

# PEA Specifications DSTU 4523:2006

## PREFACE

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## NATIONAL STANDARD OF UKRAINE

### PEA

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### Technical conditions

### GOST of Ukraine 4523:2006

### PEA

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### DSTU 4523:2006

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This standard applies to pea grain intended for food and non-food use and for export. The distribution of peas into types is presented in Table 1; indicators, characteristics and quality norms of peas by class — in tables 2 and 3; mandatory requirements for pea seeds that guarantee the safety of life and health of humans, animals and the environment — in 5.2 (condition, smell, roundness of the grain, pest infestation chemicals, moisture), in 6.1 (toxic elements, mycotoxins and pesticides), in 6.2 (safety and industrial sanitation requirements), in 6.3 and 6.4 (environmental protection).

## 2 NORMATIVE REFERENCES

This standard contains references to the following regulatory documents:

- DSTU 2422-94 Grain procurement and supply. Terms and definitions
- DSTU 3355-96 Agricultural plant products. Sampling methods in the process of quarantine inspection and examination
- DSTU EN 12955-2001 Food products. Determination of aflatoxin B1 and the sum of aflatoxins B1, B2, G1 and G2 in cereals, hard-skinned fruits and products derived from them. Method of high-performance liquid chromatography using post-column derivatization and purification on an immune column (EN 12955:1999, IDT)
- DSTU EN ISO 15141-1-2001 Food products. Determination of ochratoxin A in grain and grain products. Part 1. Method of high performance liquid chromatography with silica gel purification
- DSTU EN ISO 15141-2-2001 Food products. Determination of ochratoxin A in grain and grain products. Part 2. Method of high-performance liquid chromatography with bicarbonate purification
- DSTU-P-4117-2002 Grain and its processing products. Determination of quality indicators by infrared spectroscopy
- GOST 17.2.3.02-78 Nature protection. Atmosphere. Rules for establishing permissible emissions of harmful substances by industrial enterprises (Protection of nature. Atmosphere. Rules for establishing permissible emissions of harmful substances by industrial enterprises)
- GOST 10940-64 Grain. Methods of determining the typical composition (Grain. Methods of determining the typical composition)
- GOST 10967-90 Grain. Methods of determining smell and color (Grain. Methods of determining smell and color)
- GOST 13496.20-87 Compound feed, compound feed raw materials. Method for determining the final amount of pesticides (Compound feed, compound feed raw materials. Method for determining the residual amount of pesticides)
- GOST 13586.3-83 Grain. Acceptance rules and methods of sampling (Grain. Acceptance rules and sampling methods)
- GOST 13586.4-83 Grain. Methods of determining contamination and damage by pests (Grain. Methods of determining contamination and damage by pests)
- GOST 13586.5-93 Grain. Moisture determination method (Grain. Moisture determination methods)
- GOST 26927-86 Raw materials and food products. Mercury determination methods (Raw materials and food products. Mercury determination methods)
- GOST 26929-94 Raw materials and food products. Sample preparation. Mineralization to determine the content of toxic elements (Raw materials and food products. Preparation of samples. Mineralization to determine the content of toxic elements)
- GOST 26930-86 Raw materials and food products. Method for determining arsenic (Raw materials and food products. Method for determining arsenic)
- GOST 26931-86 Raw materials and food products. Copper determination methods (Raw materials and food products. Copper determination methods)
- GOST 26932-86 Raw materials and food products. Lead determination methods (Raw materials and food products. Lead determination methods)
- GOST 26933-86 Raw materials and food products. Cadmium determination methods (Raw materials and food products. Cadmium determination methods)
- GOST 26934-86 Raw materials and food products. Zinc determination methods (Raw materials and food products. Zinc determination methods)
- GOST 28001-88 Feed grain, its processing products, compound feed. Methods for determining mycotoxins: T-2 toxin, zearalenone (F-2) and ochratoxin A (Grain for feed needs, its processing products, compound feed. Methods for determining mycotoxins: T-2 toxin, zearalenone (F-2) and ochratoxin A)
- GOST 28396-89 Grain raw materials, compound feed. Methods of determining patulin (Grain raw materials, compound feed. Methods for determining patulin)
- GOST 28666.1-90 (ISO 6639/1-86) Cereals and legumes. Determination of latent infection by insects. Part 1. General provisions (Cereals and legumes. Definition of hidden infestation by insects. Part 1. General provisions)
- GOST 28666.2-90 (ISO 6639/2-86) Cereals and legumes. Determination of latent infection by insects. Part 2. Sampling (Cereals and legumes. Determination of hidden insect infestation. Part 2. Sampling)
- GOST 28666.3-90 (ISO 6639/3-86) Cereals and legumes. Determination of latent infection by insects. Part 3. Control method (Grains and legumes. Determination of hidden infestation by insects. Part 3. Control method)
- GOST 28666.4-90 (ISO 6639/4-86) Cereals and legumes. Determination of latent infection by insects. Part 4. Accelerated methods (Grains and legumes. Determination of hidden infestation by insects. Part 4. Accelerated methods)
- GOST 29143-91 (ISO 712-85) Grain and grain products. Determination of moisture (working control method) (Grain and grain products. Determination of moisture (working control method))
- GOST 29144-91 (ISO 711-85) Grain and grain products. Determination of moisture (basic control method) (Grain and grain products. Determination of moisture (basic control method))
- GOST 30483-97 Grain. Methods of determining the total and fractional content of weed and grain impurities; content of small grains and coarseness; content of wheat grains damaged by the turtle bug; the content of metallomagnetic impurities (Grain. Methods of determining the total and fractional content of garbage and grain impurities; the content of small grains and coarseness; the content of wheat grains damaged by the shell bug; the content of metallomagnetic impurities)

## TERMS AND DEFINITIONS

This standard uses terms and their corresponding definitions of concepts in accordance with DSTU 2422 and documents in force in Ukraine.

grain composition

A legal entity that owns grain storage facilities and a certificate of compliance with grain storage services and its processing products

grain admixture

Inferior grains of peas and other cultivated plants that eat according to the standards, it is classified as a grain admixture.

3.1 Clogging of grain

Impurities of organic and inorganic origin that are subject to removal from the pea grain if it is used for its intended purpose. Impurities are divided into grain and garbage.

3.1.1 Grain admixture of peas includes:

3.1.1.1 beaten seeds

Particles of seeds formed as a result of mechanical action

3.1.1.2 pressed seeds

The seed is deformed, flattened due to mechanical action

3.1.1.3 germinated seeds

A seed with a root or sprout outside the shell

3.1.1.4 damaged seed

Seeds with a changed color of pine nuts due to self-heating, drying and damage by diseases

3.1.1.5 eaten seeds

Seeds eaten by pests regardless of the degree of damage.

3.1.2 Garbage impurities of peas include:

3.1.2.1 mineral admixture

Allowable admixture of mineral origin is limited ( sand , clods of earth, pebbles, etc.)

3.1.2.2 organic impurity

Impurities of plant origin (particles of stems, leaves, seed skin, etc.), remains of grain pests, seeds of wild non-poisonous plants

3.1.2.3 harmful admixture

Impurities of plant origin, harmful to human and animal health

3.1.2.4 spoiled grain

Seeds with clearly damaged cotyledons and their color changed from brown to black.

3.2 The composition of the main seed, grain and waste impurities

3.2.1 The main pea seeds include:

— whole and damaged pea seeds, which according to the nature of damage and completeness are not classified as grain and garbage impurities, as well as whole cotyledons and broken seeds, if more than half of the seed remains, in the amount of up to 10% inclusive (more than 10% of the whole seed "nuts and beaten seeds are classified as grain admixture);

- small seeds - whole pea seeds that passed through a sieve with meshes of 5 mm diameter and remained on a sieve with meshes of 4 mm diameter.

3.2.2 Grain admixture of peas includes:

— in the balance on sieve and with eyes with a diameter of 2.5 mm, pea seeds:

— beaten pine nuts;

— pressed seeds;

— underdeveloped seeds — whole seeds that have passed through a sieve with meshes of 4 mm in diameter;

— sprouted seeds;

— a seed eaten by a pea grain that has a dead beetle or larva inside, or traces of their presence, and (or) a leafhopper;

— damaged seed.

Grain impurities in sorghum of the 1st and 2nd classes also include the seeds of beans, chickpeas, plantains and lentils, whole and damaged, not classified by the nature of their damage as garbage, and in sorghum of the 3rd class - grains and seeds of other cultivated plants, whole and damaged, not classified as waste according to the standards for these crops by the nature of their damage .

3.2.3 Garbage impurities of peas include:

— passing through a sieve with 2.5 mm diameter meshes;

— in the balance on sieve and with meshes with a diameter of 2.5 mm: mineral and organic impurities;

— a harmful admixture — sedge , sedge, fenugreek, creeping mustard, foxtail sophora, lanceolate thermopsis, multi-colored knotweed, gray trichodesma;

— seeds of wild plants;

- spoiled seeds of peas, beans, chickpeas, chickpeas, lentils - all with clearly spoiled cotyledons and (or) completely with a changed color;

— in sorghum of the 1st and 2nd classes — grains and seeds of cultivated plants, except for unspoiled seeds of beans, chickpeas, chickpeas and lentils;

- in sorghum of the 3rd class - grains and seeds of cultivated plants are classified, in accordance with the standards for these crops, by the nature of their damage to the waste mixture.

## 4 TYPES

4.1 According to botanical characteristics, color and shape of seeds, peas are divided into the types given in Table 1.

*Table 1 - Distribution of peas into types*

Number and type name	Number type _	When p seeds	Seed impurities of the second type and subtype , %, no more than	Approximate number of varieties, which characterize types and subtypes
And - Food	1	Yellow variety _ shades (with cotyledons, that shine through seed coat)	Total 7.0, in particular Type II 1.0	Agrarian, Agat, Shareholder, Berkut, Vinnychanin, Damir 1, Damir 2, Damir 3, Damir Street 4, Grant, Intensive 92, Komet, Krasnogradskyi 8, Loto, Lyulinets short-stemmed, Partner, Unbreakable 1, Nord, Reliable, Tenant, Orlovchanin, Poltavets 2, St. Itiaz, East, Truzhenyk, Kharkivskyi 29, Kharkivskyi 85, Kharkivskyi 317, Kharkivskyi 376, Kharkivskyi 320, Kharkivskyi 302, Kharkivsk Amber Street
	2	Green variety _ shades (with cotyledons, that shine through seed coat)	Total 7.0, in particular Type II 1.0	Talovets 60, Uladivskyi 10
II — Aft	--	Plain, brown-green, brown, brown, purple, black ( light and dark shades) or spotted with marble and dot pattern (with an opaque seed coat shell)	--	Diapers, Talovets 50, Grapis

4.2 Peas, which contain impurities of peas of the second type or subtype more than the norms given in table 1, are defined as "mixture of types" or "mixture of subtypes" with an indication of the typical composition in percentages.

5.1 Depending on the quality indicators, peas are divided into three classes. The quality requirements for each class of peas are presented in Table 2. The class of peas is determined by the characteristics and norms given in Table 2.

*Table 2 - Requirements for peas*

Indicator	Characteristics and norm for peas by class		
	1	2	3
Type	And type, 1st or 2nd n subtypes	and 2nd subtypes	1st and 1st and 1st types, of types and subtypes
Humidity, %, not more than	15.0	15.0	15.0
Grain admixture, %, no more than	3.0	5.0	15.0
In particular:			
sprouted grains	1.0	3.0	5.0
pea seed, damaged peas and (or) leaf twister	1.0	1.0	Within the grain impurities
Small seeds, %, not more than	2.5	5.0	Not limited
Chemical admixture, %, no more than	1.0	4.0	8.0
In particular:			
spoiled pea seeds	0.4	2.0	2.5
mineral admixture	0.3	0.3	1.0
in particular pebbles	0.1	0.1	0.5
harmful admixture			
in particular:			
the edges	0.1	0.1	0.5
pubescent heliotrope	Is not allowed		
trichodesma siva	Is not allowed		
Pest infestation	Is not allowed		Not allowed except for infection tick no higher than I degree

5.2 Peas must be in a healthy state, not moldy and without heat damage during drying; have a normal smell typical of healthy grain (without musty, malty, moldy, extraneous odors), and a color typical of healthy grain of the corresponding type.

5.3 Peas of the 1st and 2nd class are used for processing into cereals, and peas of the 3rd class are used for fodder needs.

5.4 If the pea seed does not meet the quality standards according to at least one of the indicators, it is transferred to a lower class.

5.5 With the consent of grain warehouses and other subjects of business activity, the moisture content of grain and the content of grain and garbage impurities in sorghum are allowed to be above the limit standards, if it is possible to bring such grain to the quality indicators given in tables 2 and 3.

5.6 Peas that are formed for export must be in a healthy state, have a normal smell and color, and not be infected with grain pests.

Characteristics and norm for peas by class.

Requirements for the quality of peas according to other indicators are specified in the contract between the supplier and grain buyer.

5.7 Requirements for the quality of peas supplied to the canning industry are presented in Table 3.

*Table 3 - Requirements for the quality of peas supplied to the canning industry*

Indicator	The norm for peas
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Type	and 2nd subtypes A mixture of types and subtypes is not allowed
Humidity, %, not more than	14.0
Grain admixture, %, no more than	2.0
in particular, seeds damaged by pea seed and (or) leafroller	0.5
of live beetles or their larvae in damaged seeds	Is not allowed
Chemical admixture, %, no more than	0.5
In particular:	
harmful admixture	Is not allowed
mineral admixture	0.1
in particular, pebbles, slag, ore	Is not allowed
Pest infestation	Is not allowed

## 6 SAFETY AND ENVIRONMENTAL PROTECTION REQUIREMENTS

6.1 The content of toxic elements, mycotoxins and pesticides in sorghum used for food and technical needs, as well as for export, should not exceed the permissible levels established by "Medical-biological requirements and sanitary norms

qualities of food raw materials and food products", No. 5061 [1]. According to radiological indicators, pea grain must meet the requirements of DR-97 [2], and for feed needs - permissible levels established by the Order of the State Department of Veterinary Medicine of Ukraine dated November 3, 1998.

No. 16 [3]. The maximum permissible content of harmful elements and mycotoxins in sorghum is given in Appendix A.

6.2 When working with pea seeds, it is necessary to comply with the requirements set forth in the "Rules of safety technology and industrial sanitation at grain storage and processing enterprises of the Ministry of Bakery Products of the USSR" [4].

6.3 Monitoring compliance with the norms of emissions of harmful substances into the atmosphere must be carried out in accordance with the requirements of GOST 17.2.3.02 and DSP 201 [5].

6.4 Soil protection against contamination by household and industrial waste is carried out in accordance with the requirements of SanPiN 42-128-4690 [6].

## 7 RULES OF ACCEPTANCE

7.1 Acceptance rules - according to GOST 13586.3.

7.2 In each batch of peas, the condition of the grain, smell, color, typical composition, moisture, grain and trash impurities, pest infestation, and grain size are determined.

7.3 Peas, in which the admixture of other grain and leguminous crops is more than 15% of the total weight of the grain, are accepted as a mixture of peas with other crops and its composition is indicated in percentage.

7.4 The content and periodicity of control of toxic elements, mycotoxins and pesticides in sorghum used for food, technical needs and for export are carried out in accordance with the methodological recommendations "Periodicity of control of food raw materials and

The Norm indicator for pea food products according to safety indicators" [7], and for feed needs - according to the methodical recommendations "Procedure and periodicity of control of compound feed and compound feed raw materials according to safety parameters" [8].

7.5 Each batch of peas is accompanied by information on the content of pesticides, toxic elements, mycotoxins and radionuclides.

## 8 CONTROL METHODS

8.1 B samples are taken in accordance with GOST 13586.3 and DSTU 3355.

8.2 Determine the typical composition according to GOST 10940.

8.3 Determine the smell, which is in accordance with GOST 10967.

8.4 Determine humidity according to GOST 13586.5; GOST 29143 (ISO 712-85); GOST 29144 (ISO 711-85); DSTU-P-4117.

8.5 Determine litter, skins and seed impurities in accordance with GOST 30483.

8.6 Determine pest infestation in accordance with GOST 13586.4; GOST 28666.1 (ISO 6639/1-86); GOST 28666.2 (ISO 6639/2-86); GOST 28666.3 (ISO 6639/3-86); GOST 28666.4 (ISO 6639/4-86).

8.7 Determination of toxic elements

Prepare samples for analysis in accordance with GOST 26929, determine mercury in accordance with GOST 26927, arsenic in accordance with GOST 26930, copper in accordance with GOST 26931, lead in accordance with GOST 26932, cadmium in accordance with GOST 26933, zinc in accordance with GOST 26934.

8.8 Determine pesticides in edible sorghum according to DSanPiN

8.8.1.2.3.4-000 [9], in the feed - according to GOST 13496.20.

8.10 Determine mycotoxins in edible pea seeds according to the methods approved by the Ministry of Health: aflatoxin B 1 — according to No. 2273-80 [10] or No. 4082-86 [11], DSTU EN 12955; zearalenone — according to No. 2964-84 [12]; T-2 toxin — according to No. 3184-84 [13]; deoxynivalenol (vomitoxin) — according to No. 3940-85 [14] and No. 5177-90 [15]; ochratoxin A — according to DSTU EN ISO 15141-1 or DSTU EN ISO 15141-2; in fodder sorghum: zearalenone and T-2 toxin - according to GOST 28001; patulin - according to GOST 28396; deoxynivalenol (vomitoxin) — according to No. 3940-85 [14] and No. 5177-90 [15]; aflatoxin B 1 , zearalenone and T-2 toxin — according to the methods approved by the Ministry of Agriculture of Ukraine — No. 15-14/23 [16] and patulin — No. 15-14/22 [17], radionuclides strontium-90 and cesium-137 — according to MU No. 5778 [18] and No. 5779 [19].  
Note. ISO standards for quality control methods are used in times and if it is stipulated by the contract for the export of peas.

## 9 TRANSPORTATION AND STORAGE

9.1 Peas are transported in bulk by all types of transport in accordance with the rules of cargo transportation valid for this type of transport.

9.2 Vehicles must be clean, without extraneous odors. During loading, transportation and unloading, pea seeds must be protected from precipitation.

9.3 Peas are placed and stored in clean, dry, odorless, pest-free granaries in accordance with sanitary rules and conditions of preservation, approved in accordance with the established procedure in Ukraine.

## 10 WARRANTIES OF THE SUPPLIER

The supplier company guarantees compliance of the peas with the requirements of this standard in the event compliance with the conditions of transportation and storage.

### APPENDIX A (mandatory)

#### MAXIMUM ALLOWABLE LEVEL IN PEA SEEDS TOXIC ELEMENTS AND MYCOTOXINS

Indexes	For peas used for	
	food and technical needs and exporting	feed needs
Toxic elements, mg/kg:		
lead	0.5 (0.3 for baby food)	5.0
cadmium	0.1 (0.03 for baby food)	0.3
arsenic	0.2	0.5
mercury	0.03	0.1
m g o	10.0	30.0
zinc	50.0	50.0
Mycotoxins, mg/kg:		
aflatoxin B 1	0.005	0.025-0.1
zearalenone	1.0	2-3
T-2 toxin	0.1	0.2
deoxynivalenol (vomitoxin)	0.5—1.0	1-2
patulin	Not regulated	0.5
Radionuclides, Bq/kg:		
strontium-90	5.0	100
cesium-137	20.0	600
Pesticides:	Perelik pesticides used to monitor pea grain depends on the use its establishment in the specified territory and agreed with the services of the Ministry of Department of Health Care and Veterinary Medicine of	

	Ukraine.
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APPENDIX B  
(mandatory)

**B BIBLIOGRAPHY**

- 1 Medical and biological requirements and sanitary standards for the quality of food raw materials and food products, approved by the Ministry of Health of the USSR on August 1, 1989, No. 5061
- 2 Permissible levels of the content of radionuclides Gs-137 and Sr-90 in food and drinking water (DR-97), approved by the Ministry of Health of Ukraine on August 19, 1997, No. 255
- 3 Mandatory minimum list of studies of raw materials, products of animal and plant origin, compound feed raw materials, compound feeds, vitamin preparations, etc., which should be carried out in state laboratories of veterinary medicine and based on the results of which a veterinary certificate (F-2) is issued, approved by order of the State Department of Veterinary Medicine of Ukraine dated November 5, 1998, No. 16
- 4 Rules of safety technology and production sanitation at grain storage and processing enterprises of the Ministry of Bakery Products of the USSR, approved by the Ministry of Bakery Products of the USSR on April 18, 1988, No. 99
- 5 DSP 201-97 State sanitary rules for the protection of atmospheric air in populated areas (against contamination by chemical and biological substances), approved by the Ministry of Health of Ukraine on 07/09/97, No. 201
- 6 SanPiN 42-128-4690-88 Sanitary rules for the maintenance of populated areas, approved by the Ministry of Health of the USSR on August 5, 1988.
- 7 Methodological recommendations 4.4-108-2004 "Periodicity of control of food raw materials and food products in accordance with safety indicators, approved by the Ministry of Health of Ukraine on July 2, 2004, No. 329
- 8 Methodological recommendations "Procedure and periodicity of control of compound feed and compound feed raw materials according to safety indicators", approved by the Ministry of Agro-Industrial Complex of Ukraine on October 3, 1997.
- 9 DSanPiN 8.8.1.2.3.4-000-2001 Permissible doses, concentrations, quantities and levels of pesticide content in agricultural raw materials, food products, air of the working area, atmospheric air, water of reservoirs, soil, approved by the Ministry of Ukraine dated 20.09.2001 No. 137
- 10 Methodological recommendations for the detection, identification and determination of the content of aflatoxins in food raw materials and food products, No. 2273-80, approved by the Ministry of Health of the USSR on December 10, 1980.
- 11 Methodological recommendations for the detection, identification and determination of the content of aflatoxins in food raw materials and food products using high-performance liquid chromatography, No. 4082-86, approved by the Ministry of Health of the USSR on March 20, 1986.
- 12 Methodological recommendations for the detection, identification and determination of the content of zearalenone in food products, No. 2964-84, approved by the Ministry of Health of the USSR on January 23, 1984.
- 13 Methodical guidelines for the detection, identification and determination of T-2 toxin in food products, No. 3184-84, approved by the Ministry of Health of the USSR on December 29, 1984.
- 14 Methodological recommendations for the detection, identification and determination of the content of deoxynivalenol (vomitoxin) in grain and grain products, No. 3940-85, approved by the Ministry of Health of the USSR on October 20, 1985.
- 15 Methodological guidelines for the detection, identification and determination of the content of deoxynivalenol (vomitoxin) and zearalenone in grain and grain products, No. 5177-90, approved by the Ministry of Health of the USSR on June 1, 1990.
- 16 Rules for the simultaneous detection of aflatoxin B1, patulin, sterigmatocystin, T-2 toxin and zearalenone in various feeds, approved by the Ministry of Agriculture and Food of Ukraine on April 9, 1996, No. 15-14/23
- 17 Rules for determining mycotoxin patulin in feed and food products, approved by the Ministry of Agriculture and Food of Ukraine on April 9, 1996, No. 15-14/22
- 18 Methodological instructions No. 5778-91 "Determination of strontium-90 in food products", approved by the Ministry of Health of the USSR on January 4, 1991.
- 19 Methodological instructions No. 5779-91 "Determination of cesium-137 in food products", approved by the Ministry of Health of the USSR on January 4, 1991.