

TECHNICAL SPECIAL INFORMATION 16

Biolacquer designation misleading?

The general environmental awareness has steadily increased among many consumers and today has reached a high level. This awareness is taken into account in many ways in all socially relevant areas.

Industry and business also offer a variety of alternative and environmentally conscious products and systems.

A small but profitable product niche attracts the consumer in a special way. The sales successes are not insignificant, especially for uncompromisingly ecologically oriented consumers.

The magic formula is often short: organic paints!

But even the term "organic varnish" is highly controversial among experts. Not to mention the product properties at this point.

For this reason, various associations have dealt with the term and its misleading associations with consumers.

At this point, we have merely compiled a few quotations and information for the interested reader. Everyone can draw their own conclusions from this.

*Quotation

Excerpt from the circular of the German Parquet Industry Association: September 1991

... The very questionable and, above all, among non-commercial consumers widespread association of ideas, according to which "natural" is to be equated with "harmless", whereas "artificially produced/synthetic" is to be equated with "toxic", should not be additionally promoted by standardisation. Many examples (poisonous fungi, poisonous plants, poisonous fish) show how dangerous natural products can be. Also the solvents commonly used in the products known as "organic paints", the "natural oils" turpentine and limonene obtained from woods or citrus fruits, are by no means harmless.

The Association of the Lacquer Industry welcomes this factual clarification by DIN, which is responsible for the standardization of terms. It draws attention to the fact that the intended use of paints and varnishes does not pose any risks and refers other representations to the area of unfounded "scaremongering". The recommendation to open the windows and provide fresh air during the drying of paints and varnishes applies to all paints and varnishes - even to products falsely referred to as "BIOLACKE"

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*Interview: Die Mappe, German painter and varnisher magazine, June 85, p. 11
How dangerous are organic paints?*

Question: Do organic paints contain toxins?

Answer: Yes, "organic paints" can contain toxins:

- a) *Turpentine oil harmful to health, which must be marked with the St. Andrew's cross in accordance with the Ordinance on Working Materials. Due to its content of the two terpene hydrocarbons (x-pinene and Carene) it causes eczema, which is well known in the painting trade. Before white spirit was introduced as a "turpentine substitute", so-called turpentine dross - as skin eczema was called - was a dreaded painter's disease that forced some to give up their profession. Turpentine oil can cause headaches and dizziness, irritates eyes and respiratory organs and can damage the kidneys. It also has a persistent, severe odor. The maximum workplace concentration (MAK value) is 100 ppm - comparable to the aromatic hydrocarbon xylene.*

- b) *Citrus or orange terpene, the main component of which consists of the irritant limes, which must also be marked with a St. Andrew's cross in accordance with the Ordinance on Working Substances. Despite its "natural" smell of lemons, limes have similar effects to turpentine oil and can also trigger allergies. With this solvent there are indications for carcinogenic properties. In the substance lists of the European Community and according to the Swiss Poison Law, turpentine oil and limonene are classified as "more toxic" than varnish benzene.
Attention with old floors over 30! Old parquet and wood paving floors usually have a very special charm. To preserve these beautiful and valuable parquet floors or to bring them back to light is a matter of course today.
Depending on the age of the floor and the date of installation, however, parquet adhesives, levelling compounds and cardboard underlay sheets could have been used, which according to today's state of technology and medicine can be classified as "problematic". This is particularly the case if the old adhesive or tarboard contains PAHs (Polycyclic Aromatic*

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Hydrocarbons), which are recognised today as carcinogenic. This substance is released into the interior air in dust form via existing parquet joints.

Question: Do "organic paints" get the "environmental angel"?

Answer: "Organic paints" are not low in pollutants and do not meet the requirements of the Federal Environment Agency for the award of an environmental angel. The content of hazardous substances or solvents is too high, as a comparison of the solvent content shows:

- a) "Bio lacquers" (natural resin lacquers as well as conventional building lacquers (alkyd resin lacquers) contain about 40-50% solvents).*
- b) Only low-solvent paints are awarded the blue environmental angel, whereby the solvent content may not exceed staggered limit values. As a rule, paints that have been awarded the "Blue Angel" have a solvent content of 5 - 10%. In the case of wall paints, natural resin paints ("bio paints") are less favourable than classic dispersion paints: Natural resin wall paints contain up to 6% solvent, dispersion wall paints only approx. 0 - 2% solvent.*

Question: Solvents form chemical compounds in the atmosphere through the action of ozone and UV radiation, which are called photooxidants. These are said to have harmful effects on the environment. Do solvents of vegetable ("natural") origin behave more favourably?

Answer: No, they are not more favourable than solvents from crude oil, which once originated from plant-based marine plankton. For the environment, there is only one alternative - the general reduction of all organic solvents through the use of water-based paints and varnishes.

Question: In the case of paints based on dispersion paints, bio-friends refer to a possible monomer content, i.e. to the starting substances from which plastics are produced by polymerisation. Since these are solvent-like, the same or even stronger health effects are assumed as with solvents, although - if at all - only the smallest residues of 0.001 to 0.1 % of monomers can be involved. Are "organic paints" free of monomers?

Answer: No, they very often contain monomers in high concentrations as solvents. The monomers are usually unsaturated terpene hydrocarbons (α -Pinene, β -Pinene, limonene, dipentene), which are polymerized to synthetic terpene resins. Such monomers form slightly toxic peroxides with atmospheric oxygen, which are also responsible for the allergenic effects of terpenes. These terpene peroxides also provide evidence for mutagenic effects that have not yet been sufficiently investigated.

Question: Fully dried "bio-lacquer" coatings do not release any harmful vapours into the room air. Is this correct?

Answer: No, this statement is wrong! "Biolacquers" and "Biofarben", which contain vegetable oils such as linseed oil, soya oil, safflower oil etc. as binding agents, split off 3 - 4% reactive aldehyde compounds with atmospheric oxygen during film hardening. During the oxidation of unsaturated vegetable oils, up to 20 aldehyde compounds were found, including substances such as formaldehyde, acetaldehyde and crotonaldehyde (butenal). In the case of vegetable oil paints (radiator paint), 7 different aldehyde compounds were found in the room air.

Question: Why can cleaning cloths soaked with turpentine oil-containing "bio lacquers" ignite themselves?

Answer: The expert knows that turpentine oil can self-ignite when distributed on large surfaces such as cleaning wool, insulating material etc. in the air. This happens because atmospheric oxygen forms peroxides with unsaturated vegetable oils, which are responsible for spontaneous combustion. If not removed properly, cleaning cloths soaked in turpentine oil or turpentine-thinned varnishes may catch fire.

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Question: Advertising for "bio-lacquers" consumer deception?

Answer: Advertising for "organic paints" promises the consumer non-toxic natural products and toxicological safety due to centuries of biological-ecological familiarity with natural substances. This is misleading for the consumer because most products contain or release dangerous substances. For good reason the legislator has established that advertising with terms such as "non-toxic", "not harmful to health", "harmless" or similar is not permitted. Also the dangerous material regulation, which came into force starting from 01.07.1985, forbids such advertising statements.

Question: Does familiarity with natural substances provide protection against unknown risks?

Answer: No, this has been demonstrated by recent cases of natural product failure. Humans usually only know acute toxic and subacute toxic effects of natural substances. As a rule, long-term damage has not been investigated and has remained hidden for thousands of years, especially when cancerogenic substances are involved. As an example we would like to mention:

Essential oils sometimes contain saffron oil (e.g. nutmeg oil, sassafras oil). Saffronol was used as a natural beverage dye until it was recognised as carcinogenic. Osterluzei was used in homeopathic remedies until 1982. Recently it has been known that the aristolochic acid it contains causes cancer. The use of drugs containing Osterluzei was banned. For thousands of years man has eaten moulded food in nuts, fruits, bread, etc.. Only since 1971 it has been known that the fungal toxins aflatoxins cause liver cancer in humans.

The thesis of ecological familiarity with natural substances is based on assumptions and is no substitute for toxicological studies.

The selection of natural substances is not arbitrary for humans and very limited in terms of type and quantity, especially since many plants and animals defend and protect themselves by toxic substances in order to preserve their species. The substances urgently needed for the manufacture of consumer products are not produced in sufficient quantities in nature, unless man intervenes in nature and produces these substances in huge "cultivated facilities" (plantations) according to demand. This merely shifts ecological problems from industry to agriculture - especially in developing countries.

**End of quote*

Our company has a range of environmentally conscious alternatives from water-based paints to oil technology. Our policy is to provide factual information about these product groups, to ensure the best possible and most up-to-date technology and to present the advantages and disadvantages of comparable alternatives. In this way, we and other reputable suppliers have succeeded in bringing environmentally conscious products to a market share of over 75% and keeping quality at a high level.

We will be happy to inform you about details. Or simply take a look at our Internet pages www.berger-seidle.de "Environment" and "Products": AquaSeal® and ClassicOil.