



DRAFT TANZANIA STANDARD

Sunflower seeds for oil extraction – Specification

DRAFT FOR STAKEHOLDERS COMMENTS

Sunflower seeds for oil extraction – Specification

0 Foreword

Sunflower is among the five major oilseed crops in Tanzania. Others are sesame, groundnuts, palm and cotton oil. It is a very important crop to the livelihood of Tanzanians along the entire value chain.

Sunflower seeds for oil extraction are generally recognizable by their black colour, while seeds used for direct consumption are specific varieties often referred to as confectionary seeds, which are generally striped in appearance and larger in size, with lower oil content. Sunflower seeds and their oil are good sources of fat, protein, fibre and vitamins, as well as certain minerals.

This Tanzania Standard is intended to guide farmers/traders in achieving quality of sunflower seeds required for oil extraction in internal and external market.

In the preparation of this Standard assistance was drawn from the following publication: IS 7798:1975, Grading for sunflower seeds for oil milling, published by the Bureau of Indian Standards (BIS).

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

1 Scope

This Tanzania Standard specifies requirements, sampling and testing methods for sunflower (*Helianthus annuus*, L.) seeds intended for oil extraction.

2 Normative references

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

Codex Stan 193, *General Standard for Contaminants and Toxins in Food and Feed*

TZS 4, *Rounding off numerical values*

TZS 109, *Food processing units – Code of hygiene – General*

TZS 538, *Packaging and labeling of foods*

TZS 742, *Oleaginous seeds – Sampling*

TZS 799, *Foodstuffs – Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products – High-performance liquid chromatographic method*

TZS 1314 – 1, *Oilseeds – Determination of content of impurities*

TZS 1314 – 2, *Oilseeds – Determination of moisture and volatile matter content*

TZS 1314 – 3, *Oilseeds – Determination of oil content (Reference method)*

TZS 1314 – 4, *Oilseeds – Determination of acidity of oils*

3 Terms and definitions

For the purposes of this Tanzania Standard, the following terms and definitions shall apply:

3.1 sunflower seeds

seeds obtained from the sunflower (*Helianthus annuus*, L). plant

3.2 foreign matter

any organic or inorganic matter other than sunflower seed, and includes loose and empty shells (hulls, husks)

3.3 immature or shriveled seeds

sunflower seeds that have indications of lack of maturity or full development.

3.4 damaged seeds

seeds that are damaged mechanically, or by mould or insects, or those showing internal discoloration of seeds materially affecting their quality.

3.5 dehulled seeds (skinned)

sunflower seeds that have the hull completely removed from the sunflower kernel.

4. Requirements

4.1 General requirements

Sunflower seeds for oil extraction shall be:

- a) reasonably dry and uniform in size;
- b) free from other edible/non-edible seeds;
- c) free from foreign odours; and
- d) free from living and dead insects, moulds, mites, insect fragments, excrement and rodent contamination, insect fragments and damage caused by insect pests visible to the naked eye.

4.2 Specific requirements

Sunflower seeds for oil extraction shall comply with specific requirements given in Table 1 when tested in accordance with the methods specified therein;

Table 1- Specific requirements for sunflower seeds for oil extraction

S/N	Characteristic	Requirement			Test methods
		Grade 1	Grade 2	Grade 3	
i)	Moisture content,% (m/m) max.	10			TZS 1314 – 2
ii)	Oil content on moisture free basis,%,(m/m),min.	42	36	30	TZS 1314 – 3
iii)	Acid value of extracted oil%(m/m), max.	2	3	3	TZS 1314 – 4
iv)	Foreign matter, % (m/m), max,	1	1	2	TZS 1314 – 1
v)	Immature/shriveled, % (m/m), max.	1	2	2	TZS 1314 – 1
vi)	Damaged seeds % (m/m), max	1	1	2	TZS 1314 – 1
vii)	Dehulled seeds, % (m/m),	1	1	2	TZS 1314 – 1

	max.				
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5 Contaminants

5.1 Heavy metal contaminants

Sunflower seeds for oil extraction shall comply with those maximum metal contaminants stipulated in TZS 3242

5.2 Pesticide residues

Sunflower seeds for oil extraction shall comply with those maximum residue limits as established by Codex Alimentarius Commission online database for pesticide residues for this commodity

5.3 Mycotoxin

Sunflower seeds for oil extraction shall conform to those maximum mycotoxin limits established by the Codex alimentarius Commission.

5.3.1 Aflatoxin

In particular aflatoxin level for sunflower seeds for oil extraction shall not exceed maximum limits as given in Table 2 when tested in accordance with test method specified therein.

Table 2- Aflatoxins limits for sunflower seeds for oil extraction

S/N	Aflatoxins	Maximum limit (µg/kg)	Method of test
i)	Total aflatoxin (B1,B2,G1,G2)	10	TZS 799
ii)	Aflatoxin B1	5	

6 Hygiene

Sunflower seeds for oil extraction shall be grown in accordance with Good Agricultural Practices, handled and stored in accordance with TZS 109.

7 Sampling and methods of testing

7.1 Sampling

Sampling of sunflower seeds for oil extraction shall be done in accordance with TZS 742.

7.2 Methods of testing

Sunflower seeds for oil extraction shall be tested in accordance with the methods specified in this standard.

8 Packing, Marking and Labeling

8.1 Packing

Sunflower seeds for oil extraction shall be packed in suitable food grade packaging materials which ensure that the safety and quality requirements specified in this standard are maintained throughout the shelf life of the product.

8.2 Marking and labeling

8.2.1 The product shall be marked and labeled in accordance with TZS 538.

8.2.2 In addition each container/packet of product shall be legibly and indelibly marked with the following information:

- a) Name of the product;
- b) Grade
- c) Trade name or brand, if any;
- d) Name, address of the producer and/or seller;
- e) Batch or lot number;
- f) Date of packing;
- g) Net weight in metric unit;
- h) Country of origin;
- i) Year of harvest

8.2.2 Language on the label shall be in Kiswahili or Kiswahili and English. Additional language may be used depending on the designated market.

8.2.3 The containers may also be marked with the TBS Standards Mark of Quality.

NOTE – The TBS Standards Mark of Quality shall be used by the manufacturers only under licence from TBS. Particulars of conditions under which the licences are granted, may be obtained from TBS.

9 Storage and Transportation

9.1 Storage

Sunflower seeds for oil extraction shall be stored in dry and well ventilated environment and stacked on pallets to avoid moisture ingress. They shall be stored in leak-proof warehouses. Warehouses shall be free from pests.

9.2 Transportation

Sunflower seeds for oil extraction shall be transported in well secured wagons/containers/trucks to avoid contamination, loss and spoilage.