

འབྲུག་གི་པད་ཀར་མར་ཁུ་འཁུམ་ཆེད།

## BHUTAN STANDARD

Mustard oil



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**BHUTAN STANDARDS BUREAU**

The National Standards Body of Bhutan

THIMPHU 11001

འབྲུག་གི་པད་ཀར་མར་ཁུའི་གནས་ཚད།

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## FOREWORD

This Bhutan Standard for Mustard Oil was developed by Bhutan Standards Bureau after the draft finalized by the Sub-committee on Mustard Oil under Food and Agriculture Technical Committee, TC 02/SC11 and approved by the Bhutan Standards Bureau Board (BSB Board) on [Day Month 2021](#).

Currently two species of *Brassica* are referred to as Mustard in Bhutan. Mustard is *Brassica juncea* whereas *Brassica campestris* is known as Rapeseed. Commonly grown mustard in Bhutan is Rapeseed, herbaceous annual plant. Mustard oil is produced from a single species or a combination of mustard seeds through mechanical processes.

Mustard is cultivated as the secondary cash crop in Bhutan. It grows at an altitude ranging from 500 to 3500 meters approximately. Although Mustard is grown in most parts of Bhutan, mustard oil and mustard cakes remain as the exclusive products. This standard is developed to improve consumer's knowledge about Mustard oil and to guide the manufacturers on safety and quality of the product.

This standard is subject to systematic review after five years to keep pace with the market trends, industrial and technological developments. Any suggestions and further information may be directed to the concerned Technical Committee.

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## BHUTAN STANDARD FOR MUSTARD OIL

### 1 Scope

This Bhutan standard prescribes the requirements, sampling and test methods for Mustard Oil intended for human consumption.

### 2 Normative references

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

BTS 268:2020 CODEX STAN 1-1985, *General standards for the labelling of prepackaged foods*

BTS 139:2019 SARS 0014:2018, *Food hygiene- General principles – Code of practice*.

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply;

#### 3.1 Adulteration

Adulteration is an act of intentionally debasing the originality of a product either by the admixture or substitution of inferior substances or by the removal of some valuable ingredients.

#### 3.2 Antioxidant and antioxidant synergist

Antioxidants are substances which inhibit the oxidation of fats and oils. Antioxidant synergist enhance the effectiveness of the oxidation inhibition when combined with antioxidants.

#### 3.3 Cold pressed oil

Are obtained by crushing, pressing and expelling oil from seed without altering the essence of the oil, by the application of mechanical procedures without heat. The oil may be purified by filtering and settling.

#### 3.4 Contaminants

Any biological/chemical/physical, or any other substances not intentionally added to the food, which may compromise the food safety or suitability.

#### 3.5 Food Additives

Means any substance not normally consumed as food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in it or its byproducts becoming a component of or otherwise affecting the characteristics of such foods. The term does not include contaminants or substances added to food for maintaining or improving nutritional qualities.

## 3.6 Refined mustard oil

Obtained by the process of expression or solvent extraction which has been refined by neutralization with alkali, bleached with bleaching earth or activated carbon or both, and deodorized with steam, no other chemical agent shall be used.

## 3.7 Semi-refined oil

Are obtained by the process of solvent extraction which has been neutralized with alkali, with or without bleaching by bleaching earth or activated carbon or both, no other chemical agent shall be used.

## 3.8 Solid impurities

Insoluble extraneous matter found in oils and fats. It may consist of but not limited to dirt and miscellaneous debris, mineral matter, nitrogenous materials of animal or vegetable origin and carbohydrate substances such as vegetable fibers.

## 3.9 Virgin oil

Are obtained by crushing, pressing and expelling oil from seed without altering the essence of oil, by the application of mechanical procedures with heat. The oil may be purified by filtering and settling.

# 4 Requirements

## 4.1 Description

The product shall be obtained by a process of expression or solvent-extraction of clean and sound seeds of *Brassica campestris*, *Brassica juncea* or a mixture of these seeds.

**4.1.1** It shall be clear and free from adulterants, sediment, suspended and other foreign matter, separated water and added coloring and flavoring substances

**4.1.2** The clarity of the material shall be judged by the absence of turbidity after keeping the filtered sample at 30°C for 24 hours

# 5 Essential composition and quality factors

## 5.1 Food additives

No food additives are permitted in virgin or cold pressed oils.

## 5.2 Flavourings

The flavoring used in the product covered by this standard shall comply with the *Guidelines for the use of flavorings* (CXG 66-2008).

## 5.3 Antioxidants and antioxidant synergists

Addition of antioxidants shall comply as in the *Annex A*.

## 5.4 Antifoaming agents (used in oils for deep-frying)

The antifoaming agents used in the product shall conform to the limits specified in the **Table 1**

Table 1- Antifoaming agents

S/N	INS.NO	Additives	Maximum use level
1	900a	polydimethylsiloxane	10mg/kg

**5.5** The product shall also comply with the requirements specified in **Table 2**.

Table 2- Requirements for Mustard oil

S/N	Test parameter	Limit
1	Refractive Index at 40°C	1.4646 to 1.4666
2	Acid Value	Max. 2.5
3	Peroxide value (PV)	10 meq. Peroxide per kg of oil
4	Saponification Value (SV)	168-184 (mg KOH/g oil)
5	Iodine Value	98-110 (mg KOH/g )

## 5.6 Colour

Colors are permitted for the purpose of restoring natural colors lost in processing as long as added colors do not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.

## 6 Contaminants

**6.1** The product shall be free from heavy metals in amounts which may represent a hazard to health and shall not exceed the limits specified in **Table 3**.

Table 3- Heavy metal limits for Mustard oil

S/N	Heavy Metals	Maximum level (mg/kg)
1	Lead	0.08
2	Arsenic	0.1

**6.2** The product shall be free from mycotoxins in amounts which may represent a hazard to health and shall not exceed the limits specified in **Table 4**.

Table 4- Mycotoxins limits for Mustard oil

S/N	Mycotoxins	Maximum level (mg/kg)
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## BTS 335:2021

1	Aflatoxin B1	0.01
2	Total aflatoxins	0.02

**6.3** The product shall comply with the limits for pesticide residues specified in the **Table 5**.

**Table 5- Pesticide residues limits for Mustard oil**

S/N	Pesticide Residues	Maximum level (mg/kg)
1	Carbofuran	0.10
2	Dichlorvos (DDVP) (Content of dichloroacetaldehyde (DCA) be reported where possible)	0.01
3	Methyl parathion (Combined residues of methyl parathion and its oxygen analogue to be determined and expressed as Methyl parathion)	0.01
4	Oxydemeton- Methyl	0.01
5	Quinalphos	0.1
6	Thiamethoxam	0.01

## 7 Hygiene

It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the appropriate sections of the *BTS 139:2019 SARS 0014:2018*

## 8 Labelling

The products shall be labelled in accordance with the BTS 268:2020 CODEX STAN 1-1985.

**8.1** When added color is used, the container shall be labelled with “contains added permissible color”

**8.2** When natural flavor or artificial flavor shall be used, the container shall be labelled with “contains natural flavor or artificial flavor”

## 9 Packaging

The product shall be packaged in suitably sealed and well closed containers made from food grade material that will safeguard the hygienic, nutritional and organoleptic properties of the product.

## 10 Method of Analysis and Sampling

### 10.1 Sampling

Representative sample shall be drawn and general precautions as given below must be followed:

**10.1.1** All sampling instruments should be made of stainless steel.

**10.1.2** Samples shall not be taken in an exposed place. The material being sampled, the sampling instruments and containers for samples shall be protected from adventitious contamination. The test sample shall be placed in suitable clean and dry containers.

**10.1.3** Samples shall be stored in such a manner that they are protected from light, temperature fluctuations and other abnormal conditions.

**10.1.4** Sample containers shall be so filled that the air space above the liquid level shall be 5 to 10 percent of the capacity of the sample containers.

**10.2 Method of Analysis**

The laboratory may use the test methods which meet the specific performance criteria and are validated

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## Annex A

(Normative)

Table A.1- Antioxidant

S/N	INS No.	Additive	Maximum Use Level
1	304	Ascorbyl palmitate	500 mg/kg (Singly or in combination)
2	305	Ascorbyl stearate	
3	307a	Tocopherol, d-alpha	300 mg/kg (Singly or in combination)
4	307b	Tocopherol concentrate, mixed	
5	307c	Tocopherol, dl-alpha	
6	310	Propyl gallate	100 mg/kg
7	319	Tertiary butyl hydroquinone (TBHQ)	120 mg/kg
8	320	Butylated hydroxyanisole (BHA)	175 mg/kg
9	321	Butylated hydroxytoluene (BHT)	75 mg/kg
10	Any combination of gallates, BHA, BHT, or TBHQ not to exceed 200 mg/kg within individual limits		
11	322(i)	Lecithin	GMP
12	389	Dilauryl thiodipropionate	200 mg/kg

Table A.2 - Antioxidant synergists

S/N	INS No.	Additive	Maximum Use Level
1	330	Citric acid	GMP
2	331 (i)	Sodium dihydrogen citrate	GMP
3	331(iii)	Trisodium citrate	GMP
4	332(ii)	Tripotassium citrate	GMP
5	333(iii)	Tricalcium citrate	GMP
6	384	Isopropyl citrates	100 mg/kg (Singly or in combination)
7	472c	Citric and fatty acid esters of glycerol	

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