

THE BENEFITS OF NATURAL PAINT

Natural paint has many, many benefits which stretch from the manufacturing process through to the actual effects of the paint on you and me.

Environment - the ingredients are manufactured using the least amount of energy possible. The ingredients come from sustainable sources and therefore preserve our natural capital.

Effect on building materials - natural paints and varnishes allow buildings to "breathe", being micro-porous. Modern building techniques, including conventional petro-chemical paint, tend to "seal up" surfaces, for example, conventional paint creates a coating on top of the plaster or wood rather than binding with the underlying surface. By allowing a surface to breathe properly, this discourages the build-up of condensation and resulting mould and allows the walls to naturally expand and contract as the temperature rises and falls within the house.

Effect on health - there are no long or short term health issues for humans using the paint.

Quality - the product is of high quality and is of professional standard.

Good Price - the prices are comparable to any good quality chemical paint.

For example PRIMASOL emulsion

Chemical Solvent free - means that you will not breathe toxic petro-chemical fumes. The paint is free from acrylic resin (no Glycol Ester), formaldehydes etc. The solvent is actually water!

Long lasting - the colour and finish will last for years.

Washable - the matt finish allows you to wash the walls with soap and water without damaging the paint finish.

Easy to apply - after giving the paint a vigorous stir, you can either thin the first coat with 10% water or apply the paint as it is. Apply two coats for a good depth of colour.

Re-paintable - if you feel like a change of colour just apply the colour you want on top of the old colour - again apply two coats

Real chalk matt effect - the natural chalk content in the paint gives a slightly matt, textured finish.

HISTORY OF NATURAL PAINT

There was a time when household paint was mixed by hand by the professional decorator. Then came mass production of paint in the 19th century and later still, in the 1960's, the petro-chemical industry introduced mass market chemical paint. The use of simple ingredients such as chalk, cellulose and casein (a milk derivative) for household paint have almost disappeared. In their place we now have two generations of painters and decorators who have known nothing other than petro-chemical based paint; easily available, cheap and offered in a never ending rainbow of colours to satisfy the huge consumer demand.

However, as many of us are becoming more aware of our environment, we are beginning to question what we not only put into and onto our bodies but also what we put in our homes.

Conventional petro-chemical oil based paints and varnishes contain many complex volatile chemicals which remain volatile long after they have been applied to our walls and woodwork. Hence that "paint smell" which lingers on after we have painted our houses. The petro-chemical paint industry is slowly introducing water based alternatives but these may have more severe consequences for our health than oil based paint.

From the old tradition of paint making comes modern natural wall paints and varnishes, using modern manufacturing processes which minimise environmental waste and use minimal energy in their production. These paints and varnishes are based on chalk, cellulose, casein (a milk derivative) as in times of old. Biofa natural oil based paints are made of natural oils and use citrus peel oil as a natural solvent. The complex volatile chemicals of petro-chemical paints have been banished along with the use of acrylics and formaldehyde.

WHY ARE NATURAL PAINTS NOT "ORGANIC"

We are occasionally asked whether our paints are "organic" ie made from ingredients free from pesticides etc. Biofa natural paints are not "organic" for two reasons. The first reason is simple - minerals cannot be classified as "organic" as they are not grown or produced from an animal and minerals tend to be the main ingredients of natural paint.

The second reason is slightly more complex. "Organic" is also a term used in chemistry when chemicals go through complex processes to produce a new synthetic substance. This process is used in petro-chemical paint production whereby the chemicals are combined to produce a volatile organic compound. If you look on tins of paint you will see this listed as VOC. These VOCs are listed on the tin as either high, medium or low VOC emissions and are considered a health hazard and to be used with care.

The chemical paint industry is slowly trying to phase out high VOC emission paints by offering water based alternatives. However, there are fears that these alternatives, which tend to be acrylic resin based paints may be more harmful than the original oil based product.

INGREDIENTS OF PETRO-CHEMICAL PAINTS

<i>Ingredient</i>	<i>Type of Paint and Fumes</i>	<i>Effect</i>
<i>Acrylic resin</i>	Oil based gloss, enamel & eggshell paints. Varnishes. Acrylic emulsions	Causes allergies and eczema
<i>Alcohol</i>	Ethanol and methanol fumes	Irritation of the eyes, nausea and digestion problems
<i>Asphalt</i>	Paint, waterproof wallpaper	Causes cancer
<i>Chlorobenzene</i>	Pesticides, paint, varnish	Affects the liver, lungs and kidney
<i>Dioxin</i>	Found in many products used as wood treatment	Affects the skin, causes kidney, liver and stomach cancer
<i>Formaldehyde</i>	Used in furniture, curtains, wallpaper, glue and paint	Attacks the nervous system, causes headaches, breathing problems, insomnia, loss of memory and cancer
<i>Glycol Ether</i>	Solvent for water based paints	Cancer and congenital deformities
<i>Petrol</i>	This forms the basis for numerous products	Irritation of the larynx, eyes, nose. Provokes drowsiness

<i>Polyurethane</i>	Used by itself and in paint	Attacks the nervous system, causes digestive problems, is also known to cause leukaemia
<i>Trichloretylene</i>	Found in paint and wall paper glue	Causes respiratory problems, affects the nervous system, causes cancer. Contributes to acid rain
<i>Toluene</i>	Acrylic and emulsion paints	Affects the nervous system causing nausea and confusion. Long term exposure causes more pronounced nervous disorders and kidney and liver damage.
<i>Vinyl Chloride</i>	Essential of PVC	Causes brain cancer, alters the immune system and causes congenital deformities.

INGREDIENTS OF BIOFA NATURAL PAINT

Biofa natural paints and varnishes are based on minerals and plant based ingredients which are combined in a simple manner according to modern production methods. The production method produces very little waste and uses very little energy compared to conventional paint production (see "Pilot Project carried out by the Ecobilan Company for the Ministry of Environment in France - December 1993, copy available on demand). The ingredients of Biofa natural paint are listed on each container with a full technical disclosure.

Aluminium silicate:

Mineral filler with pigmentation characteristics. Clay mineral containing water. It is formed by weathering of aluminium-rich stone. Country of origin: Northern Europe

Ammonia, liquid:

Liquid ammonia is a weak lye.

Beechwood tar oil:

Dark, viscous oil, made by distilling beech wood. Country of origin: Germany

Beeswax:

Natural wax formed by bees to make their combs.

Bentonite:

Siliceous deposit formed by weathering of tuff stone. Used to maintain viscosity. Country of origin: U.S.A.

Bergamot oil:

Volatile essential oil derived from the bergamot fruit, a relative of the lemon.

Boron salt:

Natural mineral found in deposits in western USA. Used as a preservative and wood preservative.

Calcium octoate drier:

See "dryers"

Candililla wax:

Made by cooking the fleshy leaves of the Wolf's Milk Euphorbia cerifera and subsequent treatment with sulfuric acid. Country of origin: Mexico

Carnauba wax:

Made from wild and cultivated leaves of the Carnauba palm. Country of origin: Northern Brazil

Casein:

Primary component of milk proteins. Derived from cow's milk. Also common in peanuts and soy bean. Country of origin: Europe

Castor oil:

Dehydrogenated oil of castor seeds ricinus. Country of origin: Europe, South America

Cellulose:

See "polysaccharide"

Chalk:

Soft carbonate stone, formed from the shells of marine organisms. Country of origin: Europe

Chlorophyll:

Natural green colorant, extracted from green leaves.

Chrome oxide green:

Mineral pigment with bound (non-toxic) chromium. Not a chromate.

Citral:

Volatile oil from lemon grass. Country of origin: Central and South America, Africa and Eastern Asia

Citric Acid:

Colourless crystals, soluble in water. Acts as an astringent, bleaching and dissolving calcium deposits.

Citrus peel oil:

Solvent made by the pressing and distillation of various citrus fruits. Country of origin: Brazil, Florida

Cobalt blue:

Spinell pigment with cobalt in a non-soluble and non-toxic form.

Cobalt-octoate drier

See "dryers"

Colophony:

Made from the resinous sap (balsam) of various pine trees. Tapped from a slit in the bark, the balsam is distilled into Colophony and turpentine. It exist in two forms: cooked to an ester and hardened with calcium carbonate. Both forms are employed in the paint industry. Country of origin: Portugal and southern France

Copaiva balsam:

Balsam made from resinous soap of various Copaifera species.
Country of origin: Northern and South America and Trinidad

Diatomaceous earth:

Marine sediment formed from the siliceous shells of microscopic diatoms. Primarily contains quartz minerals. Country of origin: U.S.A.

Dryers:

Also known as siccatives. Catalysts which accelerate the natural drying of resins and oils. Metal-organic components. Natural products which primarily contain octoate salts, the metal components of which have catalysing effects. Barium, cobalt, zinc and zirconium are often used.

Ethanol:

Ethyl alcohol, generally known as alcohol. Made from fermentation of sugar or starch.

Feldspar:

A hard mineral with pigmenting properties.

Ferric oxide pigments:

The rusting process of iron can be controlled to form different colours. They afford colour and UV protection.

Formic acid:

Clear, colourless acid with a pungent odour. Often used in small amounts to dissolve calcium deposits.

Galgant root extract:

Aqueous extract of galgant rhizomes. Country of origin: Alpine Europe

Guajak wood extract:

Aqueous extract of *Bulnesia sarmienti* wood. Country of origin: Paraguay

Hydrocarbons, aliphatic:

Solvent made by distillation of mineral oil and subsequently cleansed of aromatic compounds. Mild compared to turpentine.

Jojoba oil:

Oil of the olive-like fruits of the evergreen *Simmondsia chinensis*. Especially skin-friendly and often used in cosmetics. Country of origin: Arid regions of California, Arizona and Mexico

Juniper extract:

HCl extract from branches of the juniper tree *Lignum Juniperi communis*. Country of origin: Italy

Larch resin balsam:

Made from the resin tapped from cuts in the bark of the larch tree. Country of origin: Central Europe

Latex (natural rubber):

Natural emulsion made from the milky sap of rubber trees. Country of origin: Malaysia

Lavender oil:

Volatile oil from the leaves and flowers of true lavender (*lavendula officinalis*). Country of origin: Southern France

Lemon oil:

Oil pressed from lemon peels. Country of origin: U.S.A.

Linseed oil:

Oil pressed from flax seeds. Can be hot or cold pressed. Heat brings greater yield, but poorer quality oil of darker colour. Country of origin: U.S.A., South America

Lithopone:

Mineral pigment made by mixing zinc sulfide and feldspar.

Methyl-hydroxy-ethylcellulose:

Cellulose which has been bound to organic acids. Its acts as a thickening agent and brings structure. Improves painting techniques.

Microwax:

Crystalline petroleum product.

Mineral wax:

Natural component of mineral oil.

Neem bark extract:

HCl extract of the neem tree (*Antelaea azadirachtea*). Natural insecticide and antiseptic. Country of origin: India

Nickel titanium yellow:

Mineral pigment of technical origin.

Oak rind extract:

HCl extract of oak bark *Quercus roburis*.

Oregano extract:

HCl extract of the herb *Oreganum creticum*. Country of origin: Italy and Spain

Paraffin wax:

Long chain, saturated aliphatic hydrocarbons, made in the distillation of petroleum. Also found to 10% in beeswax. Used in pharmacy and cosmetic industries.

Peru balsam:

Balsam made from the resin of *Hyroxylon pereira*. Country of origin: Coastal El Salvador

Polysaccharides (cellulose, starch):

Naturally produced carbohydrates composed of sugar molecules. Used as auxiliary for adjusting viscosity and stabilising emulsions.

Potato starch:

Carbohydrate product of potatoes. Country of origin: Central Europe

Propolis:

Special resin made by bees from the young buds of poplar birch and alder. Used by bees to disinfect their hives. Antiseptic and regenerative, it is used in dietary supplements, cosmetics and pharmaceuticals. Country of origin: Europe

Quartz sand:

Natural building material of specific granulation. Composed primarily of pure quartz. Country of origin: Germany

Rosemary oil:

Volatile oil from leaves *Rosmarinus officinalis*. Country of origin: Spain

Safflower oil:

A drying oil from the fatty seed oil of the safflower thistle (dyer's thistle). It is used as low-yellowing binding agent. Country of origin: U.S.A., South America

Sage extract:

HCl extract of the herb sage (*Salviae officinalis*). Country of origin: Spain

Shellac:

Excretory product of the scaled mite (genus *Lacschadia*). Country of origin: India

Sico-bordo red:

Synthetically manufactured organic monoazo pigment.

Silicic acid:

Very fine mineral, made by heating quartz sand and calcium carbonate to between 130C - 180C in the presence of water.

Soap, liquid:

Made by saponification of coconut oil and soy oil with KOH Potassium hydroxyde.

Soot:

Black pigment, carbon, made by heating.

Soy lecithin:

Found in soy beads, extracted by alcohol and other solvents. Very good natural wetting agent and emulsifier. Much used in the food industry.

Stone pine oil:

Volatile oil from the fresh leaves of the stone pine tree. Country of origin: High altitudes in central Europe

Sunflower oil:

Oil pressed from the seeds of sunflowers.

Talcum:

Hydrated magnesium silicate, occurring as talcum or soap stone in the form of a mass with fine scales and a waxy sheen. Country of origin: Central Europe

Terra di Sienna:

Earth pigment containing iron oxides and manganese oxides. Made by slurring and grinding naturally occurring mineral deposits. Country of origin: Northern Italy

Thyme oil:

Essential oil from the herb thyme. Country of origin: Spain

Titanium dioxide:

TiO₂, made from titanium ore, freed of iron oxides. There are two technologies: the sulphate method produces as waste sulphuric acid, which is either recycled or used to make plaster from calcium and the chloride method produces chlorine, which is also recycled.

Trisodiumphosphate:

Salt of phosphoric acid, has a softening effect on water.

Tung oil:

Pressed tung tree fruits. If heated without oxygen, it becomes Stand Oil, the most commonly used form. Country of origin: China and South America

Turkey red oil:

Dehydrated Castor oil, made by treating castor oil with sulfuric acid.

Ultramarine blue:

Inorganic pigments, made from sulfur containing sodium aluminium silicates.

Umбра:

Earth pigment composed of iron oxides and manganese oxide. Made by slurring and grinding natural minerals. Country of origin: Cyprus, Italy, Germany

Vinyl acetate ethylene copolymer:

Synthetic resin powder, used in ceramic tile cement to assure elasticity and workability. Used in foods.

Waterglass:

Silica dioxide water.

Zinc-octoate drier:

See "dryers"

Zinc oxide:

Lead free, white mineral pigment with anti-fungal properties. Made from zinc ores.

Biofa has banned the use of GLYCOL ETHER, POLYURETHANE, FORMALDEHYDE, BENZENE, AND OTHER CHLORIDE ACID based products. Biofa is one of very few paint companies not using petro-chemical ingredients.

Biofa paints, varnishes and waxes do no harm to the environment nor to the health of the individual and have full disclosure of their ingredients on the tin. They are safe for use on children's toys.

Our range has European certification (EN 71 part 3 and DIN 53160) confirming that the paints and varnishes are safe for use on children's toys.

CERTIFICATION

We certify that all the products in the Biofa range are free of the following chemical products:

- Pentachlorophenol
- Isocyanides
- Aromatic hydrocarbons
- PCP
- Polyethylene glycols

EXCELL Laboratory (who give the standard for wine growing professionals in France) have tested Interior Wall Emulsion 3011 and white matt oil based paint 1115 and have certified them to be safe for use in wine cellars.

These products were granted the **EXCELL GREEN LABEL**, reference: RE 99/1/114 and RE 99/10082.

BIOFA paints obtained the best results in the **ECOBILAN** tests, carried out in collaboration with the French Environment Ministry and the French Environment and Energy Control Agency, in December 1993.

When applied in accordance with the technical recommendations, **HARD VARNISH GLOSS FINISH & MATT FINISH**, codes 2050 & 2051 comply with **European norm EN 71 / 3 "Toys security"**, as well as **DIN 53 160 "Sweat and saliva proof"**.

European Norms EN 71 / 3 and DIN 53 160 as above deem that surfaces treated with natural raw materials such as vegetable oils and natural resins, as contained in the BIOFA products above, when dry, are physiologically safe and **suitable for food contact**. When applied in accordance with the technical recommendations, **UNIVERSAL PRIMING OIL**, code 3755, AND **UNIVERSAL HARD OIL**, code 2044, comply with **European norm EN 71 / 3 "Toys security"**, as well as **DIN 53 160 "Sweat and saliva proof"**.

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Certificates available on request.