

36020 Lac Dye

Made from *coccus lacta* secretion, C.I. Natural Red 25
synonyms: gum lac, Indian lake

Lac dye is a yellowish red powder. Dissolved in water it turns bluish, dark red.

Lac dye is soluble in ethyl alcohol and methyl alcohol, also in acetone and acetic acid.

Lac dye is partially soluble in water and ether.

Lac dye is very lightfast and resistant to temperature, it melts at 180°C and decomposes at approx. 230°C.

Lac dye may be used for dyeing of textiles, such as silk, cotton, wool.

It may also be used for oil painting, in shellac varnishes and possibly in watercolors.

Excerpts from *Artist's Pigments c. 1600-1835* (R.D. Harley):

Lac dye is obtained from the females and eggs of the insects known as *Coccus lacca*, which infest various trees, especially fig trees, indigenous to Asia and India. They, and kermes and cochineal insects, are of a type commonly called "shield-louse", as they are small and round with a shield on the back. Female lac insects have vestigial wings and legs and spend their whole life gathered in large clusters on host plants. When lac dye is harvested, its animal origin is virtually unrecognisable, because it is a solid substance made up of bodies of female insects which are dead, each with some 200 to 500 unhatched eggs, all surrounded by a brown-red, hardened exudation. Individual insects are not visible, and the whole substance looks like some form of growth on the host plant. It is collected by breaking off lac-bearing branches before the larvae hatch. Some lac is left, and at swarming time the larvae of minute size can be seen for a few days moving about to find a place on the tree to settle and feed.

In ancient times Asiatics, who were able to observe the life cycle, knew that lac was a substance of animal origin, so various names meaning "little worm" were developed for *lacca* and similar insects. To Europeans, however, lac appeared to be part of the sticks on which it was imported, thus the name *coccus* (berry or acorn) was attached to lac and later to the live insects, a misnomer for which the ancient Greeks and Romans are held responsible.

Discussion on the confused nomenclature connected with a number of red pigments has been undertaken by other writers. The origin of the links between Latin *coccus* and *granum* and English grain (all of which are associated with the idea that lac was a seed or berry), and the links between *kermes* and *vermiculum* (both meaning little worm) are to be found during the medieval period and they are ably discussed by Thompson. When continuing the discussion with special reference to seventeenth-century England, it is possible to ignore the name grain, which, apart from its specialised use in textile dyeing, was obsolete. Nevertheless, the seventeenth century presents an additional problem in that the words *cinnabar* and *sinopia* were wrongly associated with the name *sinoper lake*, which may have been a development of the medieval name *cynople* (Latin *sinopia*) mentioned by Thompson.

Sinoper lake and the variation *topias* are to be found in sources dating from the late sixteenth and early seventeenth centuries. The composition of both is uncertain; Thompson states that medieval *cynople* was a composite lake, and it seems that *sinoper* may have been similar, for that mentioned in B.M. MS. Sloane 1394 was derived from the dye in scarlet cloth.

Parkinson's herbal contains an explanation that lac is formed by "winged ants" which settle on trees, that the substance is sometimes imported on sticks (stick lac), or, after it has been cleared from the sticks and melted, it can be imported in cake form, or in thin pieces (shellac). In order to amplify Parkinson's description, it is worth adding a few comments taken from a modern authority. When the dead insects are stripped from the branch and crushed, the seed or grain lac, as it is then called, is immersed in hot water to separate the grains from the coloring matter, the liquid is evaporated, and the residue which remains may be then formed into cakes for use as a dye. It was worth importing untreated stick lac, because it was capable of providing a greater quantity of coloring matter than the cakes. Eighteenth century customs records support this view, for, in 1700, 25.543 pounds of stick lac and 26.440 pounds of shellac were imported. In later years the quantity was twice that of stick lac, but considerable quantities of both were imported; in 1760, stick lac amounted to 170.780 pounds as compared with 349.630 pounds of shellac. Naturally, it was not all used as a dye, for lac had other uses in lacquers and varnishes.

During the seventeenth century, ready-prepared lake pigment was often distinguished by a place name. Florentine lake and lakes from Venice and Antwerp are mentioned quite frequently in literary sources, the Italian products being most



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highly recommended. Hilliard states that lake from Antwerp is quite good, and Gyles follows him, stating somewhat grudgingly that it is "indifferently good". It is noticeable that two of three places mentioned were the most important ports in Europe during the sixteenth century, and that it seems likely that their reputation for superior lakes rests on the fact that they monopolised trade and had first choice of the best raw materials. The tradition that the best lakes came from there lasted throughout the seventeenth century, but it would be wrong to assume that good lakes were not made elsewhere at that time. Norgate does not refer to European sources but speaks of Indian lake as being the best.

It was important to obtain a good-quality Indian lake pigment, because as an artists' color it presented some difficulties. General opinion amongst painters in oils was that it required much grinding and that it took several days to dry, so long in fact that it necessitated the addition of an artificial drier. If stored in bladders, which were the usual containers for oil colors, the color had a tendency to grow fat and unusable. There appears to have been some difference of opinion as to how much grinding lake required for preparation as a water color. Nevertheless, there was general agreement that, in addition to the usual gum medium, a small addition of sugar candy was required to prevent cracking in the shell. Some sources contain the suggestion that a little ear wax should be mixed in as well, the reason, implied but not explained, being that the addition would improve the flow of the color. It is evident that the actual paint presented some difficulties in use, whether it was oil or water color, but because of its transparency and its color it was extremely versatile.

Indian lake could be used in full saturation to shade other reds, used on its own as in the crimson drapery backgrounds described by Norgate, and, above all, it could be reduced most successfully with a large proportion of white to provide excellent flesh tints. Its versatility made it well worth its high price, its value being second only to ultramarine.