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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 19331-2007

Replacing GB 19331-2003

Product of geographical indication - Huzhu highland barley liquor

地理标志产品 互助青稞酒

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1 Scope and protected area

1 The standard lays down the protected area of the geographical indication product, the terms and definitions, the requirements, the test methods, the inspection rules and the marking, labelling, packaging, transport and storage of Huzhu highland barley liquor. It applies to the Huzhu highland barley liquor whose protection has been approved by the competent administrative department for quality supervision, inspection and quarantine under the Provisions for the Protection of Geographical Indication Products.

2 The normative references include GB/T 191 on pictorial marking for handling of goods, GB 2757 on the hygienic standard for distilled and blended spirits, GB/T 5009.48 on the analytical methods for that hygienic standard, GB 5749 on drinking water hygiene, GB 10344 on labelling of prepackaged alcoholic beverages, GB/T 10345 on the analytical methods for Chinese spirits, GB/T 10346 on the inspection rules and marking, packaging, transport and storage of Chinese spirits, GB/T 10460 on peas, GB/T 11760 on naked

barley, GB/T 15109 on the terminology of the Chinese spirits industry, and the Measures for the Metrological Supervision and Administration of Prepackaged Commodities issued as Order No. 75 of 2005 of the General Administration of Quality Supervision, Inspection and Quarantine.

3 The protected area is limited to the area approved by the competent administrative department for quality supervision, inspection and quarantine under the Provisions for the Protection of Geographical Indication Products, namely the present administrative territory of Huzhu Tu Autonomous County lying between latitude 36°30' north and 37°09' north and between longitude 101°46' east and 102°45' east, as shown in Annex A.

4 Terms and definitions

4.1 Huzhu highland barley liquor - liquor produced from good quality highland barley, peas and water, within the territory of Huzhu Tu Autonomous County, using the natural microorganisms of that territory and the traditional process of Huzhu highland barley liquor.

4.2 Huzhu highland barley liquor brick-shaped raw starter - two saccharifying and fermenting agents made from good quality highland barley and peas by the traditional process of Huzhu highland barley liquor: a medium to low temperature starter made in winter and spring, called huairang qu, and a medium to high temperature starter made in summer and autumn, called baishuang mantianxing qu.

4.3 storage time of liquor - the time for which the base liquor and the flavouring liquor of Huzhu highland barley liquor are stored and matured in vessels, counted in years.

4.4 fermentation cycle - the time from steaming of the raw grain through cooling, addition of the starter, fermentation in the pit and distillation from the pit to discharge of the spent grains.

5 Requirements

5.1 The water is taken from the Weiyuan ancient well within the territory of Huzhu Tu Autonomous County, or from an equivalent source, and meets GB 5749. The highland barley is grown in an unpolluted area of the Qinghai-Tibet plateau and meets GB/T 11760. The peas meet GB/T 10460. The starter is the Huzhu highland barley liquor brick-shaped raw starter.

5.2 The area lies in Huzhu Tu Autonomous County, Qinghai province, surrounded by mountains on three sides, with a steady airflow through the year and bordering on primeval forest. The climate is temperate continental, with a dry spring of little rain in which the temperature rises slowly, a cool summer, an autumn in which the rainfall is concentrated, and a cold winter with little snow. The mean annual temperature is 1.0 °C to 2.4 °C, the mean annual sunshine 2593 h, the frost-free period 60 d to 85 d and the mean annual precipitation about 534.2 mm, which suits the steady growth of the microorganisms of

Huzhu highland barley liquor.

5.3 Huzhu highland barley liquor is the product of the traditional process combined with modern bioengineering. The two Huzhu highland barley liquor starters, stored for more than three months, are used in a set proportion. The brewing process is described as clean steaming and clean distilling in four clean rounds: the first and second grain rounds ferment for 25 d each, the third round and the returned spent grains for 15 d each, giving 80 d in all from the raw grain going in to the spent grains going out, the whole fermentation following the principle of nursing the first round, protecting the second, pressing the third and chasing the returned grains. The matured fermented grain is distilled and the spirit is cut by quality and stored separately in three typical bodies described as pure, mellow and sweet, and clean; the base liquor is stored for not less than 1.5 years and the flavouring liquor for not less than 3 years. The base liquor is packed and released after analysis, tasting, blending, flavouring, ageing and a passing test.

5.4 The sensory requirements of Table 1 are set against three alcoholic strength bands, namely 50 % vol and above, 40 % vol to 49 % vol, and 39 % vol and below. Colour and appearance, for all three bands: colourless or slightly yellow, clear and transparent, free of suspended matter and free of sediment. Aroma, for all three bands: elegant and pure, pleasing and well blended. Taste: for 50 % vol and above, sweet and clean, mellow and full, with harmonious aroma and taste and a pleasant lingering finish; for 40 % vol to 49 % vol, sweet and soft, mellow and clean, with harmonious aroma and taste and a long finish; for 39 % vol and below, sweet and mild, with harmonious aroma and taste and a clean finish. Style, for all three bands: the distinctive elegant style of highland barley liquor.

5.5 The physical and chemical indexes of Table 2 are set against the same three alcoholic strength bands, namely 50 % vol and above, 40 % vol to 49 % vol, and 39 % vol and below. Total acid expressed as acetic acid: not less than 0.50 g/L, 0.40 g/L and 0.30 g/L respectively. Total esters expressed as ethyl acetate: not less than 2.00 g/L, 1.60 g/L and 1.20 g/L respectively. Ethyl acetate: not less than 1.00 g/L, 0.80 g/L and 0.60 g/L respectively. Solids: not more than 0.60 g/L for all three bands. A note allows a tolerance of +/-1 % vol on the alcoholic strength.

5.6 The ratios of trace components of Table 3 are: ethyl lactate to ethyl acetate, 0.40 to 0.90; ethyl butyrate to ethyl acetate, 0.01 to 0.08.

5.7 The hygienic indexes follow GB 2757.

6 Test methods, inspection rules and marking

6.1 Testing follows GB/T 10345 and GB/T 5009.48.

6.2 Ethyl lactate and ethyl butyrate are determined in accordance with Annex B.

7 Inspection follows GB/T 10346 and the Measures for the Metrological Supervision and

Administration of Prepackaged Commodities.

8.1 Marking and labelling follow GB 10344, the special mark for the protection of geographical indication products being shown as well.

8.2 Packaging, transport and storage follow GB/T 10346 and GB/T 191.

B Annex B (normative) Test method for ethyl butyrate and ethyl lactate - gas chromatography

B.1 Different components have different partition coefficients between the gas and liquid phases; carried by the carrier gas they move relative to one another and are completely separated after repeated partition, then detected by ionisation in a hydrogen flame, with quantification by the internal standard method.

B.2 The reagents and materials are n-butyl acetate of chromatographic grade as the internal standard, prepared as a 2 % vol solution in 60 % ethanol; ethyl butyrate and ethyl lactate of chromatographic grade as the reference substances, prepared as a mixed standard solution at 2 % vol each in 60 % ethanol; a support of Chromosorb W (AW) or white support 102, acid washed and silanised, 80 to 100 for the column; a stationary liquid of 20 % dinonyl phthalate plus 7 % Tween 80; and a capillary column of not less than 30 m.

B.3 The apparatus is a gas chromatograph fitted with a flame ionisation detector and a 10 µL microsyringe.

B.4.1 Either a packed column of dinonyl phthalate plus Tween 80, of length not less than 2 m, or a capillary column of length not less than 30 m is used. The flow rates of carrier gas, hydrogen and air and the column temperature vary with the instrument and the best operating conditions are to be found by experiment, the criterion being complete separation of ethyl butyrate and ethyl lactate from the internal standard peak and from the other components of the liquor sample.

B.4.2 For the determination of the correction factor, 0.2 mL of the 2 % mixed standard solution of ethyl butyrate and ethyl lactate is taken into a 10 mL volumetric flask, an accurate 0.2 mL of the 2 % internal standard solution is added and the flask is made up to the mark with 60 % ethanol, giving 0.04 % vol of ethyl butyrate, ethyl lactate and internal standard alike. Once the baseline is steady the solution is injected with the microsyringe, the injection volume depending on the sensitivity of the instrument, and the retention times and peak areas of ethyl butyrate and ethyl lactate are recorded; the relative mass correction factor of each is calculated from the ratio of its peak area to that of the internal standard.

B.4.3 For the determination of the sample, 10 mL of the liquor is taken into a volumetric flask, 0.2 mL of the 2 % internal standard solution is added and the solution is mixed and injected under the same conditions as those used for the correction factor. The position of ethyl butyrate is fixed from the retention time, the peak areas of ethyl butyrate, of ethyl