b	120	170
c	70	80
d	55	60
e	55	60

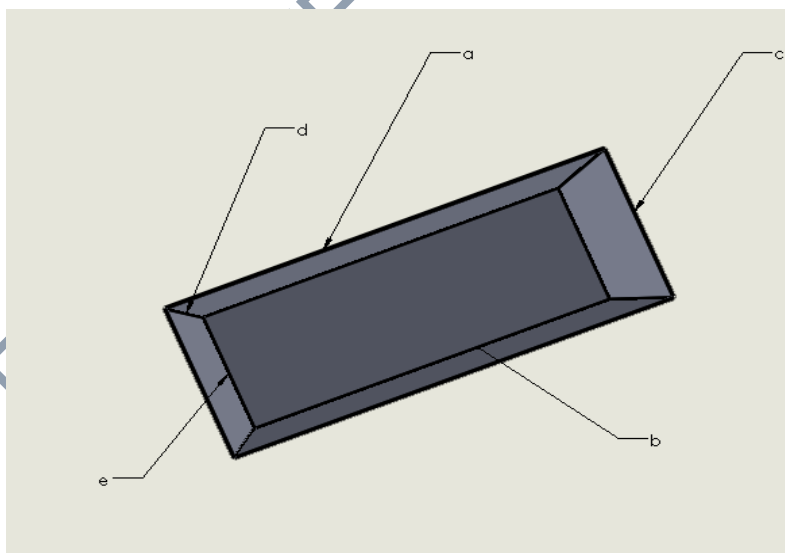


Figure 1: dimension of small pan

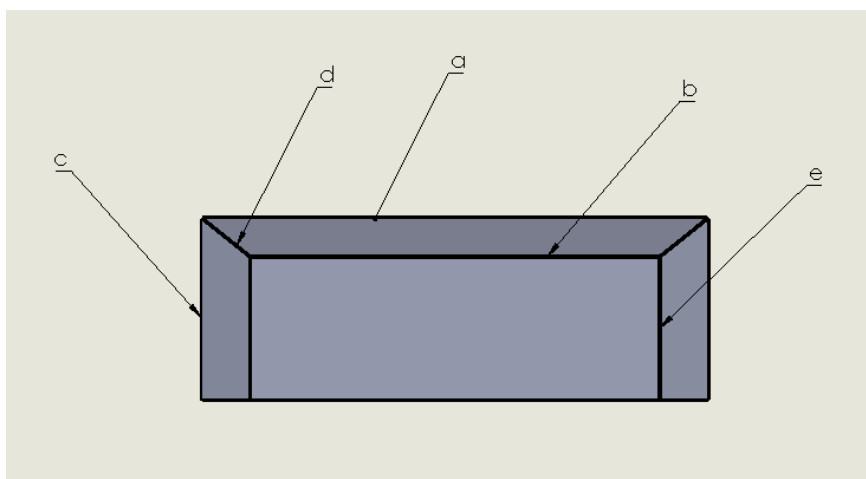


Figure 2: dimension of large pan

6.1.3 Size of Tray

The size of tray shall comply with the dimensions as shown in table 4

Table 4. Tray internal dimensions

parameter	Dimension of tray (mm)	Number of Small pan	Number of Large pan
Length	508	12	8
Width	381		
height	25.4		

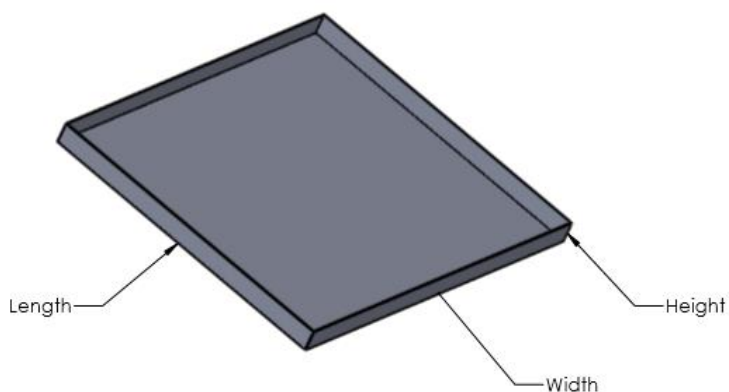


Figure 3: dimension of tray

DRAFT

7. Finish

The articles shall have a smooth surface, no sharp edges, round flange and easy cleaning to maintain hygiene.

8. Packaging

Every package shall be legibly and marked with the following:

- a. Manufacturer name and/or trade mark Address
- b. Description of product
- c. Content in sets and thickness
- d. Batch number.

9. Marking

The pan and tray shall be legibly and indelibly marked externally on the body side or bottom with the following particulars: -

- a. The manufacturer's name and/or trade mark: and
- b. Country of origin

DRAFT FOR STAKE HOLDERS COMMENT

Annex A

(normative)

These are the test results obtained after conducting analysis of six metal sheet materials for the determination of chemical composition. The following tables 4 to 9 show the test result of chemical composition of different metal sheet that can be used to make block loaf (boflo) pan.

Table 4. Iron Sheet A

S/N	Test/ Characteristics	Results	Uncertainty
1	CHEMICAL COMPOSITION (%)		
	-Iron	63.926	±0.162
	-Aluminium	18.766	±1.431
	-Zinc	10.889	±0.077
	-Silicon	2.725	±0.225
	-Sulphur	1.237	±0.058
	-Titanium	1.212	±0.026
	-Barium	0.639	±0.015
	-Calcium	0.302	±0.012
	-Manganese	0.205	±0.007
	-Chromium	0.063	±0.009
	-Copper	0.037	±0.008

Table 5. Iron Sheet A

S/N	Test/ Characteristics	Results	Uncertainty
1	CHEMICAL COMPOSITION (%)		
	-Zinc	76.329	±0.189
	-Iron	21.053	±0.087
	-Silicon	2.430	±0.245
	-Manganese	0.068	±0.010
	-Copper	0.061	±0.011
	-Chromium	0.058	±0.008

Table 6. Iron Sheet C

S/N	Test/ Characteristics	Results	Uncertainty
1	CHEMICAL COMPOSITION (%)		
	-Iron	63.926	±0.162
	-Aluminium	18.766	±1.431
	-Zinc	10.889	±0.077
	-Silicon	2.725	±0.225
	-Sulphur	1.237	±0.058
	-Titanium	1.212	±0.026
	-Barium	0.639	±0.015
	-Calcium	0.302	±0.012
	-Manganese	0.205	±0.007
	-Chromium	0.063	±0.009
	-Copper	0.037	±0.008

Table 7. Iron Sheet D

S/N	Test/ Characteristics	Results	Uncertainty
1	CHEMICAL COMPOSITION (%)		
	-Iron	62.292	±0.158
	-Aluminium	19.058	±1.397
	-Zinc	10.997	±0.076
	-Silicon	3.107	±0.236
	-Sulphur	1.647	±0.066
	-Titanium	1.171	±0.025
	-Barium	0.885	±0.020
	-Calcium	0.563	±0.017
	-Manganese	0.165	±0.013
	-Chromium	0.068	±0.009
	-Copper	0.036	±0.008
	-Strontium	0.012	±0.00

Table 8. Iron Sheet E

S/N	Test/ Characteristics	Results	Uncertainty
1	CHEMICAL COMPOSITION (%)		
	-Aluminium	99.4	±0.431
	-Silicon	0.219	±0.024
	-Iron	0.181	±0.002
	-Manganese	0.026	±0.001
	-Vanadium	0.025	±0.001
	-Potassium	0.024	±0.005
	-Zinc	0.015	±0.000
	-Titanium	0.014	±0.001
	-Copper	0.013	±0.000
	-Osmium	0.011	±0.001
	-Gadolinium	0.011	±0.000
	-Ytterbium	0.006	±0.001
	-Calcium	0.005	±0.001
	-Chromium	0.003	±0.000
-Nickel	0.002	±0.001	

Table 9. Iron Sheet F

S/N	Test/ Characteristics	Results	Uncertainty
1	CHEMICAL COMPOSITION (%)		
	-Iron	65.919	±0.166
	-Zinc	9.017	±0.067
	-Aluminium	7.192	±0.750
	-Chlorine	5.785	±0.203
	-Silicon	2.961	±0.212
	-Sulphur	2.691	±0.080
	-Barium	2.532	±0.039
	-Titanium	2.438	±0.036
	-Calcium	0.894	±0.023
	-Manganese	0.247	±0.016
	-Copper	0.194	±0.010
	-Chromium	0.092	±0.011
	-Strontium	0.037	±0.003

Annex B

(Informative)

The test result of contamination of material in the block loaf (boflo) after baking

Table10: Aluminum

Test/Characteristics	Test method	Results
Zinc (Zn), mg/kg	MP AES	7.07
Manganese (Mn), mg/kg	MP AES	10.14

Table11: iron sheet F (roofing material coated)

Test/Characteristics	Test method	Results
Zinc (Zn), mg/kg	MP AES	7.448
Manganese (Mn), mg/kg	MP AES	9.885

Table11: iron sheet C (roofing material coated)

Test/Characteristics	Test method	Results
Zinc (Zn), mg/kg	MP AES	23.47
Manganese (Mn), mg/kg	MP AES	10.26

Table11: iron sheet D (roofing material coated)

Test/Characteristics	Test method	Results
Zinc (Zn), mg/kg	MP AES	10.1
Manganese (Mn), mg/kg	MP AES	15.5

Annex C

(Informative)

Bibliography

Bawiec P, Halabis M, Marzec Z, Kot A, Solski J, Gawel K: Evaluation of chromium, nickel, iron and manganese content in wheat, flour, bran and selected baked products. *Pharm. Med. Sci.*(2014), Vol. 27, No. 2, Pages 71-75.

Araujo R. G. O, Macedo S. M., Korn, M. G. A., Pimentel, M. F., Bruns R. E. and Ferreira S. L. C: Mineral Composition of Wheat Flour Consumed in Brazilian Cities. *J. Braz. Chem. Soc.* (2008), Vol. 19, No. 5, 935-942.

DRAFT FOR STAKE HOLDERS COMMENT