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21 Author

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22 Date of Revision

4 May 2017.

Shellac

1 Nonproprietary Names

BP: Shellac

JP: Purified Shellac

White Shellac

PhEur: Shellac

USP-NF: Shellac

2 Synonyms

AT 10-1010; Blonde; Bulls Eye Shellac; CertiSeal FC 300A; Crystalac; E904; Excelacs 3-Circles; Excelacs 3-Stars; Gifu Shellac GBN-PH; Gifu Shellac Pearl-811; lac; lacca; Mantrolac R-49; Mantrolac R-52; Marcoat 125; Opaglos R; Sepifilm SN; SSB Aquagold; SSB 55 Pharma; SSB 56 Pharma; SSB 57 Pharma; Swanlac.

3 Chemical Name and CAS Registry Number

Shellac [9000-59-3]

4 Empirical Formula and Molecular Weight

Shellac is the general term for the refined form of lac, a natural polyester resin secreted by insects.

PhEur 9.2 and USP 40-NF 35 S1 define four types of shellac depending on the refining method, and JP XVII mentions only two types; *see* Section 13.

Elementary analysis reveals that shellac contains carbon, hydrogen, oxygen, and a negligible amount of ash. Orange shellac contains approx. 68% carbon, 9% hydrogen and 23% oxygen, and with a molecular weight of 1006 (bleached shellac is 949) the empirical formula for the average shellac molecule is $C_{60}H_{90}O_{15}$. Even with this relatively low molecular weight, shellac has excellent film-forming properties.

Lac is a complex mixture of aliphatic and alicyclic acids. The major components are aleuritic, jalaric and shellolic acids, as well as butolic and kerrolic acids. Seed lac and orange shellac contain approximately 5-6% wax and two coloring components, the water soluble laccaic acid and the water insoluble erythrolaccin.