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## DRAFT EAST AFRICAN STANDARD

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**Kitchen equipment cleaner and grease remover — 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) and other deliverables. 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 and other deliverables 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 074, *Surface active agents*

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.

This second edition cancels and replaces the first edition (EAS 791:2013), which has been technically revised.



# Kitchen equipment cleaner and grease remover — Specification

## 1 Scope

This Draft East African Standard specifies the requirements, sampling and test methods for kitchen equipment cleaners and grease removers. The standard covers three types of kitchen equipment cleaners and grease removers that are suitable for the removal of carbon deposits, grease, baked-on fats and other surface contaminants from industrial and domestic cooking kitchen equipment, grills, fryers and other steel kitchen equipment, but that are not intended for use in self-cleaning kitchen equipment.

## 2 Normative references

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.

ASTM D6450, *Standards test methods for flash point by Continuously Closed Cup (CCCFP) tester*

EAS 321, *Edible fats and oils (General) – Specification*

EAS 956, *Air freshener aerosols — Specification*

ISO 456, *Surface active agents — Analysis of soaps — Determination of free caustic alkali*

ISO 684, *Analysis of soap — Determination of total free alkali*

ISO 862, *Surface active agents — Vocabulary*

ISO 1067, *Analysis of soap — Determination of unsaponifiable, unsaponified and unsaponified saponifiable matter*

ISO 2884-2, *Paints and varnishes – Determination of viscosity using rotary viscometers – Part 2: Disc or ball viscometer operated at a specified speed*

## 3 Terms and definitions

For the purposes of this standard, terms and definitions given in ISO 862 and the following shall apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

### surface contaminants

impurities that bond or settles on the metal surface and affect the physical and sometimes chemical properties of the metal

## 4 Requirements

### 4.1 General requirements

4.1.1 The kitchen equipment cleaner and grease remover shall be one of the following types:

- **Type 1:** homogeneous, free-flowing liquid and may be coloured, applied by spraying by means of a mechanically operated pump, onto cold or hot (approximately 70 °C) surfaces;
- **Type 2:** homogeneous liquid of the prescribed viscosity and may be coloured: applied by brushing, or by spraying by means of a mechanically operated pump, onto cold or hot (approximately 70 °C) surfaces; and
- **Type 3:** liquid that is mixed with a propellant and is dispensed as an aerosol applied by spraying from an aerosol container onto cold or hot (approximately 70 °C) surfaces.

4.1.2 The kitchen equipment cleaners and grease removers shall not contain chlorinated hydrocarbons

4.1.3 The kitchen equipment cleaners and grease removers shall not have an objectionable odour and shall not leave any residual odour or taste on the cleaned equipment.

4.1.4 The kitchen equipment cleaners and grease removers shall have no detrimental effect on porcelain, enamel, iron, stainless steel or ceramic surfaces when used in accordance with the manufacturer's instructions.

4.1.5 When the kitchen equipment cleaner and grease remover is applied to a vertical vitreous enamel surface, it shall leave an uninterrupted residual film.

4.1.6 Under normal storage conditions in the original and unopened container, the cleaner and grease remover shall show no sign of separation and, in the case of a Type 1 cleaner, no precipitation,

4.1.7 For Type 3, under normal storage conditions in an unused can, the cleaner shall still comply with all the relevant requirements of this standard and the can and the valve assembly shall show no visual evidence of having been corroded or damaged by the contents.

### 4.2 Specific requirements

The kitchen equipment cleaner and grease remover shall comply with the specific requirements given in Table 1.

Table 1 — **Specific quality requirements for kitchen equipment cleaner and grease remover**

SI No	Parameter	Requirement			Test method
		Type 1	Type 2	Type 3	
i)	Free alkali content (as NaOH), g/L, max.	150.0	150.0	60.0	ISO 456
ii)	Viscosity at 25 °C, mPa.s max.	550	627	-	ISO 2284-2
iii)	Flash point, °C, min.	90.0	90.0	-	ASTM D6450
iv)	The cleaning efficiency	To pass the test			Annex A
v)	Water-insoluble matter content, g/L, max.	1.0	1.0	1.0	Annex B

4.3 The propellant used in type 3 of kitchen equipment cleaner and grease remover shall not contain Chlorofluorocarbons (CFCs) when tested in accordance with EAS 956.

## 5 Packaging

### 5.1 Type 1 and Type 2

The kitchen equipment cleaner and grease remover shall be packed in containers that prevent leakage and contamination of the product and that are strong enough to withstand normal handling and transportation.

### 5.2 Type 3

**5.2.1** The kitchen equipment cleaner and grease remover shall be packed in metal cans with valve assemblies that are covered by a protective cap.

**5.2.2** The can shall be a low-pressure aerosol metal can. The valve stem of the valve assembly shall be fitted with a side discharge plastics actuator that is suitable for surface spraying.

**5.2.3** The direction of the discharge shall be indicated either by the shape of the actuator or by a mark on it. The valve assembly shall be constructed of materials that are not affected by the product and shall be so designed and located that, when actuated, none of the aerosol spray impinges on any part of the container.

**5.2.4** When the valve is operated, the product shall be ejected through the actuator discharge orifice only.

## 6 Labelling

Each container and bulk package shall be securely closed, legibly and indelibly labelled either in English, Kiswahili or French or combination or any other language as agreed between the manufacturer and supplier with the following information:

- a) name of the product as “kitchen equipment cleaner” or “grease remover”
- b) manufacturer’s name and physical address
- c) safety and precautionary information
  - that the product is a kitchen equipment cleaner and/or grease remover;
  - that the product is not intended for use in self cleaning kitchen equipment; and
- d) when applicable the product contains caustic soda and is dangerous and poisonous; instructions for use;
- e) net content in litres;
- f) in the case of a Type 3 cleaner that contains a liquefied hydrocarbon as a propellant, cautionary directions regarding the use in gas kitchen equipment, the disposal of empty containers and first-aid recommendations;
- g) batch or code number;
- h) dates of manufacture and expiry
- i) number of containers in the case of bulk packages; and
- j) country of origin.

NOTE The name, physical address of the distributor/supplier and trade mark may be added as required

## 7. Sampling

Sampling shall be done in accordance with Annex C

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## Annex A (normative)

### Determination of cleaning efficiency

#### A.1 Apparatus

**A.1.1 Means of heating** the artificial soil ingredients (see A.2.1) at a temperature of  $80.0\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ .

**A.1.2 Six glass petri dishes** of diameter  $96\text{ mm} \pm 2\text{ mm}$  and depth of  $11\text{ mm} \pm 2\text{ mm}$ .

**A.1.3 oven**, capable of reaching  $245\text{ }^{\circ}\text{C}$ .

#### A.2 Materials

##### A.2.1 Artificial soil

Melt and mix the following ingredients at  $80.0\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ , allow to cool to room temperature and then mix thoroughly to a smooth paste.

Ingredient	Mass (g)
a) Cooking fat, that complies with the requirements of EAS 321	110
b) Sodium laury sulphate 95%	110
c) Cooking oil, that complies with the requirements of EAS 321	110
d) Icing sugar	22

##### A.2.2 Standard kitchen equipment cleaner (Type 1 and Type 2)

A solution that consists of the following:

Ingredient	Mass (g)
a) Sodium hydroxide	6.0
b) Sodium lauryl sulphate, 95 % pure	3.0
c) 2-Butoxyethanol	10.0
d) Carbon dioxide-free water	81.0

##### A.2.3 Standard kitchen equipment cleaner (Type 3)

A solution that consists of the following

Ingredient	Mass (g)
a) Sodium hydroxide	5.0
b) Sodium xylene sulphonate, 93 % pure	3.0
c) Nonyl phenol polyglycol ether, with 9 M ethylene oxide, 100 % active	3.0
d) Carbon dioxide-free water	82.0

### A.3 Procedure

**A.3.1** Apply 0.8 g  $\pm$  0.02 g of the artificial soil (see A2.1) evenly to the bottom of each of the six petri dishes (see 4.8.1.2) by means of a small, soft brush.

**A.3.2** Place the dishes in an oven that has been heated to approximately 245 °C (see E1.3). Close the oven and maintain it at 245 °C  $\pm$  5 °C for 2 h. Remove the dishes from the oven and allow them to cool to room temperature.

**A.3.3** Place the prepared glasses for approximately 30 min in an oven maintained at 80.0 °C  $\pm$  2 °C.

**A.3.4** Measure a 50-mL portion of the relevant standard kitchen equipment cleaner (see A.2.2 and A.2.3) into each of three glass beakers and a 50-mL portion of the undiluted test specimen into each of three other glass beakers.

**A.3.5** Without removing the dishes from the oven, pour into each of three dishes one of the 50-mL portions of standard kitchen equipment cleaner, and into each of the remaining three dishes, one of the 50-mL portions of the test specimen.

**A.3.6** In the case of a Type 3 test specimen and standard kitchen equipment cleaner, cover each filled dish with a watch-glass.

**A.3.7** Close the oven door and maintain the oven at 80 °C  $\pm$  2.0 °C for a period (started when the oven door is closed) of 30 min in the case of a Type 1 or Type 2 test specimen and standard kitchen equipment cleaner, and 45 min in the case of a Type 3 test specimen and standard kitchen equipment cleaner.

**A.3.8** Remove the dishes from the oven, decant the cleaning fluids and carefully rinse the dishes under very slow running tap water at ambient temperature.

**A.3.9** Visually compare the dishes cleaned with the test specimen and those cleaned with the standard kitchen equipment cleaner for compliance with 5.1.5.

## Annex B (normative)

### Determination of water-insoluble matter content

#### B.1 Apparatus

**B.1.1 Tared glass-fibre filter**, that has been dried and has a retention and a filtration speed equivalent to those of Whatman GF/A glass-fibre paper

**B.1.2 Forced-draught oven**, maintained at between 60 °C and 110 °C

**B.1.3 Desiccator** that contains self-indicating silica gel

**B.1.4 Analytical balance**, with a resolution of 0.01 g or better

#### B.2 Procedure

**B.2.1** Filter (under suction) 200 mL of the well shaken test specimen through the glass-fibre filter (see B.1.1) and thoroughly wash the residue on the filter with water. Allow the filter to drain completely.

**B.2.2** Dry the filter and the residue for 3 h at 105 °C ± 5 °C in a forced-draught oven (see B.1.2), cool in a desiccator (see B.1.3) and weigh (see B.1.4).

#### B.3 Calculation

Calculate the water-insoluble content ( $W$ ), in grams per litre, as follows;

$$W = 5 \times m$$

where

$W$  is the water-insoluble content in grams per litre; and

$m$  is mass, in grams, of the residue.

Check for compliance with table 1.



## Annex C (normative)

### Sampling

#### C.1 Procedure

**C.1.1** In a single consignment, all packages (cartons) containing materials drawn from the same batch of production shall constitute a lot. For ascertaining the conformity of the lot to the requirements of this standard, tests shall be carried out on each lot separately. The number of packages to be selected for drawing the sample shall be in accordance with Table C.1.

**Table C.1 — Scale of sampling**

Number of packages (cartons) in the lot  <i>N</i>	Number of packages (cartons) to be selected  <i>n</i>	Number of samples
4 to 15	3	3
16 to 40	4	4
41 to 65	5	2
66 to 110	7	2
111 and above	10	1

**C.1.2** The packages shall be selected at random, using tables of random numbers. If these are not available, the following procedure shall be applied:

Starting from any package, count all the packages in one order as 1, 2, 3....  $N$ , selecting every  $k^{\text{th}}$  package, where  $k$  is the integral part of  $N/n$ .

**C.1.3** From each package thus selected, draw at random an equal number of containers so as to obtain a total volume of at least 2 L.

#### C.2 Samples for testing

Take at one time all test samples required for the tests in 4.2. Measure the test sample required for determination of free alkali or acid content, and use it immediately.

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