CDC 10 (3113)DTZS
ICS 87.080

# DRAFT TANZANIA STANDARD

## Printing inks for use on food wrappers, packages and receptacles — Specification



**TANZANIA BUREAU OF STANDARDS**


First Edition 2024

## Foreword

This Draft Tanzania Standard is being developed by the stationery and paper product Technical Committee under supervision of the Chemical Division Standards Committee and it is in accordance with the procedures of the Bureau.

This Tanzania Standard has been prepared with assistance drawn from:

KS 810:2013 *Printing inks for use on food wrappers, packages and receptacles - Specification*
IS 15495:2020 *Printing Ink for Food Packaging – Code of Practice;*

In reporting the result of a test or analysis made in accordance with this Tanzania Standard, if the final value, calculated or observed is to be rounded off, it shall be done in accordance with TZS 4 (see clause 2).

# Printing inks for use on food wrappers, packages and receptacles — Specification

## 1 Scope

This Draft Tanzania Standard specifies requirements, sampling and test methods for printing inks for use on food wrappers, packages, and receptacles.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. The latest edition of the referenced document (including any amendments) applies;

TZS 4 *Rounding off numerical values*

TZS 607/ ISO 1524 *Paints, varnishes and printing inks - Determination of fineness of grind*

ISO 3856-1 Paints and varnishes - Determination of "soluble" metal content Part 1: Determination of lead content - Flame atomic absorption spectrometric method and dithizone spectrophotometric method

ISO 3856-4 Paints and varnishes — Determination of "soluble" metal content — Part 4: Determination of cadmium content — Flame atomic absorption spectrometric method and polarographic method

ISO 3856-5 Paints and varnishes — Determination of "soluble" metal content Part 5: Determination of hexavalent chromium content of the pigment portion of the liquid paint or the paint in powder form — Diphenylcarbazide spectrophotometric method

ISO 3856-7 Paints and varnishes — Determination of "soluble" metal content Part 7: Determination of mercury content of the pigment portion of the paint and of the liquid portion of water-dilutable paints — Flameless atomic absorption spectrometric method

## 3 Terms and definitions

**3.1**
**external packaging**
any packaging additional to an immediate wrapper

**3.2**
**immediate wrapping**
wrapping material with which the food is in direct contact, such as wrapping paper, which surrounds a packet of butter

**3.3**
**printing inks**
specified in this standard are the only ones to be used for printing on food wrappers, packages and receptacles.

## 4 Types

The inks for food packaging shall be considered under the following categories:
4.1 Inks for external packaging
4.2 Inks for immediate wrapping



 

## 5 Requirements

### 5.1 General requirements.

These inks must be applied on the outside of the wrapper, thereby forming a barrier between the ink and the food. The wrappers should be printed in such a manner that set-off in the printing processes is avoided, thereby ensuring that the wrapping in contact with the foodstuff shall be free from printing ink.

### 5.2 Specific requirements

**5.2.1.** The Printing inks shall comply with the requirements given in Table 1 when tested in accordance with the methods prescribed therein;

**Table 1: Specific requirements for Printing inks for use on food wrappers, packages and receptacles**

| SN | Parameter | | Requirement | Test Method |
|---|---|---|---|---|
| 1. | Fineness of grind, µm, max | | 5 | TZS 607 |
| 2. | Heavy metal, mg/kg, max | Lead | 0.5 | ISO 3856-1 |
| | | Cadmium | 0.1 | ISO 3856-4 |
| | | Mercury | 0.1 | ISO 3856-7 |
| | | Chromium (VI) | 0.1 | ISO 3856-5 |

**5.2.2 Material and substance for exclusion from printing ink**
Guide to material and substances for exclusion from printing ink formulations are as given in Annex A

## 6 Packaging and marking

### 6.1 Package

The Printing ink shall be packaged in suitable container that withstand normal handling and transportation and that will prevent leakage, contamination of the product.

### 6.2 Marking

The Printing ink shall be marked legibly and indelibly on the container either in English, Kiswahili or French or a combination with the following information

a) manufacturer's name and/or registered trade mark;
b) type of ink;
c) manufacture and expiry date;
d) the words, 'Suitable for use on food wrappers, packages and receptacles';
e) country of manufacture;"
f) weight of ink;
g) instructions for use, storage and disposal marked on the container or enclosed in the pack;
h) batch or lot number.

## 7 Sampling

Sampling shall be done in accordance with Annex B.

## Annex A

**(normative)**

## GUIDE TO MATERIAL AND SUBSTANCES FOR EXCLUSION FROM PRINTING INK FORMULATIONS

A-1 Pigments and compounds based on Antimony (see Note 1), Arsenic, Cadmium, Chromium (VI), Lead (see Note 2), Mercury and Selenium.

NOTES:

1. With the exception of non-biodegradable Antimony titanate present in titanium dioxide pigments.

2. Except where necessary in certain screen inks to meet specified resistance requirements.

A-2 DYE COLOURANTS

A-2.1 Auramine (Basic Yellow 2 — CI 41000)
A-2.2 Chrysoidine (Basic Orange 2 — CI 11270)
A-2.3 Cresylene Brown (Basic Brown 4 — CI 21010)
A-2.4 Fuchsine (Basic Violet 14 — CI 42510)

NOTE — formerly listed as 'magenta'.

A-2.5 Induline (Solvent Blue 7 — CI 50400)

Azo dyes which can decompose in the body to bioavailable aromatic amines that are classified as category 1A or 1B carcinogens

NOTE — In case of pigment and dye based on heavy metal, the permissible limit for heavy metal shall be as follows;

| **Element (Metal)** | **Maximum limit mg/kg of product** |
|---|---|
| Lead (Pb) | 90 |
| Antimony (Sb) | 60 |
| Barium (Ba | 1000 |
| Cadmium (Cd) | 75 |
| Chromium ($Cr^{+6}$) | 60 |
| Arsenic (As) | 25 |
| Mercury (Hg) | 60 |

A-3 SOLVENTS

A-3.1 Benzene
A-3.2 Dichlorobenzene
A-3.3 2-ethoxy Ethanol
A-3.4 2-ethoxy Ethyl Acetate Methanol (see Note below)
A-3.5 2-methoxy Ethanol
A-3.6 2-methoxy Ethyl Acetate
A-3.7 Monochlorobenzene
A-3.8 2-nitropropane
A-3.9 Toluene
A-3.10 Volatile Chlorinated Hydrocarbons (see Note below)
A-3.11 Volatile Fluorochlorinated Hydrocarbons

NOTE — With the exception of their use as denaturants for ethanol to meet legal requirements.

A-4 PLATICIZERS



 

A-4.1 Chlorinated Naphthalenes
A-4.2 Chlorinated Paraffins
A-4.3 Di-n-butylphthalate (DBP)
A-4.4 Di-isononyl Phthalate (DINP)
A-4.5 Monocresyl Diphenyl Phosphate
A-4.6 Monocresyl Phosphate
A-4.7 Polychlorinated Biphenyls
A-4.8 Polychlorinated Terphenyls
A-4.9 Tricresyl Phosphate
A-5 VARIOUS COMPOUNDS
A-5.1 Asbestos
A-5.2 Brominated Flame Retardants
A-5.3 Diaminostibene and Derivatives
A-5.4 2,4 Dimethyl 6 tertiary Butyl Phenol
A-5.5 Dioxins
A-5.6 Hexachlorocyclohexane
A-5.7 Nitrosamines
A-5.8 Pentachlorophenol and its Salts
A-5.9 Polychlorinated Dibenzofuranes
A-5.10 4,4 Tetramethyldiamino Benzophenone (Michlers Ketone)
A-5.11 Toluene Di-isocyanate
A-5.12 Titanium Acetylacetonate
A-5.13 Vinyl Chloride Monomer

## Annex B

**(normative)**

## METHODS OF SAMPLING PRINTING INKS

B-1. GENERAL REQUIREMENTS OF SAMPLING

B-1.0 In drawing, preparing, storing and handling test samples, the following precautions and directions shall be observed.

B-1.1 Samples shall not be taken in an exposed place.

B-1.2 The sampling instrument shall be clean and dry.

B-1.3 The material in the containers shall be mixed thoroughly before drawing samples.

B-1.4 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

B-1.5 The samples shall be placed in clean and dry glass containers.

B-1.6 After filling, the sample containers shall be closed tightly with a stopper, sealed and marked with full details of sampling, such as sample number, the date of sampling, the batch of manufacture of the material, name of manufacturer and other important particulars of the consignment.

B-1.7 Samples shall be stored in such a manner that the condition of storage do not unduly affect the quality of the material.

B-2. SCALE OF SAMPLING

B-2.1 Lot-All the containers of the same size in a single consignment of the material drawn from a single batch of manufacture shall constitute a lot. If a consignment is declared or known to consist of different batches of manufacture, or of different sizes of containers belonging to the same batch and of the same size shall be grouped together and each such group shall constitute a separate lot.

B-2.1.1 Samples shall be tested for each lot for ascertaining the conformity of the material to the requirements of the specification.

B-2.2 The number of containers (n) to be selected from a lot shall depend on the size of the lot (*N*) and shall be in accordance with Table 2.

**TABLE 2: NUMBER OF CONTAINERS TO BE SELECTED FOR SAMPLING**

| **LOT SIZE (N)** | **No. OF CONTAINERS TO BE SELECTED (I)** |
|---|---|
| Up to 20 | 3 |
| 21- 40 | 4 |
| 41 -80 | 5 |
| 81 -120 | 6 |
| 121 - 200 | 8 |
| 201 and above | 10 |