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Yellow Wax

Yellow beeswax

CAS RN®: 8012-89-3.

DEFINITION

Yellow Wax is the purified wax from the honeycomb of the bee [*Apis mellifera* L. (Fam. Apidae)]. It is obtained after the honey has been removed by draining or centrifuging. The combs are melted with hot water, steam or solar heat, and the melted product is filtered to generate Yellow Wax. It consists primarily of a mixture of esters of fatty acids and fatty alcohols, hydrocarbons, and free fatty acids; minor amounts of free fatty alcohols are also present.

IDENTIFICATION

- **A. Spectroscopic Identification Tests ⟨197⟩, *Infrared Spectroscopy*:** 197A or 197F. Use melted Yellow Wax when performing 197F.

SPECIFIC TESTS

- **Ceresin, Paraffins,** and **Certain Other Waxes**

Sample: 3.00 g

Alcoholic potassium hydroxide: Dissolve 40 g of potassium hydroxide in about 900 mL of aldehyde-free alcohol maintained at a temperature not exceeding 15°, and then when solution is complete, warm to room temperature, and add aldehyde-free alcohol to make 1000 mL.

Analysis: Place the *Sample* in a 100-mL round-bottom boiling flask fitted with a ground-glass joint. Add 30 mL of *Alcoholic potassium hydroxide*. Reflux the mixture gently for 2 h. At the end of this period, open the flask, insert a thermometer into the solution, and place the flask in a container of water at a temperature of 80°. [Note—A 400-mL beaker filled with about 180 mL of water at 80° may be used.] Rotate the flask in the bath and observe changes of appearance while both the bath and the solution cool.

Acceptance criteria: Upon cooling, no precipitate is formed until 65°, although the solution may be slightly opalescent. Beginning at 65°, the solution may become cloudy and precipitates may be formed. At 59°, the solution is cloudy.

- **Melting Range or Temperature ⟨741⟩, *Procedures, Procedure for Class II*:** 62°–66°

- **Fats or Fatty Acids, Japan Wax, Rosin,** and **Soap**

Sample: 1 g

Analysis 1: Boil the *Sample* for 30 min with 35 mL of 3.5 N sodium hydroxide contained in a 100-mL beaker, maintaining the volume of solution by the occasional addition of water, and allow the mixture to cool at room temperature for about 2 h.

Acceptance criteria 1: The wax separates, leaving the liquid clear, turbid, or translucent, but not opaque.

Analysis 2: Filter the cool mixture obtained in *Analysis 1*, and acidify the clear filtrate with hydrochloric acid.

Acceptance criteria 2: The liquid remains clear or shows NMT a slight amount of turbidity or precipitate.

- **Fats and Fixed Oils ⟨401⟩, *Procedures, Acid Value***

Sample: 3 g

Analysis: Warm the *Sample* in a 200-mL flask with 25 mL of neutralized dehydrated alcohol until melted, then shake the mixture. Add 1 mL of phenolphthalein TS, and titrate the warm liquid with 0.5 N alcoholic potassium hydroxide VS to produce a permanent, faint pink color. Calculate the *Acid Value* as directed in the chapter.

Acceptance criteria: 17–24

Change to read:

- **Fats and Fixed Oils ⟨401⟩, *Procedures, Ester Value***

Sample solution: The solution resulting from the determination of *Acid Value*

Analysis: To the *Sample solution* add 25.0 mL of 0.5 N alcoholic potassium hydroxide VS and 50 mL of aldehyde-free alcohol, and reflux the mixture for 4 h. Titrate the excess alkali with 0.5 N hydrochloric acid VS. Perform a blank determination (see ▲*Titrimetry ⟨541⟩, Types of Titrations, Blank Corrections*▲ (CN 1-Aug-2024)). Calculate the *Ester Value* as directed in the chapter.

Acceptance criteria: 70–80

ADDITIONAL REQUIREMENTS

- **Packaging and Storage:** Preserve in well-closed containers.
- **USP Reference Standards** ⟨11⟩
  USP Yellow Wax RS

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
YELLOW WAX	Documentary Standards Support	CE2020 Complex Excipients
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	CE2020 Complex Excipients

Chromatographic Database Information: Chromatographic Database

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