

## O6040 - O6055 Shellac

Shellac is a resinous secretion of the lac insect. After the crude lac is gathered from the tree, it is crushed and graded and the largest particles, called "seed-lac", are selected for making the best grade of shellac varnishes.

The lac is heated, squeezed through a cotton bag, and worked into a plastic mass ready for stretching. It is stretched, either on rollers or by hand, into a thin sheet about four feet square. The sheet is slowly cooled and is broken into the flake-like pieces which appear on the market. Shellac comes almost entirely from India, although it is also produced in small quantities in Burma, Indo-China, and Siam. Its constitution has been investigated, but results vary because the origin of samples is often indefinite or unknown.

Tschirch and Farner give the following data on a sample of unknown origin:

Resin	74.5 %
Coloring matter	6.5 %
Wax	6.0 %
Moisture	3.5 %
Residue	9.5 %

They found it to consist largely of esters of an acid to which they assigned the formula,  $\text{CH}_3\text{CH}_2\text{CH}_2(\text{CHOH})(\text{CH}_2)_7\text{CHOH.COOH}$ , i.e., di-hydroxy-fico-cerylic acid. The melting point is between 77°C and 82°C.

Gardner and Whitmore have experimented with shellac in different organic solvents. They conclude that hydroxyl, carboxyl, and carbonyl groups are probably present.

Shellac is a spirit-varnish resin. When it is commercially prepared, 5 to 7 pounds are dissolved in 1 gallon of alcohol. Often, oleo-resins are added to increase the elasticity. Sandarac, mastic, and Manilla copal are sometimes mixed with it, and dragon's blood or gamboge is occasionally put in for coloring.

Shellac varnish gives a smooth finish and a high polish. The film is tough but not completely water-resistant. It is used as a primer for wood because it prevents any resin escaping and affecting the paint film and because it is impervious to the solvents ordinarily used for fresh oil paint. In restoration, it is sometimes applied as a weak primer over filling gesso in the losses of a paint film, for it has the property of being wetted with water and so will take an aqueous medium. Its color and slow solubility keep it from being much employed in connection with paint.