

Varnish Materials - Glossary

GUMS RESINS, COLORS, AND SOLVENTS

Gums, resins, and natural colors are imported from many sources world-wide. The quality of these materials may differ depending on the country of origin and the condition of refinement, which is sometimes primitive. Quality is therefore often inconsistent. The violinmaker should be prepared to adjust his formula to compensate for such variation.

Abrasives are materials for abrading varnishes. They are available in different grades as powders or in blocks.

Pumice powder - fine .It is available in different grits. It was already known in the 16th C. as an addition to firnis of linseed oil. Pumice powder is made out of lava rock, which are ground, washed and foamed up to different grits. It is available both as blocks and already powdered. It comes primarily from Italy.

Rottenstone - finer. Also called **tripoli**, If the same manufacturer offers both rottenstone and tripoli, tripoli will be the finer grade.

Vienna Lime is a very white and sand-free lime (calcaria viennensis). It is the finest grade used on instruments. It can be used with water or oil

Abrasives are mixed as needed with cutting oil or water. Petroleum attacks the varnish more but works faster. A piece of felt will work as a carrier of the liquid and abrasive. In the past other abrasives such as ossa sepiia or ash of cigars etc. have been used.

Fine grit (800-1200) waterproof silicon paper can also be used with oil or water.

Micromesh[®] is a proprietary cloth-backed abrasive in grades ranging from coarse to ultrafine (12000 grit)

Acaroid (resina acaroides, Botany Bay Gum, Grass Tree Gum)

Originates from Australia. The gum is available in grains or powder.

It is soluble in alcohol, ether, also in a mixture of rosemary oil and oil of turpentine.

Solution: 1 liter solvent - 400 g acaroid -

The solution can be used for dissolving the gums, must be filtered.

There are 2 different species of acaroid:

Nutt resin gives a dark red/brown color, soluble in rectified alcohol

Botany bay resin has a yellow color, soluble in rectified alcohol or ether. This resin is of lesser quality.

Acetone is made by dry distillation of wood into wood vinegar, which can be further separated into methyl alcohol and raw acetone. Acetone is much stronger than alcohol, not used for making violin varnishes. Boiling point: 55° C. Acetone dissolves fat and resins and can be used as a paint stripper. It also dissolves acrylocyanate glues (superglue).

Acid Acids are corrosive substances. The degree of corrosion is determined by the number of hydrogen ions present. Hydrogen ion concentration is measured in pH; 1 is a strong acid; 6 is a weak acid. pH 7 is neutral; anything less than pH7 is an acid and anything higher than pH7 is an alkali (base). The acid content of glue should be checked with litmus paper; a neutral pH (7) is desirable..

Alcohol

Ethyl alcohol, also called ethanol or grain alcohol, is made by the distillation of grain. It is used as a major ingredient in spirit varnishes. High grades of ethanol can be obtained from laboratory supply companies, but the paperwork required is onerous, since the ATB must be convinced it will not be drunk. Satisfactory grain alcohol (180-190 proof) can also be bought in liquor stores, under names such as 'Everclear'. It costs more, as the price includes the liquor tax, but it is easier to obtain.

Pure ethyl alcohol is hygroscopic; that is, it absorbs water under normal room conditions. Absolute (100%) alcohol, once opened, will absorb water until it is about 95% alcohol. Water is a contaminant of varnish; if too much water is present, it will cause streaking when the varnish is brushed on the violin. For these reasons it is important to varnish only under low humidity conditions, and to keep alcohol and varnish containers tightly stopped when not in use.

Denatured alcohol is ethyl alcohol rendered denatured (poisonous!) by addition of methanol (also known as methylene or wood alcohol), and sometimes other additives such as benzol and pyradine. The nature of the contaminants are often not specified on the label, making it difficult to predict the properties of denatured alcohol. These contaminants also make denatured alcohol more of a health hazard. Denatured alcohol is best suited for cleanup and some polishing operations.

Alkali - an alkaline substance or base is one that has a pH higher than 7. As the pH of an alkaline approaches 14 (the upper limit of the pH scale), it becomes more corrosive. Lye is a commonly used base. Baking soda is a mild base, often used to counteract acids.

Alder bark gets formed to pipes, the outside shows a grey/brown color, after the cork has been scraped off it looks red. Treated with a solution of ammonia the inside of the bark turns red, with cobalt oxide it turns brown/violet. Adding ferric chloride it turns to a deep brown, To be used for stains.

Alizarin is the active ingredient which produces the red color in madder root. Alizarin can be made synthetically and is soluble in water and alcohol. Alizarin is extracted from the root with thinned sulfuric acid. The extract is then boiled to eliminate the sulfuric acid, and the Alizarin is precipitated (in unclean condition). Alizarin dissolved in alcohol gives a reddish color which is made stronger by adding aluminum sulfate. No ammonium chloride must be added or the solution will turn purple-violet. *See: Madder Root*

Alkanna root originates from Asia Minor and southern Europe. (*Radix alcanneae*) The red resinous color is extracted from the bark of the roots of a shrub (German *Borretschgewächs*) with petroleum ether and is soluble in alcohol. The resinous dye is named alkannin. The slight bluish color can be neutralized by adding a little bit of an orlean- or gamboge solution. Alkannin is also soluble in fat- or essential oils or turpentine. It can be filtered and thickened if necessary. To be dissolved like curcuma, not very durable. Lightproof, known and used since ancient times.

Almond oil is produced by cold pressing of almonds. The product is 40-50% (oil?). It is a non-drying oil, soluble in 60 parts of cold and 20 parts of boiling rectified spirit. It is clear, viscous and of a sallow yellow color.

Aloe is the thickened (by heat) sap of the meaty leaves of a liliaceous plant and originates from Africa