

DRAFT ZANZIBAR NATIONAL STANDARD

Selection of Personal Protective Equipment (PPE) for waste handling — Guidelines

ZANZIBAR BUREAU OF STANDARDS

Foreword

This draft Zanzibar National standard has been developed by the Soil and Air Quality Technical Committee (TCE2). 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 Soil and Air Quality Technical Standard committee which consists of representatives from the following organizations:

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Department of Environment (DoE)
State University of Zanzibar (SUZA)
Tanzania Meteorological Authority (TMA)
Zanzibar Environmental Management Authority (ZEMA)
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Introduction

Personal protective equipment, commonly referred to as 'PPE', is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. Personal protective equipment may include items such as gloves, gumboots, overalls, dust masks, apron, safety glasses and shoes, earplugs or muffs, hard hats, respirators, high visibility safety vests (safety bibs), full body suits and coverall.

Appropriate PPE shall be worn by all persons involved in waste handling, including waste collection groups involved in the collection of waste from municipalities, waste pickers or collectors engaged in the collection and sorting of recyclable materials, cleaning personnel involved in the collection and handling of waste from offices and other premises, healthcare facility personnel involved in the handling of healthcare waste, workers at collection centres, recycling facility workers, local authority waste management personnel and workers involved in the operation and management of sanitary landfills.

The type of PPE required shall be determined based on the nature and level of the hazards associated with the activity being undertaken. Regulatory authorities and responsible organizations shall ensure and enforce compliance with applicable PPE requirements to minimize the risk of occupational injuries, illnesses, and irreversible adverse health effects among workers.

Selection of Personal Protective Equipment (PPE) for waste handling — Guidelines

1 Scope

This standard describes the guidelines for selection of PPE to be used during waste handling. It does not cover hazards relating to radioactive substances.

2 Normative references

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

ZNS 416:2021, *Glossary of terms relating to solid wastes*

3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in ZNS 416:2021 and the following shall apply.

3.1

apron

Protective garment worn over clothing that covers the front part of the body from the chest to the waist. Its primary function is to protect clothing from getting dirty or stained while performing tasks or handling substances like dirt or grease

3.2

combined filter

Filter intended to remove dispersed solid and/or liquid particles and specified gases and vapours from the flow of air passing through it

3.3

eye protector

provided protection for eyes against hazards such as flying particles and fragments, splashing materials and molten metals harmful dust, gases or vapours, aerosols, and radiations which are likely to impair or damage the eyes.

3.4

filtering half mask

one which covers the nose and mouth and possibly the chin and

- a) consists entirely or substantially of filter material; and
- b) comprises a face piece in which the main filter(s) form an inseparable part of the device and where the pre-filter may be replaceable.

3.5

fresh air hose and compressed airline breathing apparatus

respiratory protective device in which breathable air is obtained through an air supply hose either assisted or unassisted

3.6

full face mask

tight - fitting face piece covering mouth, nose, eyes and chin half mask.

3.7

gas filter

Filter intended to remove specified gases and vapours from the flow of air passing through it

3.8

glove

covering for the hand having separate fingers and thumb with cuff length at least 75 mm

3.9

biomedical waste (including domestic sanitary waste)

part of dry waste generated during the medication/treatment including sanitary napkins, diapers, contaminated gauge etc including expired medical items

3.10

Open-Circuit Compressed Air Breathing Apparatus

Self-contained breathing apparatus which has a portable supply of compressed air and is independent of the ambient atmosphere. The exhaled air passes without recalculation to the ambient atmosphere

3.11

particulate filter

Filter intended to remove dispersed solid and/or liquid particles from the flow of air passing through it

4 Selection

4.1 Workers handling waste should have proper PPE, training on how to use it, and facilities for hand washing. Workers should wash hands with soap and running water immediately after removing PPE. It is the duty of the employer to choose the exact suitable PPE for the employee according to this standard. The PPE requirements may vary based on assessment of the facility and specific job duties of workers handling human waste or sewage, but they generally include the following:

4.1.1 Eye protector to protect eyes from splashes of waste material or sewage as specified in Table 1 regarding on the nature of the waste.

Table 1: Eye Protection

S/No.	Different types of waste	Eye protection
i.	municipal solid waste	safety goggles
ii.	municipal liquid waste	face shield/full face piece
iii.	municipal sewage waste	safety goggles
iv.	fumigation	safety goggles
v.	biodegradable waste	safety goggles
vi.	chemical waste	safety goggles
vii.	biomedical waste	safety goggles
viii.	construction waste	safety goggles
ix.	domestic waste	safety goggles
x.	e-waste	safety goggles
xi.	food waste	safety goggles
xii.	gaseous waste	safety goggles
xiii.	hazardous/toxic waste	full face piece/hood

4.1.2 Respiratory protective device specified in Table 2 to protect nose and mouth from splashes waste or sewage regarding on the nature of the waste.

Table 2: Respiratory Protection

S/No.	Different types of waste	Respiratory Protection
i.	municipal solid waste	Filtering face piece FFP1/FFP2/FFP3
ii.	municipal liquid waste	Half face/full face masks with appropriate cartridge
iii.	municipal sewage waste	PAPR (powered air-purifying respirators) and SAR (supplied-air respirators) SCBA (self-contained breathing apparatus)
iv.	fumigation	Filtering face piece FFP1/P2/P3 Respirator with OV relief
v.	biodegradable waste	Filtering face piece FFP1/FFP2/FFP3
vi.	chemical waste	Half face/full face masks with appropriate cartridge
vii.	biomedical waste	Half face/full face masks with appropriate cartridge
viii.	construction waste	Filtering face piece FFP1/FFP2/FFP3
ix.	domestic waste	Filtering face piece FFP1/FFP2/FFP3
x.	e-waste	Filtering face piece FFP1/FFP2/FFP3
xi.	food waste	Filtering face piece FFP1/FFP2/FFP3with OV relief
xii.	gaseous waste	Half face/Full face masks with appropriate cartridge/SAR (supplied-air respirators)/SCBA (self-contained breathing apparatus)
xiii.	hazardous/toxic waste	Half face/full face masks with appropriate cartridge/SAR (supplied-air respirators)/SCBA (self-contained breathing apparatus)

4.1.3 Gloves as specified in Table 3 to prevent exposure of hands to waste or sewage regarding on the nature of the waste.

Table 3: Hand Protection

S/No.	Different types of waste	Hand protection
i.	municipal solid waste	Cut resistant gloves/leather hand gloves
ii.	municipal liquid waste	Chemical protective gloves
iii.	municipal sewage waste	Chemical protective gloves
iv.	fumigation	Chemical protective gloves
v.	biodegradable waste	Chemical protective gloves
vi.	chemical waste	Chemical protective gloves
vii.	biomedical waste	Surgical gloves
viii.	construction waste	Cut resistant gloves/leather hand gloves
ix.	domestic waste	Chemical protective gloves
x.	e-waste	Cut resistant gloves/leather hand gloves
xi.	food waste	Chemical protective gloves
xii.	gaseous waste	Cryogenic/heat resistant gloves
xiii.	hazardous/toxic waste	Cryogenic/heat resistant gloves

4.2 Body protection as specified in Table 4 for liquid-repellent coveralls to keep human waste or sewage off clothing regarding on the nature of the waste.

Table 4: Body Protection

S/No.	Different types of waste	Body protection
i.	municipal solid waste	Protective leather clothing
ii.	municipal liquid waste	Aprons and suits, rubberized, acid and alkali resistant
iii.	municipal sewage waste	Protective suits, rubberized, acid and alkali resistant
iv.	fumigation	CBRN (chemical, biological, radiological and nuclear) suit
v.	biodegradable waste	CBRN (chemical, biological, radiological and nuclear) suit
vi.	chemical waste	CBRN (chemical, biological, radiological and nuclear) suit
vii.	biomedical waste	CBRN (chemical, biological, radiological and nuclear) suit
viii.	construction waste	Protective leather clothing
ix.	domestic waste	Aprons and suits, rubberized, acid and alkali resistant Aprons and suits, rubberized, acid and alkali resistant Aprons and suits, rubberized, acid and alkali resistant
x.	e-waste	Aprons and suits, rubberized, acid and alkali resistant Aprons and suits, rubberized, acid and alkali resistant Aprons and suits, rubberized, acid and alkali resistant
xi.	food waste	Aprons and suits, rubberized, acid and alkali resistant Aprons and suits, rubberized, acid and alkali resistant Aprons and suits, rubberized, acid and alkali resistant
xii.	gaseous waste	CBRN (chemical, biological, radiological and nuclear) suit
xiii.	hazardous/toxic waste	CBRN (chemical, biological, radiological and nuclear) suit

4.3 Foot protection as specified in Table 5 for rubber boots to prevent exposure to human waste or sewage regarding on the nature of the waste.

Table 5: Foot Protection

S/No.	Different types of waste	Foot protection
i.	municipal solid waste	Safety shoes
ii.	municipal liquid waste	Safety shoes liquid resistant
iii.	municipal sewage waste	Safety shoes liquid resistant
iv.	fumigation	Safety shoes liquid resistant
v.	biodegradable waste	Safety shoes
vi.	chemical waste	Chemical protection shoe
vii.	biomedical waste	Chemical protection shoe
viii.	construction waste	Safety shoes
ix.	domestic waste	Safety shoes
x.	e-waste	Safety shoes
xi.	food waste	Safety shoes
xii.	gaseous waste	Safety shoes impermeable to gas
xiii.	hazardous/toxic waste	CBRN (chemical, biological, radiological and nuclear) shoe

Annex A
(Informative)
Specifications for PPEs for healthcare waste handling

Item	Description and specification
Utility hand gloves	Glove design: Hand-specific, designed for dexterity and comfort in addition to protection. Texture in palm area shall provide grip and cleaning sensation to enable safety during janitorial activities. Cuff design: Straight cuff for maximum protection from contaminated liquids. Cuff shall reach at least 75 mm from the upper arm surface when the elbow is flexed at 90° Palm thickness Minimum of 0.5 mm/20 mil. Provide good resistance to snags, puncture, abrasion and cuts Sizes Up to 7.5" (19.00 cm) - x-small 7.5 – 8" (20.25 cm) – small 8 – 8.5" (21.50 cm) – medium 8.5 – 9" (23.00 cm) – large Over 9.0" (23.00 cm) – x-large
Safety gloves (Puncture and cut protection gloves)	Protect against threats from nails, wire, glass fragments, metal shards, wood splinters, and all types of needles. Recommended for incinerator and waste bay operators
Heavy duty Safety boot	Hide: Long-lasting, heat-resistant hard-wearing, lightweight, flexible, rust and corrosion resist Offers heel protection, comfort with odor- reducing, moisture-wicking properties. Design specifications: Toe impact protection: Toe impact energy up to 90joules. Siding: Sole construction. Sole puncture protection: Minimum protection of 1 200 newtons. Slip-resistant sole: Deep tread with coefficient of friction >0.
Gum boots	Molded polyvinyl or other plastic to ensure that it is waterproof, Resistant to blood, fluids and easy to disinfect for maximum protection and hygiene. Anti-skid tread prevents slipping. Supposed to be used during health care waste collection and transportation.
Apron	Made of 20 mil virgin vinyl with electronically heat-sealed grommets. Extra-long nylon string ties included to secure apron in a variety of ways. Waterproof and chemical-proof standard.
Safety goggles	Design: Glasses with side protection or goggle. Lens: Impact-and heat-resistant, molded, and 2.2mm thick with ant-fog coating. Heat resistant: Self-extinguishing foam and heat-resistant materials. Ventilation: At minimum, four indirect ventilation slots. Fit: Wide contact between goggle and face. Visibility: Unobstructed peripheral vision. Strap: Adjustable support strap
Masks	Shall have exhalation valve that reduces heat and humidity, providing a cooler, more comfortable fit while minimizing fogging on eyewear. The RPFN952 has a low profile design with dual fixed straps, adjustable metal nose band, and smooth inner lining, ensuring a secure seal and comfortable fit. Folds flat for easy storage. Sizes: One size
Head gear	Hard enough to protect the operators head from mechanical injuries and any possible splash from liquid waste and chemicals

Reference

IS 19508: 2026, *Selection of PPE for Waste Handling — Guidelines*

ZNS 740: 2025, *Solid waste Management of health care waste*

DRAFT FOR STAKEHOLDERS COMMENT