

## SUBPART B - U.S. STANDARDS FOR BARLEY

### Terms Defined

#### 810.201 Definition of barley.

Grain that, before the removal of dockage, consists of 50 percent or more of whole kernels of cultivated barley (*Hordeum vulgare L.*) and not more than 25 percent of other grains for which standards have been established under the United States Grain Standards Act. The term "barley" as used in these standards does not include hull-less barley or black barley.

#### 810.202 Definition of other terms.

(a) **Black barley.** Barley with black hulls.

(b) **Broken kernels.** Barley with more than one-fourth of the kernel removed.

(c) **Classes.** There are two classes of barley: Malting barley and Barley.

(1) Malting barley. Barley of a six-rowed or two-rowed malting type. The class Malting barley is divided into the following three subclasses:

(i) Six-rowed Malting barley. Barley that has a minimum of 95.0 percent of a six-rowed suitable malting type that has 90.0 percent or more of kernels with white aleurone layers that contains not more than 1.9 percent injured-by-frost kernels, 0.4 percent frost-damaged kernels, 0.2 percent injured-by-heat kernels, and 0.1 percent heat-damaged kernels. Six-rowed Malting barley shall not be infested, blighted, ergoty, garlicky, or smutty as defined in 810.107(b) and 810.206.term description

(ii) Six-rowed Blue Malting barley. Barley that has a minimum of 95.0 percent of a six-rowed suitable malting type that has 90.0 percent or more of kernels with blue aleurone layers that contains not more than 1.9 percent of injured-by-frost kernels, 0.4 percent of frost-damaged kernels, 0.2 percent of injured-by-heat kernels, and 0.1 percent of heat-damaged kernels. Six-rowed Blue Malting barley shall not be infested, blighted, ergoty, garlicky, or smutty as defined in 810.107(b) and 810.206.

(iii) Two-rowed Malting barley. Barley that has a minimum of 95.0 percent of a two-rowed suitable malting type that contains not more than 1.9 percent of injured-by-frost kernels, 0.4 percent frost-damaged kernels, 0.2 percent injured-by-heat kernels, 0.1 percent heat-damaged kernels, 1.9 percent injured-by mold kernels, and 0.4 percent mold-damaged kernels. Two-rowed Malting barley shall not be infested, blighted, ergoty, garlicky, or smutty as defined in 810.107(b) and 810.206.

(2) **Barley.** Any barley of a six-rowed or two-rowed type. The class Barley is divided into the following three subclasses:

(i) **Six-rowed barley.** Any six-rowed barley that contains not more than 10.0 percent of two-rowed varieties.

(ii) **Two-rowed barley.** Any two-rowed barley with white hulls that contains not more than 10.0 percent of six-rowed varieties.

(iii) **Barley.** Any barley that does not meet the requirements for the subclasses Six-rowed barley or Two-rowed barley.

(d) **Damaged kernels.** Kernels, pieces of barley kernels, other grains, and wild oats that are badly ground-damaged, badly weather-damaged, diseased, frost-damaged, germ-damaged, heat-damaged, injured-by-heat, insect-bored, mold-damaged, sprout-damaged, or otherwise materially damaged.

(e) **Dockage.** All matter other than barley that can be removed from the original sample by use of an approved device according to procedures prescribed in FGIS instructions. Also, underdeveloped, shriveled, and small pieces of barley kernels removed in properly separating the material other than barley and that cannot be recovered by properly rescreening or recleaning.

(f) **Foreign material.** All matter other than barley, other grains, and wild oats that remains in the sample after removal of dockage.

(g) **Frost-damaged kernels.** Kernels, pieces of barley kernels, other grains, and wild oats that are badly shrunken and distinctly discolored black or brown by frost.

(h) **Germ-damaged kernels.** Kernels, pieces of barley kernels, other grains, and wild oats that have dead or discolored germ ends.

(i) **Heat-damaged kernels.** Kernels, pieces of barley kernels, other grains, and wild oats that are materially discolored and damaged by heat.

(j) **Injured-by frost kernels.** Kernels and pieces of barley kernels that are distinctly indented, immature, or shrunken in appearance or that are light green in color as a result of frost before maturity.

(k) **Injured-by-heat kernels.** Kernels, pieces of barley kernels, other grains, and wild oats that are slightly discolored as a result of heat.

(l) **Injured-by-mold kernels.** Kernels and pieces of barley kernels containing slight evidence of mold.

(m) **Mold-damaged kernels.** Kernels, pieces of barley kernels, other grains, and wild oats that are weathered and contain considerable evidence of mold.

(n) **Other grains.** Black barley, corn, cultivated buckwheat, einkorn, emmer, flaxseed, guar, hull-less barley, nongrain sorghum, oats, Polish wheat, popcorn, poulard wheat, rice, rye, safflower, sorghum, soybeans, spelt, sunflower seed, sweet corn, triticale, and wheat.

(o) **Plump barley.** Barley that remains on top of a  $6/64 \times 3/4$  slotted-hole sieve after sieving according to procedures prescribed in FGIS instructions.

(p) **Sieves.**

(1)  $5/64 \times 3/4$  slotted-hole sieve. A metal sieve 0.032 inch thick with slotted perforations  $0.0781 (5/64)$  inch by  $0.750 (3/4)$  inch.

(2)  $5.5/64 \times 3/4$  slotted-hole sieve. A metal sieve 0.032 inch thick with slotted perforations  $0.0895 (5.5/64)$  inch by  $0.750 (3/4)$  inch.

(3)  $6/64 \times 3/4$  slotted-hole sieve. A metal sieve 0.032 inch thick with slotted perforations  $0.0937 (6/64)$  inch by  $0.750 (3/4)$  inch.

(q) **Skinned and broken kernels.** Barley kernels that have one-third or more of the hull removed, or that the hull is loose or missing over the germ, or broken kernels, or whole kernels that have a part or all of the germ missing.

(r) **Sound barley.** Kernels and pieces of barley kernels that are not damaged as defined under (d) of this section.

(s) **Suitable malting type.** Varieties of malting barley that are recommended by the American Malting Barley Association and other malting type(s) used by the malting and brewing industry. The varieties are listed in GIPSA's instructions.

(t) **Thin barley.** Thin barley shall be defined for the appropriate class as follows:

(1) Malting barley. Six-rowed Malting barley that passes through a  $5/64 \times 3/4$  slotted-hole sieve and Two-rowed Malting barley which passes through a  $5.5/64 \times 3/4$  slotted-hole sieve in accordance with procedures prescribed in GIPSA's instructions.

(2) Barley. Six-rowed barley, Two-rowed barley, or Barley that passes through a  $5/64 \times 3/4$  slotted-hole sieve in accordance with procedures prescribed in GIPSA's instructions.

(u) **Wild oats.** Seeds of *Avena fatua* L. and *A. sterilis* L.

## Principles Governing the Application of Standards

### 810.203 Basis of determination.

**All other determinations.** Each determination of heat-damaged kernels, injured-by-heat kernels, and white or blue aleurone layers in Six-rowed barley is made on pearled, dockage-free barley. Other determinations not specifically provided for under the General Provisions are made on the basis of the grain when free from dockage, except the determination of odor is made on either the basis of the grain as a whole or the grain when free from dockage.

### Grades and Grade Requirements

**810.204 Grades and grade requirements for Six-rowed Malting Barley and Six-rowed Blue Malting barley.**

| Grade      | Minimum limits of--             |                                  |                         | Maximum limits of--       |                            |                        |                                      |                       |
|------------|---------------------------------|----------------------------------|-------------------------|---------------------------|----------------------------|------------------------|--------------------------------------|-----------------------|
|            | Test weight per bushel (pounds) | Suitable malting types (percent) | Sound barley* (percent) | Damaged kernel* (percent) | Foreign material (percent) | Other grains (percent) | Skinned and broken kernels (percent) | Thin barley (percent) |
| U.S. No. 1 | 47.0                            | 95.0                             | 97.0                    | 2.0                       | 0.5                        | 2.0                    | 4.0                                  | 7.0                   |
| U.S. No. 2 | 45.0                            | 95.0                             | 94.0                    | 3.0                       | 1.0                        | 3.0                    | 6.0                                  | 10.0                  |
| U.S. No. 3 | 43.0                            | 95.0                             | 90.0                    | 4.0                       | 2.0                        | 5.0                    | 8.0                                  | 15.0                  |
| U.S. No. 4 | 43.0                            | 95.0                             | 87.0                    | 5.0                       | 3.0                        | 5.0                    | 10.0                                 | 15.0                  |

\* Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels or considered against sound barley.

NOTE: Malting barley shall not be infested in accordance with 810.107(b) and shall not contain any special grades as defined in 810.206. Six-rowed Malting barley and Six-rowed Blue Malting barley varieties not meeting the above requirements shall be graded in accordance with standards established for the class Barley.

**810.205 Grades and grade requirements for Two-rowed Malting barley.**

|                     |                     |
|---------------------|---------------------|
| Minimum limits of-- | Maximum limits of-- |
|---------------------|---------------------|

| Grade      | Test weight per bushel (pounds) | Suitable malting types (percent) | Sound barley* (percent) | Wild oats (percent) | Foreign material (percent) | Skinned and broken kernels (percent) | Thin barley (percent) |
|------------|---------------------------------|----------------------------------|-------------------------|---------------------|----------------------------|--------------------------------------|-----------------------|
| U.S. No. 1 | 50.0                            | 97.0                             | 98.0                    | 1.0                 | 0.5                        | 5.0                                  | 5.0                   |
| U.S. No. 2 | 48.0                            | 97.0                             | 98.0                    | 1.0                 | 1.0                        | 7.0                                  | 7.0                   |
| U.S. No. 3 | 48.0                            | 95.0                             | 96.0                    | 2.0                 | 2.0                        | 10.0                                 | 10.0                  |
| U.S. No. 4 | 48.0                            | 95.0                             | 93.0                    | 3.0                 | 3.0                        | 10.0                                 | 10.0                  |

\* Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels or considered against sound barley.

NOTE: Malting barley shall not be infested in accordance with 810.107(b) and shall not contain any special grades as defined in 810.206. Two-rowed Malting barley varieties not meeting the above requirements shall be graded in accordance with standards established for the class Barley.

### 810.206 Grades and grade requirements for Barley

| Grade      | Minimum limits of--             |                        | Maximum limits of --       |                                |                            |                          |                       |
|------------|---------------------------------|------------------------|----------------------------|--------------------------------|----------------------------|--------------------------|-----------------------|
|            | Test weight per bushel (pounds) | Sound barley (percent) | Damaged kernels* (percent) | Heat-damaged kernels (percent) | Foreign material (percent) | Broken kernels (percent) | Thin barley (percent) |
| U.S. No. 1 | 47.0                            | 97.0                   | 2.0                        | 0.2                            | 1.0                        | 4.0                      | 10.0                  |
| U.S. No. 2 | 45.0                            | 94.0                   | 4.0                        | 0.3                            | 2.0                        | 8.0                      | 15.0                  |
| U.S. No. 3 | 43.0                            | 90.0                   | 6.0                        | 0.5                            | 3.0                        | 12.0                     | 25.0                  |
| U.S. No. 4 | 40.0                            | 85.0                   | 8.0                        | 1.0                            | 4.0                        | 18.0                     | 35.0                  |
| U.S. No. 5 | 36.0                            | 75.0                   | 10.0                       | 3.0                            | 5.0                        | 28.0                     | 75.0                  |

U.S. Sample grade shall be barley that:

- (a) Does not meet the requirements for the grades U.S. Nos. 1, 2, 3, 4, or 5; or
- (b) Contains 8 or more stones or any number of stones which have an aggregate weight in excess of 0.2 percent of the sample weight, 2 or more pieces of glass, 3 or more crotalaria seeds (*Crotalaria spp.*), 2 or more castor beans (*Ricinus communis L.*), 4 or more particles of an unknown foreign substance(s) or a commonly recognized harmful or toxic substance(s), 8 or more cocklebur (*Xanthium spp.*) or similar seeds singly or in combination, 10 or more rodent pellets, bird droppings, or equivalent quantity of other animal filth per 1-1/8 to 1-1/4 quarts of barley; or
- (c) Has a musty, sour, or commercially objectionable foreign odor (except smut or garlic odor); or
- (d) Is heating or otherwise of distinctly low quality.

\* Includes heat-damaged kernels. Injured-by-frost kernels and injured-by-mold kernels are not considered damaged kernels.

## Special Grades and Special Grade Requirements

### 810.207 Special grades and special grade requirements.

- (a) **Blighted barley.** Barley that contains more than 4.0 percent of fungus-damaged and/or mold-damaged kernels.
- (b) **Ergoty barley.** Barley that contains more than 0.10 percent ergot.
- (c) **Garlicky barley.** Barley that contains three or more green garlic bulblets or an equivalent quantity of dry or partly dry bulblets in 500 grams of barley.
- (d) **Smutty barley.** Barley that has kernels covered with smut spores to give a smutty appearance in mass or which contains more than 0.20 percent smut balls.