

## 60000 - 60001 Dammar

Dammar is a pale, yellowish, easily brittle resin with clean edges. Dammar is found in Southeast Asia; the name is Malay and means as much as resin or torch (torches made of dammar are very good because they do not drip). Dammar is obtained from trees belonging to the Diptocarpaceae family. The most important resin is the one belonging to the *Shorea wiesneri*, also called Diptodammar. The most common dammar on the market is obtained from Sumatra and may have a prefix according to the place of origin. Padang- or Palembangdammar are the most common types.

Dammar is obtained by cutting deep edges in the trees, in which the resin can accumulate. The resin pieces on the market are about 3 cm big; however, larger pieces are also common. Dammar pieces, which look like a pear or club, are obtained naturally, in which it is "sweated-out" by the trees, and not by cutting the trees.

Dammar contains about 40 % resin, dissolvable in alcohol (alpha-resin), and about 22 % resin, non-dissolvable in alcohol (beta-resin). Furthermore it contains about 23 % dammarol acid and 2.5 % water. The slight odor is obtained from the small amount of ethereal oils.

The resin is a little harder than colophony resin, starts to soften at about 90°C and melts at about 180°C. Dammar is only partially dissolvable in alcohol and ether, and is well dissolved in turpentine oil, chloroform, carbon disulphide and petroleum ether. In a 80 % chloral hydrate solution the resin only swells without dissolving. The acid value (A.V.) varies between 20 and 30, depending from its origin.

Dammar is indispensable for the preparation of light, clear and easily volatile varnishes. This resin is used as a final varnish in both oil and tempera painting. In addition, it is also used in oil painting as an additive or diluting agent which reduces the drying time. During the preparation of varnishes or paints, turpentine oil of high quality should be used (double-rectified). The resin is dissolved cold by stirring often. If stored in dark bottles, the dammar solution is more stable than under the influence of light. Further dilution should only be carried out with the same solvent used to dissolve the resin.

Dammar is further applied in the field of photography, to embed slide preparations, in the manufacture of plasters and plaster casts, and as substitute for Kaurikopal in the production of linoleum.

Kurt Wehlte recommends wrapping 100 g damar crystals in gauze and suspending them by a string in a closed jar filled with 200 ml pure gum turpentine. The crystals will take a couple days to dissolve.

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**Krui people preserve environment their own way**

(Oyos Saroso H.N. – The Jakarta Post, Krui, West Lampung)

The sun was just beginning to set when a man in his 30s climbed a Damar pine, carrying a rattan basket on his shoulder. He climbed quickly, with a rattan rope, while carefully checking every cut on the tree for sap. On finding the thickened, dried sap, he would collect it and put pieces into his basket.

Such sights are common in Pahlungan village, Krui, Lampung.

For the people of Krui, collecting resin is not just a job for men but women also. The Damar pine (*Shorea javanica*) has been cultivated in Krui since hundreds of years ago.

The area's natural tree resin has been well known abroad for a long time. Dutch rulers used it as raw material to produce various products like varnish, paint, ink, incense and cosmetics.

Until now, the people of Krui continue protecting their legacy amidst flourishing new rice fields and plantations. Green Damar pines fill the hills and farms in the coastal area.

The Krui people, who call Damar plantations *repong damar*, have customary law to protect the pines.

The pine cannot be cut and any person who violates the law receives punishment in the form of planting new Damar trees. Even would-be bride and grooms must plant trees before getting married.

Some Krui people even believe they can talk to the Damar pine. For many years, parents have told their children, "if you need to pay for your childrens' school fees, talk to Damar trees".

Lampung cultural observer Anshori Djausal said the custom has no denotative meaning.

"It's actually a message for Krui children to continue protecting Damar trees, and it has been successful – many Krui people have become successful and have attained high levels of education since their parents cultivated Damar pines", he said.

The trees are the main source of income for the people of Krui.

Each week, farmers collect the sap and when they have enough, they sell it to collectors.

Threats are looming from the opening of palm oil plantations, which have loosened the customary law. In the late 1980s, many Damar trees were cut down for palm oil plantations, and illegal loggers who used the pines to cover up stolen logs. The police would not stop them because they would not realize the loggers had mixed illegal logs with Damar pine logs.

Villagers in Pahlungan village, however, have remained true to their tradition of protecting the pines.

Dozens of other villages in West Lampung still uphold a similar tradition.

Husin, a 57-year-old resident Pahlungan, nurtures Damar trees on his plantation, which he inherited from his ancestors who have owned them ever since the Dutch rule.

He said plantations were usually left to the eldest child. The child who received the land should begin a new Damar plantation.

"The more *repong damar* one has, the higher his social status becomes," Husin said.

According data from West Lampung regency administration, there are currently some 17,500 hectares of *repong damar* in the regency, mainly in coastal areas, with some 1,7 million trees.

The trees, which are mainly grown by villagers, produce around 315 tons of resin annually, which is largely exported to Bangladesh, India, Italy, Pakistan and Saudi Arabia.

The Krui people do not fill their plantations with pines alone but interplant them with fruit trees like durian and others.

Environmental activist Kurniadi, who works with repong damar farmers, said that ecologically, the traditional Damar pine farming existence has a high value. Besides serving as a water catchment area, repong damar also serves as a buffer zone for conservation efforts at Bukit Barisan Selatan National Park. The government awarded the people of Krui with the Kalpataru, in 1997, for their commitment to the preservation of Damar pines through their customary law.

Kurniadi said that for Krui people, repong damar is more than just a source of income.

“There’s a strong bond between Krui people and repong damar. It is their identity,” he said.

Environmental activists and researchers, hold repong damar in Krui is an example of harmony between humans and nature. Preserving repong damar is not easy for the Krui people. Some have been tempted to sell plantations to earn money to hold parties or buy modern appliances.

Zulfaldi, one of executives of the Repong Damar Owners Community Association, said that without supervision, repong damar may vanish.

“The arrival of modern culture, like it or not, has tempted young people in Krui to work in big cities and industry and leave repong damar,” Zulfaldi said.

“He said the association was working with a research institution to improve the Damar quality to help boost its price.

“We’re trying to raise the selling price of Damar resin with a process which can refine low quality sap,” he said.

A survey conducted in 2004 by the Center of International Forestry Research showed that with a selling price of around Rp 4,000 per kg, Damar farmers can earn approximately Rp 10 million a year. The amount excludes harvests from other trees grown among Damar plantations.

Harvesting repong damar can provide a relatively good income.

Alipin Nur, a 63-year-old Damar farmer in Pahlungan, said prices were once much higher. In 1998, Damar sap could reach Rp 8,000 a kg.

Ideally, he said, considering production costs, the price should be at least Rp 15,000 a kg.

“Back then, a kilogram of Damar could buy three kilograms of rice, but now Damar prices are even less than rice.”