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DRAFT EAST AFRICAN STANDARD

Non-hazardous waste management —Specification

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 031, *Waste management.*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

Non-hazardous waste management —Specification

1 Scope

This Draft East African Standard specifies requirements for non-hazardous waste discharge from homes, institutions, industries and business areas. It covers all stages from generation, segregation, collection, transportation, recycling and disposal.

2 Normative references

For normative references: The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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

ISO 24161, Waste collection and transportation management—Vocabulary

3 Terms and definitions

For the purposes of this document, terms and definitions found in ISO 24161:2022 Waste collection and transportation management—Vocabulary and the following terms and definitions apply

3.1
solid waste
non-liquid materials arising from domestic, street, commercial, industrial and agriculture activities; and includes refuse or garbage, non-liquid materials arising from construction and demolition activities, garden trimmings and mining operations, dead animals and abandoned cars scraps

3.3
pollution
any direct or indirect alteration of physical, thermal, chemical, biological or radioactive properties of any part of the environment by discharging, emitting, or depositing of waste so as to adversely affect any beneficial use, to cause a condition which is hazardous to public health, safety or welfare, or to animals, birds, wildlife, fish or aquatic life, or to plants or to cause contravention of any condition, limitation, or restriction

3.4
recycling
subjection of waste to any processor treatment to make it reusable

3.5
non-hazardous waste
any solid, liquid, gaseous or sludge waste that does not poses substantial or potential threats to public health or the environment

3.6
hazardous wastes
any solid, liquid, gaseous or sludge waste which by reason of chemical reactivity, environmental or human hazardousness, its infectiousness, toxicity, explosiveness and corrosiveness is harmful to human health, life or environment

3.7
source reduction
activities designed to reduce the volume, mass, or toxicity of products throughout the life cycle. It includes the design and manufacture, use, and disposal of products with minimum toxic content, minimum volume of material, and/or a longer useful life

3.8
compost
substance made of one or more unprocessed waste material of biological nature (plant and animal) and may include unprocessed mineral material that has been altered through microbiological decomposition

3.9
solid waste disposal
final stagein solid waste management system

3.10
door to door collection
collection of solid waste from doorstep of households, shops, commercial establishments, offices, institutional or any other non-residential premises and includes collection of such waste from entry gate or a designated location on the ground floor in a housing society, multi-storied buildings or apartments, large residential, commercial or institutional complex or premises

3.11
solid waste processing
any scientific process by which segregated solid waste is handled for the purpose of reuse, recycling or transformation into new products

3.12
solid waste transportation
conveyance of solid waste, either treated, partly treated or untreated from a location to another location in an environmentally sound manner through specially designed and covered transport system so as to prevent the foul odour, littering and unsightly conditions

3.13
solid waste storage
means to store segregated waste at household /community level separately

3.14
solid waste collector
person or groups of persons informally engaged in collection and recovery of reusable and recyclable solid waste from the source of waste generation, the streets, bins, material recovery facilities (MRF), processing and waste disposal facilities for sale to recyclers directly or through intermediaries to earn their livelihood

3.15
solid waste segregation
sorting and separate storage of various components of solid waste namely biodegradable wastes including agriculture and dairy waste, non-biodegradable wastes including recyclable waste, non-recyclable combustible waste, sanitary waste and recyclable inert waste, domestic hazardous wastes, and construction and demolition wastes

3.16
bio-degradable waste
any organic material that can be degraded by micro-organisms into simpler stable compounds

4 Requirements

4.1 Solid waste generation

The quantity and quality of solid waste generated from residential or commercial complexes vary from place to place. The generator of solid waste should prevent and or minimize waste at source by applying cleaner production principles that is by monitoring of product cycle from beginning to the end by:

a) identifying and eliminating potential negative impacts of the product;

b) enabling the recovery and re-use of the product where possible; and

c) reclamation and recycling.

4.2 Waste segregation at source

Generator shall segragate solid waste produced at source in accordance with the composition of solid waste, namely recyclable waste biodegradable and general waste Re-usable and others. Solid waste shall be segregated in receptacles as specified by relevant competent authority

4.3 Storage of solid waste at source

On site storage of solid wastes should consider the type of container to use, container location, collection method, and public health and aesthetic aspects.

4.3.1 Storage of recyclable solid waste

All recyclable waste shall be kept in the blue labelled designated bins/bags which are made by either plastic or metal. Care shall be taken to keep them dry and free from pathogens or soiling with biodegradable waste or domestic hazardous waste.

4.3.2 Storage of bio-degradable solid waste

All biodegradable waste shall be kept in the green labelled designated bins/ trash bags which are made by plastic that do not allow leakage. Biodegradable waste shall never be disposed off in plastic bags. In case a plastic linner is used for keeping the waste bin clean, the plastic liner shall not be thrown along with bio-degradable waste. The plastic liner can be re-used after cleaning or washing.

4.3.3 Storage of general solid waste

All general waste shall be kept in the black labelled designated bins/bags which are made by either plastic or metal. Care shall be taken to keep them dry and free from pathogens or soiling with biodegradable waste or domestic hazardous waste.

4.4 Collection and transportation of solid waste from source

4.4.1 General

Methods of solid waste collection vary from one kind of waste to another. waste shall be collected from source at a frequency agreed on between the competent authority and the service provider. Competent authority shall designate adequate areas to be used as solid waste transfer station, Taking into consideration of the following criteria:

a) Should be located away from residential areas.

b) Easily acessible for waste collection vehicles.

c) Encourage waste separation at source.

Competent authority shall commission solid waste contractors with responsibility to handle the waste over areas. Authorised contractors should have adequate and appropriate training, working equipment, tools, and personal protective gears for waste handlers.

4.4.2 Collection and transportation

Waste shall be collected from door to door/collection point by staff of relevant municipal authorities or delegated licensed operator . Such collection shall be pre-informed timings from all residential premises including slums and informal settlements.

The bio-degradable solid waste collected from doorstep/ collection point shall be directly transported to the processing or disposal facility. Plastic liner if used in bins, shall not be transferred with biodegradable waste.

Recyclable waste collected from doorstep/ collection point shall be directly transported to the recycling facilities.

General waste collected from doorstep/ collection point shall be directly transported to the disposal or recovery facilities.

Waste collectors shall use authorized vehicle by relevant competent authorities for collection of segregated solid waste without necessitating deposition of waste. Vehicles used for transportation and processing of waste shall be well covered to prevent spillage of waste hence it shall not be visible to public nor exposed to open environment to prevent scattering.

4.5 Resource recovery and recycling solid waste

segregation into categories and sub-categories, may be processed on -site or sent to authorized facilities for further recovery and recycling

4.6 Disposal of solid waste

The general waste shall be disposed off in designated disposal facilities as prescribed by relevant competent authority. Waste collectors shall follow instructions from relevant competent authorities on the disposal method and location. The biodegradable waste shall be processed, composted or disposed off in designated disposal facilities as prescribed by relevant competent authority

5 Solid waste record keeping

5.1 Record keeping requirements

Competent authority shall keep records, and in agreed time send to the relevant authority information and data on the rate, types, composition of solid waste generated, collection methods, treatment or disposal method employed within its area of jurisdiction.

The owner or operator of solid waste facility shall be required to maintain records of demonstrations, inspections, monitoring results, categories and weights or volumes of solid waste received at the facility.

5.1.1 Solid waste data shall be collected by service providers and reported to the relevant authority on a routine basis. It shall include the number of households covered by waste collection services, frequency of waste collection, waste composition, records of waste deliveries to waste treatment facilities, waste recovered (such as compost and recyclables), and waste deliveries to disposal sites

5.1.2 Waste collection and transportation service contracts shall include clear specifications for reporting, including the type of data, frequency, method, and other data reporting and monitoring requirements

5.1.3 Relevant authorities shall verify the data reported by service providers and regularly conduct audits or checks to ensure the accuracy of the data provided. Records of solid waste data shall be maintained by both the relevant authorities and service providers, which shall utilize the data for planning services and making decisions regarding improvements to the solid waste management system.

Record keeping of solid waste shall include the following:

5.2 Inspection records, training procedures Inspection records shall be maintained and shall include, the date and time of the inspection, the purpose of the inspection, the type of waste received during inspection, the source of the waste, the names of personnel involved in the transportation of the waste, the vehicle identification number, and all observations made by the inspector.

Solid waste testing records shall include results of combustion tests, particle size distribution, and physical, chemical, and biological tests, including air quality tests.

Training records shall include the date of training, type of participants (including occupation and gender), training topic, attendance records, and training feedback.

5.3 Quantity of solid waste generated

The quantities of solid waste that will be generated by waste category shall be estimated within a community by authorized contractor. Estimates of solid waste shall be based on the amount of waste generated per person per day in kg/person/d.

5.4 Reporting Requirements for On-Site Waste Management

Public/private institutions that are licensed to manage the wastes generated at their premises shall report to the relevant competent authority.

Bibliography

[1] WHO 2014 Handbook for safe management of waste

[2] IS 16557, Solid waste management – Segregation, collection and utilization at household/community levels — Guidelines