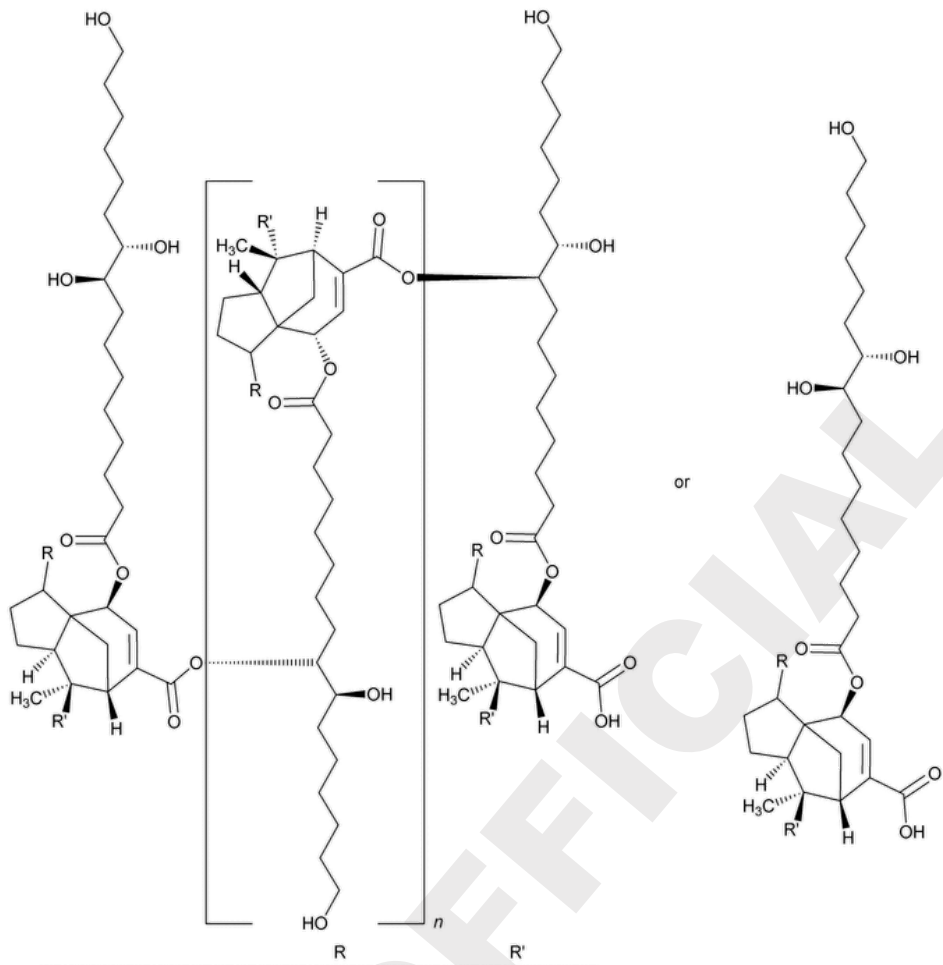


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Shellac



	R	R'	
Jalaric acid			with Aleuritic acid
Shellolic acid			with Aleuritic acid
Laksholic acid			with Aleuritic acid
Laccijalaric acid			with Aleuritic acid
Laccishellolic acid			with Aleuritic acid
Laccilaksholic acid			with Aleuritic acid
Corresponding epimers of above acids			with Aleuritic acid

CAS RN®: 9000-59-3.

DEFINITION

Shellac is obtained by the purification of lac, the resinuous secretion of the insect *Kerria lacca* (Kerr) Lindinger (*Laccifer lacca* Kerr) (Form. Coccidae). Shellac is a polyester resin consisting of inter- and intra-esters of polyhydroxyl carboxylic acids formed from certain hydroxyl

acids and sesquiterpenic acids, and also contains variable amounts of wax. There are four types of Shellac depending on the nature of the treatment of crude secretion (seedlac).

1. Orange Shellac is produced by a process of filtration in the molten state and/or by a process of solvent extraction. Orange Shellac retains most of its wax.
2. Refined (Dewaxed) Orange Shellac is produced by filtration of the wax in a solvent process. It may also be decolorized by activated carbon.
3. Regular Bleached (white) Shellac is prepared by dissolving the lac in an alkaline solution and bleaching the solution with sodium hypochlorite. It is precipitated by dilute acid and dried.
4. Refined Bleached Shellac is prepared by dissolving the lac in an alkaline solution and bleaching the solution with sodium hypochlorite. During the process, wax is removed by filtration. It is precipitated by dilute acid and dried.

Shellac conforms to the specifications in [Table 1](#).

Table 1

	Acid Value (on dried basis)	Loss on Drying (%)	Wax (%)
Orange Shellac	68–76	NMT 2.0	NMT 5.5
Refined Orange Shellac	68–79	NMT 2.0	NMT 0.2
Regular Bleached Shellac	73–89	NMT 6.0	NMT 5.5
Refined Bleached Shellac	75–91	NMT 6.0	NMT 0.2

IDENTIFICATION

Change to read:

- **A. ▲ SPECTROSCOPIC IDENTIFICATION TESTS (197), Infrared Spectroscopy: 197A or 197K. ▲** (CN 1-MAY-2020) Due to the degree of polymerization, the intensity of some absorption bands may vary.

Use [USP Regular Bleached Shellac RS](#) for the following two types:

- Orange Shellac
- Regular Bleached Shellac

Use [USP Refined Bleached Shellac RS](#) for the following two types:

- Refined Bleached Shellac
- Refined Orange Shellac

- **B. IDENTIFICATION OF ALEURITIC ACID AND SHELLOLIC ACID BY THIN-LAYER CHROMATOGRAPHY**

Standard solution: 6 mg/mL of [USP Aleuritic Acid RS](#) in methanol, heating slightly if necessary.

Sample solution: Weigh and finely powder 500 mg of Shellac. Transfer 500 mg of the finely powdered Shellac to a test tube and heat with 4 mL of 85-mg/mL sodium hydroxide solution in a vigorously boiling water bath for 5 min. Cool, add 10 mL of ethyl acetate, and transfer the content to a separatory funnel. With stirring, add slowly 4 mL of a 120-mg/mL solution of glacial acetic acid to the funnel. Shake the solution thoroughly and withdraw the lower layer. Transfer the upper layer to a small flask, add anhydrous sodium sulfate, and pass through a membrane disk syringe of 0.45-μm pore size. Collect the filtrate and use it as the sample.

Chromatographic system

(See [Chromatography \(621\), Thin-Layer Chromatography](#).)

Mode: TLC

Plate: 10-cm × 20-cm or 20-cm × 20-cm, silica gel 60 F₂₅₄

Application volume: 10 μL, as 8-mm bands. [NOTE—An automated apparatus may be used.]

Developing solvent system: Ethyl acetate, methylene chloride, methyl alcohol, and acetic acid (60:32:8:1)

Spray reagent: Prepare the anisaldehyde solution by mixing in the following order. In 0.5 mL of anisaldehyde, add 10 mL of glacial acetic acid, 85 mL of methyl alcohol, and 5 mL of sulfuric acid.

Analysis