RESOLUTION OENO 14/2000

INTERNATIONAL OENOLOGICAL CODEX

AMMONIUM HYDROGEN SULFITE

Ammonium bisulfite

NH_4SO_3 = 99.07

1. OBJECTIVE, ORIGIN AND SCOPE OF APPLICATION

This product falls in the category of preservatives and is used exclusively for fermentation operations. It makes available sulfur dioxide and ammonium ions, which can be directly assimilated by the yeast. There are regulatory restrictions on the amount of ammonium that can be added and on sulfur dioxide content.

2. LABELING

The concentration of this product, as well as the safety and storage conditions, should be indicated on the label.

3. CENTESIMAL COMPOSITION

NH_3	17.16
SO_2	64.67

4. PROPERTIES

Ammonium hydrogen sulfite always takes an aqueous solution form. This solution emits a piquant sulfur dioxide odor.

5. SOLUBILITY

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Water at 60 °C	847 g/l
Alcohol, 95% by vol.	Slightly soluble

6. IDENTIFYING CHARACTERISTICS

Aqueous solutions of ammonium hydrogen sulfite produce reactions of ammonium (release of ammonia in the presence of sodium hydroxide when heated) and sulfur dioxide (filter paper soaked in potassium iodate and starch turns blue).

7. TESTS

7.1. Sulfur Ash

As quantified as indicated in the Annex, the proportion of ammonium hydrogen sulfite ash should not be greater than 0.2 per 100.

7.2. Preparing the Solution for Tests

Prepare a 10 pp 100 (m/v) solution.

7.3. Sulfates

To 0.5 ml of the solution prepared for testing under paragraph 2, add 2 ml of dilute hydrochloric acid (R), 17.5 ml of water and 2 ml of barium chloride solution (R). The mixture should be clear, or else the opalescence observed after 15 minutes should be less than that of the control solution, prepared as indicated in the Annex. (Sulfate content expressed in terms of sulfuric acid should be less than 2 g/kg).

7.4. Iron

To 5 ml of the solution prepared for testing under paragraph 2, add 1 ml of concentrated hydrochloric acid (R), one drop of 2 pp 100 potassium permanganate (R) and 2 ml of 5 pp 100 potassium thiocyanate (R).

If a red colorating appears, it should be less intense than that of a control prepared with 2.5 ml of an iron(III) solution of 0.01 g of iron per liter (R), 2.5 ml of water and the same quantities of the same reagents. (Iron content should be less than 50 mg/kg).

The iron may also be quantified by means of atomic absorption spectrometry, using the technique described in the Compendium.

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7.5. Lead

Use the method detailed in the Compendium on the solution in a concentration of 10 pp 100 prepared for testing (under 7.2) and diluted to one one-twentieth.

7.6. Mercury

Test for mercury in the solution prepared for testing (under 7.2) using the technique detailed in the annex. (Mercury content should be less than 1 mg/kg.)

7.7. Arsenic

Using the method indicated in the Annex, test for arsenic in 2 ml of the test solution prepared for testing in accordance with paragraph 7.2. (Arsenic content should be less than 3 mg/kg).

7.8. Quantitative Ammonia Analysis

Dilute the solution prepared for testing under paragraph 7.2 to one-tenth strength, then place 10 ml of this dilute solution (0.10 g of ammonium hydrogen sulfite) in a steam distillation device (described in the annex). Add 10 ml of 30 pp 100 sodium hydroxide (R) and distill 100 ml. Quantify the distilled ammonia using 0.1 M hydrochloric acid. Let n be the number of milliliters used:

- 100 g of ammonium hydrogen sulfite contain 1.7 n g of ammonia (NH_3). Ammonia content should be greater than 16.5 pp 100 (m/m).

7.9. Quantitative Sulfur Dioxide Analysis

In a 200 ml conical flask, place 50 ml of cold water, then 5 ml of the freshly prepared ammonium hydrogen sulfite solution. Titrate with 0.05 M iodine in the presence of starch. Let n be the volume of iodine used.

SO_2 content per 100 g: 6.4n

Ammonium hydrogen sulfite should contain at least 62 pp 100 SO_2.

8. STORAGE

Ammonium hydrogen sulfite solutions should be stored in hermetically sealed containers away from heat and cold.

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