

## AURO Raw Materials Guide

### **Binders, resins, oils, waxes, fats, soaps:**

**Beeswax:** Pure, unbleached, ductile beeswax from best provenances, certified low residue level. Germany.

**Beeswax(-ammonia) soap:** Beeswax is saponified with liquid ammonia in dedicated boilers. It serves as a natural wetting agent in pigments.

**Carnauba wax:** Hard, water-repellent wax obtained from a Brazilian palm tree species. The leaves of these tall palm trees are cut (they constantly grow again), the wax is liquefied by boiling in water, skimmed off the top and cleaned physically (with bleaching earths). Thanks to its particular hardness, this wax enhances the mechanical resistance of all soft waxes. South America.

**Colophony glycerol ester:** Natural resin colophony is modified with the fat glycerin in a boiling process on the basis of a special method. The result is a binder with very good weather resistance and elasticity. Europe.

**Dammar:** One of the most valuable and beautiful vegetable resins on earth. Its name is derived from the Malaysian word for "cat eye". It is very light-coloured and low in yellowing. Its tree of origin on Sumatra also supplies Meranti wood. The cultivation of dammar resin enables the inhabitants of Sumatra to sustainably use the tropic forest without destroying it. The use of dammar thus actively combats the depletion of tropical forests. Asia.

**Wood oil - stand oil:** Oil boiled until thick originating from the nut of the Chinese Tung tree; a valuable, easily drying lacquer binder. Asia.

**Potassium silicate:** Finely dispersed solution of silicates in water which is produced by smelting quartz sand and potash. Used as binder for silicate paints and plaster. Germany.

**Lime colophony:** Made from melted colophony resin whose natural acid content is neutralised by adding quick lime. Germany.

**Coconut fat potassium soap:** Fat from the seeds of coconut palm trees gently saponified with caustic potash solution in dedicated facilities. South America.

**Larch resin balsam:** An ethereal balsam resin produced by drilling into the larch tree trunks; colourless, smells of terpene and serves as scent and binder. Europe.

**Linseed oil:** Fatty seed oil of the linseed plant (*Linum usitatissimum*), produced by cold and warm pressing followed by gentle desliming and physical discolouring (without chemical bleaching agents). Valuable binder component which provides high elasticity and creep; partly from regional, improved conventional and ecological cultivation. Germany.

**Linseed fatty acid:** Fatty acid produced naturally from linseed oil by the separation of glycerin (see glycerin) which helps to wet pigments. Germany.

**Linseed potassium soap:** Nurturing cleaning agent produced from pure linseed oil by saponification with caustic potash solution or potash, slightly water-soluble, very easily biodegradable. Germany.

**Linseed oil - stand oil:** Valuable binder for lacquers, stains and wall paints produced by boiling of linseed oil until thick. The respective boiling time is decisive for the different viscosities. Germany.

**Natural rubber latex:** Chyle produced by cutting through the bark of rubber trees cultivated in South East Asia; a highly concentrated natural dispersion of natural rubber (caoutchouc) in water. An indispensable binder mainly used in adhesives. Contains a little liquid ammonia to prevent flocculation during transport. Asia.

**Sodium palm kernelate potassium soap:** Fat made from the crushed seeds of oil palms (not to be mixed up with palm oil generated from pulp) gently saponified with caustic potash solution in dedicated facilities. The soap has very good wash properties. South America.

**Rape oil potassium soap:** Oil from the seeds of *Brassica napus*, also referred to as turnip rape, gently saponified with caustic potash solution in dedicated facilities. Small amounts of soap are used to synergistically improve the wash performance of other plant soaps.

**Castor stand oil:** Valuable, dryable binder made from ricinus oil, i.e. oil from the seeds of the subtropical Ricinus shrub by means of dehydration (elimination of water).

**Ricinus oil potassium soap:** Oil from the seeds of the subtropical Ricinus shrubs (*Ricinus communis*) gently saponified with caustic potash solution in dedicated facilities. The soap has a minor wash performance but excellent properties for natural foam regulation.

**Safflower stand oil:** Drying oil made from the fatty seed oil of the Safflower thistle, thickened by boiling to form a low-yellowing binder. Europe.

**Shellac:** Resinous substance produced by lac insects (*Lacifer lacca*) living on trees domiciled in India. The resin encrustations are removed from the tree branches, filtered hot through cloths and bleached – not chemically but purely physically by AURO. Elastic binder for quick-drying lacquers. Asia.

**Shellac (ammonia soap):** Water-dilutable dispersion made by means of saponification with ammonia liquid in dedicated facilities, used as binder e.g. in vegetable paints.

**Soy bean oil potassium soap:** Oil from soy beans gently saponified with caustic potash solution in dedicated facilities.

**Sunflower oil:** A light yellow, fatty oil from sunflower seeds which is used in lacquers, paints and soaps. Germany.

**Sunflower oil potassium soap:** Oil made from the seeds of the central European sunflower (*Helianthus annuus*) gently saponified with caustic potash solution in dedicated facilities. This soap has an excellent wash performance and is the most important plant soap in most AWALAN products. AURO only uses sunflower oil from ecological cultivation.

**Walnut oil:** Fatty seed oil from the pulp of the *Juglans regia*; very valuable, semi-drying binder for artist paints. Germany.

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## **Mineral pigments and fillers:**

**Aluminium silicate:** Aqueous alumina naturally formed by weathering of rock rich in aluminium or fine, mineral filler with pigment properties produced by technical precipitation. Europe.

**Wood cellulose:** Organic filler based on cellular fibres made from deciduous wood or beech wood without using chlorine bleach. Provides wall paints and plaster with mechanical strength and a resorption capacity similar to that of wood. Germany.

**Chromoxide green:** Green mineral pigment made from chromium ores. Its production has negative environmental impacts but there is no alternative yet. In contrast to so-called chromium (VI) compounds, it is insoluble and therefore non toxic. Germany.

**Earth and mineral pigments:** extremely finely dispersed, highly transparent pigments with excellent UV protection and good weather resistance which are especially used in stains. Europe.

**Iron oxide pigments, transparent:** Inorganic pigments like natural earth paints, synthetic iron oxide pigments, e.g. ochre, English red, Persian red, earth black, and selected mineral paints such as ultramarine and chromium green. Europe.

**Calcite (marble powder):** Natural appearance of calcium carbonate (like chalk). Available from most finely ground to coarse grain size. Filler for lacquers, wall paints, plaster and adhesives. Europe.

**Kaolin:** Natural clay mineral (china clay, an alumina silicate). Filler for wall paints, plaster, lacquers. Base component for chinaware. Europe.

**Catalytically effective pigments:** Inorganic pigments with a special, finely dispersed structure. Capable of splitting up and degrading organic components, including harmful substances, under UV impact.

**Chalk:** Natural calcium carbonate from best sites, e.g. Hildesheim Börde, finely ground and elutriated, therefore high whitening power and grain fineness. Germany.

**Quartz sand:** Crystalline silicic acid, silicium dioxide, one of the most frequent minerals of the earth's crust. A chemically very hardwearing material which forms during the weathering process of eruptive rock. Virtually unlimited availability. Germany.

**Talcum:** Natural silicate mineral with pronounced layer structure ("steatite"). Thixotropic and pigment-saving filler for paints and lacquers. Europe.

**Titanium dioxide:** Very opaque, non toxic white pigment for paints and lacquers. Made from natural minerals (e.g. rutile) by separation of coloured companion substances. AURO has always used this pigment from sulphate procedures with weak acid recycling and recovery of green malts, without dumping of weak acids and without chlorine chemistry. Germany.

**Ultramarine:** An inorganic pigment whose crystalline structure is similar to that of lazurite. Used as mineral pigment in all blue stains and lacquers. Europe.

## **Auxiliaries:**

**Alaun:** A white, crystallised powder made from potassium and aluminium sulphate used in the manufacture of vegetable paints. Germany.

**Amine soaps:** Ammonium compounds modified by organic components. Facilitate the integration of binders into water-based products. Europe.

**Bentone:** A natural clay mineral, swelling clay, which is used as gelling and thixotropic agent in gloss paints and printing inks, waxes, putties, adhesives but also for cosmetic products. Europe.

**Borax:** Natural mineral from specific salt lakes; traditional, mild alkali used for pulping e.g. of casein. North America.

**Boric acid:** Weak mineral acid formerly made from Tuscan spring water, today produced from borax with sulphuric acid. Europe.

**Boric salt (sodium octaborate):** Natural mineral from salt lakes. Very effective, non volatile, non fumigating agent for preventive biological wood and flame protection. North America.

**Cellulose ether, ester:** Expanding agents made from wood cellulose by chemical pulping. Serve as simple adhesives in AURO Wallpaper paste and distemper, but also used as emulsifiers and thickening agents in paints and adhesives for better processing control. Europe.

**Citrate:** Sodium or potassium salt of citric acid. Germany

**Citric acid:** Natural fruit acid in citrus fruits with good lime dissolving and water softening effect; made from molasse by means of fermentation. Germany.

**Green vitriol:** Found as mineral in the form of green or white encrustations; technically produced by dissolving iron in sulphuric acid. This raw material is used for wood preservation, plant dyeing and in tanneries. Europe.

**Gypsum:** Natural gypsum, calcium sulphate, from deposits in the Harz region. Germany

**Sodium sulphate:** Salt made from sodium sulphite and sulphuric acid, used in vegetable paints and detergents. Germany.

**Glycerin:** Polyvalent alcohol. Component of all animal and vegetable fats, produced by separation of fatty acids. AURO only uses glycerin of purely vegetable origin. Germany.

**Gum arabicum:** Dried mucilage from different species of acacia, also called acacia rubber. This rubber is colourless to brown and odourless. Dissolved in warm water, it forms a ductile, gluey liquid used in adhesives and as thickening agent. Europe.

**Salts of hartshorn:** In chemistry referred to as ammonium carbonate, used as lead additive in vegetable paints. Germany.

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**Caustic potash:** Strong alkali for the saponification of vegetable oils and fats to generate wash active substances. Made from potassium chloride and water by electrolysis. Germany.

**Camomile extract:** Produced from camomile by alcohol extraction, protects the skin. Germany.

**Silicic acid:** Finely dispersed silicic acids without crystalline (quartz) structure made from quartz sand and lime by flame hydrolysis. Used as matting filler or as filter agent and binder additive in silicic brines. Germany.

**Cork:** Dermal tissue formed by almost any green plant on its subterranean and superterranean parts. Only the very thick cork layer of the cork oak (*Quercus suber*) domiciled in Mediterranean countries is of economic use. Europe.

**Cork powder, granulated cork:** Coarsely to finely ground cork. Germany.

**Lecithin:** Natural phospholipid made from soy beans by hot water extraction which promotes wetting and emulsification. Germany.

**Lactic acid:** Acid produced by the fermentation of sugar by means of lactic acid bacteria. Prevents lime stains on crockery. Germany.

**Lactic casein:** Flocculated milk protein made from cow's milk by acidification after separating the fat. Valuable binder and emulsifier used in paints and adhesives. For this purpose it is pulped with mild alkalines (borax) to form casein paste. Germany.

**Sodium metasilicate:** Alkaline, water-dilutable sodium salt of silicic acid. Has a fat-dissolving effect in dishwashing detergents due to its alkalinity and is also water softening and anticorrosive. Germany.

**Sodium percarbonate:** An adduct of chlorine-free bleaching agent hydrogen peroxide to sodium carbonate. Decomposes into sodium carbonate, water and active oxygen at higher temperatures. The latter has a bleaching effect on stains. Free of boron. Germany.

**Natron:** In chemistry referred to as sodium hydrogen carbonate, used as neutralising agent and retarder in paints. Germany.

**Organic acids:** Carbon compounds with slightly acidic properties (as opposed to known mineral acids such as sulphuric acid). In combination with AURO binders based on vegetable resins and oils, organic acids improve the application-related properties of coating materials. Germany.

**Potash:** Mild alkali formerly lixiviated from potash, today produced by the conversion of sodium carbonate with potash soaps. Used for the saponification of vegetable waxes, resins and oils. Germany.

**Swelling clay:** Natural mineral (phyllosilicate) with good swelling capacity. Used as thixotropic agent in aqueous and resinous oily products with good swelling capacity and dirt absorption capacity following surface treatment. Germany.

**Rape, ricinus oil tensides, emulsifiers:** Specifically selected auxiliaries based on vegetable oil,

chemically modified, for the in-house production of aqueous, solvent-free oil resin binder for AURO Aqua products. Germany.

**Ox bile:** Thanks to its high content in bile acids, lecithins and enzymes, recommended as concentrate for local stain removal which is gentle on fibres. Germany.

**Liquid ammonia:** Alkaline solution of ammonia in water, used for making special, water-dilutable resin, wax and oil soaps, so-called ammonia soaps. Germany.

**Phyllosilicate:** A mineral similar to swelling clay but produced by precipitation. The silicate particles are positioned in sheets. Phyllosilicate has a high binding capacity for calcium and is thus the main ingredient of our softener component. Germany.

**Evaporated salt:** Undenaturated, pure rock salt (sodium chloride) without free flow agents for the prevention of scale deposits in dishwashers. Germany.

**Sodium carbonate:** Mild alkali from special salt deposits (sodium carbonate lakes). Sodium salt of carbonic acid, sodium carbonate which is used in AURO powder products for the pulping of casein. Germany.

**Stearates:** Oil and fat components insulated from these, used for making soaps and as auxiliaries in paints. Germany.

**Stearic acid:** Found in large quantities in fats and oils, produced from these by fat separation. Used for making stearates and as auxiliary in paints.

**Tragant:** Vegetable paste for artist paints, generated by cutting the stalk of the *Astragalus gummifer* domiciled in Turkey. Europe.

**Drying agents (lead-free):** Auxiliaries, metal soaps made from minerals of calcium, cobalt, zirconium or manganese for reducing the drying times of vegetable oils. Germany.

**Turkey red oil:** Ricinus oil sulphatised by conversion with sulphuric acid, used as auxiliary emulsifier. Germany.

**Wine vinegar:** Natural acid made from wine by means of conversion into alcohol and further fermentation to produce vinegar.

**White lime hydrate:** Slaked lime (aged slake lime) in powder form. Produced by the baking of chalk followed by hydration. Already used as binder for lime mortar and lime paints in the ancient world. Germany.

**Wheat flour:** Pure grain flour, used as thickening agent in paint removers. Germany.

**Xanthan rubber:** Highly molecular, natural catabolic product, polysaccharide of (the genetically unmanipulated!) bacterium *Xanthomonas campestris*. Suitable as thickening agent and binder. Germany.

**Zeolite:** Aluminium silicate produced from alau and sodium silicate by precipitation, a particularly environmentally friendly phosphate substitute for softening water. Germany.

**Sugar tenside:** Wash active substance, made from sugary raw materials by means of conversion with vegetable oils using potash at temperatures below 100 °C. Germany.

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## Vegetable paints:

**Logwood extract:** Produced from the heartwood of trees cultivated in plantations, used for dyeing, its colour range covers blue and violet black shades. Europe.

**Catechu:** Thickened juice extract from the heartwood of the Indian Acacia catechu. Catechu is used in brown to black vegetable paints. Asia.

**Chlorophyll:** Pigment made from the dye of leaf green. The green dyestuff from plant leaves is used as copper complex in vegetable paints. Germany.

**Cochinille:** Red colorant produced by scale insects which live on cactuses domiciled on the Canary Isles and in Mexico. It gives vegetable paint pigments a slightly bluish red colour shade. This raw material has a red to violet dyeing effect and is used as food colouring. Europe, North America.

**Indigo:** Extract produced by fermentation of the Bengal indigo plant *Indigofera tinctoria*. Was already used as dye 4,000 years ago. Serves as blue vegetable paint pigment. Asia.

**Madder roots:** Colorant with a high content in red dye from central Europe, Turkey and Iran which is used in red vegetable paint pigments for wall stains. Europe.

**Vegetable paint alumina pigment:** Coloured pigments for artist and wall paints made on the basis of a dedicated method. The colorants (Reseda, Madder, Indigo, Cochineal, Leaf Green, Catechu, Logwood, etc.) are extracted with water adding alau, the pigment is then precipitated as alumina coloured lacquer with lyes, filtered and washed. A laborious process which provides harmonically bright colour shades which sometimes take many days to develop.

**Reseda:** Dye plant (*Reseda luteola*, Wau) for making yellow vegetable paint pigment. Europe.

## Solvents, ethereal oils:

**Alcohol:** Produced by the fermentation of starch containing vegetables, e.g. potatoes, followed by distillation. AURO only uses non denatured alcohol for shellacs. Germany.

**Cembra oil:** A water light oil of the Swiss pine, also referred to as Swiss stone pine oil, with strong but flavoursome odour. Protects from textile moths and other insects. Europe.

**Bergamot oil:** Pure ethereal, yellowish oil from the fruit skin of the Bergamot tree (*Citris bergamia*), used as scent. Europe.

**Eucalyptus oil:** Ethereal oil with slightly preserving effect made from the leaves of the Australian Eucalyptus tree, produced by water vapour distillation. Europe.

**Pine terpene alcohol:** High-boiling fractions from the distillation of pine balsam terpene oil following catalytic water addition. Europe.

**Lavender oil:** Water vapour distilled oil of the lavender plant (*Lavandula officinalis*) domiciled in Mediterranean countries. Europe.

**Lemongrass terpenes:** Distillate from the ethereal oil of the tropical grass *Andropogon flexuosus* domiciled in East India. Asia.

**Orange oil:** Ethereal oil produced during the manufacture of orange juice. The distilled, highly fragrant components are used in the perfume industry and for aroma therapy. The "terpene lyes" of weaker fragrance are used as solvents in resins and oils. South America.

**Rosemary oil:** Ethereal oil produced from the leaves of real rosemary by water vapour distillation. The oil has mildly fungicidal and preserving properties. Europe.

**Water:** AURO uses particularly soft, pure drinking water from the nearby Harz mountains. Germany.