

Bagpipe Materials

Ebony

Ebony (*Diospyros ebenum*), also known as **India Ebony** or **Ceylon Ebony** depending on its origin, is a tree in the genus *Diospyros*, native to southern India and Sri Lanka. It is noted for its heavy black, fine-grained heartwood. Ebony has a long history of use, with carved pieces having been found in Ancient Egyptian tombs. The word "ebony" derives from the Ancient Egyptian *hbny*, via the Greek *έβενος* (ebenos), by way of Latin and Middle English. There are some older pipes made from ebony, however modern uses are largely restricted to small sizes, particularly in musical instrument making.

African Blackwood

Ebony has been largely replaced by **African Blackwood** or **Mpingo** (*Dalbergia melanoxylon*). Blackwood is a flowering plant in the family Fabaceae, native to seasonally dry regions of Africa from Senegal east to Eritrea and south to the Transvaal in South Africa. It is a small tree, reaching 4-15 m tall, with grey bark and spiny shoots. The dense, lustrous wood ranges from reddish to pure black. It is generally cut into small billets or logs with its sharply demarcated bright yellow white sapwood left on to assist in the slow drying so as to prevent cracks developing. Good quality "A" grade African Blackwood commands high prices on the commercial timber market.

The tonal qualities of African Blackwood are particularly valued when used in woodwind instruments, principally Highland pipes, clarinets, oboes and Northumbrian pipes. Furniture makers from the time of the Egyptians have valued this timber. A story states that it has even been used as ballast in trading ships and that some enterprising Northumbrian pipe makers used old discarded Blackwood ballast to great effect.

Due to overuse, the mpingo tree is severely threatened in Kenya and needing attention in Tanzania and Mozambique. The trees are being harvested at an unsustainable rate, partly because of illegal smuggling of the wood into Kenya, but also because the tree takes upwards of 60 years to mature.

Cocobolo

Some bagpipes are available in **Cocobolo**. Cocobolo is a hardwood from Central America yielded by two to four closely related species of the genus *Dalbergia*. The best known and probably the species contributing most of the wood in the trade is *Dalbergia retusa*, a fair-sized tree, reported to reach 20-25 m in height. Because of its great beauty and high value, this species has been heavily exploited and the tree is now in danger of extinction outside of national parks, reserves and plantations.

Cocobolo is a very beautiful wood, known to change color after being cut. It usually is orange in hue, with a figuring of darker irregular traces weaving through the wood. It is fine textured and oily in look and feel, and stands up well to repeated handling and exposure to water. Cocobolo is also extraordinarily dense, and even a large block of the cut wood will produce a clear musical tone if struck. Only relatively small amounts of

this prized wood reach the world market and it is expensive. Care must be used when working this wood, as its sawdust is dangerous; many people develop an allergy when exposed to it.

Rosewood

Because of the expense, some pipes are being made from **Rosewood**. Rosewood belongs to the family papilionaceae. The pre-eminent rosewood appreciated in the western world is *Dalbergia nigra*, Brazilian Rosewood. It is also known as Rio rosewood or Bahia rosewood. This wood has a strong sweet smell, which persists over the years, explaining the name "rosewood". Because of its density and strong resonance, Honduras rosewood, *Dalbergia stevensonii* is a favourite choice for makers of marimba and xylophone keys, although many such instruments are not made of this wood for reasons of cost or durability in outdoor playing environments. Brazilian rosewood is (was) a popular wood for musical instruments however, due to its protected status and spiraling prices, Indian and Madagascar rosewood are being used extensively in its place.

Lochaber Oak

Cameron Bagpipe Company uses Lochaber Oak (oak from Lochaber, Scotland) in the construction of their bagpipes. The term **oak** can be used as part of the common name of any of several hundred species of trees and shrubs in the genus *Quercus* (from Latin "oak tree"), and some related genera, notably *Cyclobalanopsis* and *Lithocarpus*. Oak is not a "traditional" or widely used wood for instrument making.

Mopane

The **mopane** or **mopani** (*Colophospermum mopane*) tree grows in hot, dry, low-lying areas, 200-1,150 m, in the far northern parts of southern Africa, into South Africa, Zimbabwe, Mozambique, Botswana, Zambia, Namibia, Angola and Malawi. Mopane wood is one of southern Africa's heaviest timbers and is difficult to work because of its hardness. However this also makes it termite resistant. For this reason it has long been used used for building houses and fences, as railway sleepers and as pit props. The termite-resistance and rich, reddish colouring also make it popular for flooring. Outside Africa, mopane is gaining popularity as a heavy, decorative wood, its uses including aquarium ornaments and bases for lamps or sculptures.

It is also increasingly being used in the construction of musical instruments, particularly woodwind. Suitable quality African blackwood (*Dalbergia melanoxylon*), traditionally used for bagpipes, is becoming harder to find. Mopane is fairly oily, seasons very well with few splits or shakes, and produces instruments of a warm, rich tone

Delrin

A modern synthetic material used in pipe construction is **Delrin**. Delrin is the brand name for an acetal resin engineering plastic invented and sold by DuPont. Delrin was first synthesized by DuPont's research chemists around 1952. Often marketed and used as a metal substitute, Delrin is a lightweight, low-friction, and wear-resistant plastic

capable of operating in temperatures in excess of 90 degrees celsius (approx 200 degrees Fahrenheit). According to the material safety data sheet from DuPont, the material has a slight odor of formaldehyde.

Delrin has also recently found use in the manufacturing of Irish flutes (traditionally made of wood), tin whistles (traditionally made of metal) and bagpipes (traditionally made of wood). Delrin flutes and bagpipes sound similar or identical to wooden version, but have none of the shrinkage or cracking issues usually associated with wooden instruments in hot, cold, or dry environments.