

NATURAL RESINS

Natural resins are secretions (also called exudates), which drip out of the tree when the bark or root of a tree is wounded by nature or man. Since early times, resins have been key ingredients of coating materials for decorative and protective purposes. Categorized as oil soluble or spirit soluble (spirit is alcohol or related solvents), natural resins are insoluble in water.

Natural resins are further classified into four major types:

Damars

Copals

East Indias

**A Miscellaneous Class
including (the very soft resin)
Elemi, Mastic and Sandarac**

Water-resistant

Soluble in

Organic Solvents

Alcohol Ether or

Chloroform



ELEMI

Elemi is a film forming, plasticizing resin that provides adhesion and flexibility. It allows for good retention of color and gloss. This resin is used in the manufacture of paints, varnishes, lacquers, ink and linoleums. It also provides a green note to perfumes.



Dark-Semi

Recent Solvent

Oil Soluble

EAST INDIA

East India resins are soluble only in aryl hydrocarbons and hydrogenated aliphatic hydrocarbons. They are not obtained through the tapping of trees, but are collected as natural exudations where found, mostly in Indonesia. Related to Damars, Black East India is dark upon application, but rapidly bleaches to a transparent film comparable in color with varnishes made from very light resin. East India resins are principally used in adhesives, cements, glass paint, printing inks, plastics, oil cloth and incense.

NATURAL
plthomas
RESINS

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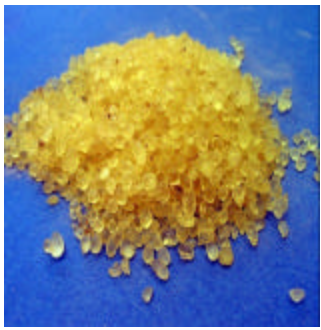
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**Soft-Soluble
in Alcohol and
Turpentine**

MASTIC

Mastic is used in wood coatings, lacquers, adhesives, and printing inks. Also used by artists to protect oil and watercolor paintings, it is more flexible than other resins and can be removed from paintings without damage to the surface. Mastic inhibits A. Pylori bacteria in the gut, and it is attracting considerable attention as a nutritional supplement.

SANDARAC

**Soluble
in Alcohol**



Sandarac is one of the oldest known resins used in preserving fine paintings and furniture. Used in spirit varnishes, lacquers, and dental products, sandarac provides a hard, white or transparent film. It is still extensively used to make a protective film over watercolors.



**Soluble in Aryl
and Aliphatic
Hydrocarbons,
Terpenes**

DAMAR ABC MIX

Used primarily in ink, paint, polish, varnish, and finishing compositions, damars provide depth and retention of gloss, superior color, adhesion, and flexibility. Damar also provides resistance to fumes, scuffing, and grease.

DEWAXED DAMAR

Not completely compatible with lacquer solvent, this resin must be treated with a process known as dewaxing for use in nitrocellulose lacquer. Damar is dissolved in a solvent and the resin wax is precipitated by ethyl alcohol. Dewaxed Damar is tough and versatile as a lacquer resin. It is used as a spirit varnish over artistic oil paintings to shield against dirt. It is FDA-approved for use as a paint in food containers.



**Alcohol
and
Ketone Soluble**

COPAL



Copals are native to Indonesia and the Philippines. Copal resin is used as a raw material for varnish because it has good storing quality, and produces a lustrous, elastic finish with good weather properties. These varnishes are used in the manufacture of wood and paper products. Other applications include linoleum, oilcloth, printing inks, adhesives and floor and shoe polish. Copal has also found application in the manufacture of dental products.