

Wallpaper and the environment

Walls speak volumes.

Wallpapers have once again assumed a key role in interior design. However, wallpaper manufacturers have long since realised that it is not just the availability of a wide variety of wallpapers and elegant designs that are important to consumers: consumers also want wallpapers that are easy to hang as well as being environmentally compatible.

Anyone who has taken a close interest in wallpapers is sometimes confused by terms that, although they sound familiar, are still something of a mystery to them. The aim of this brochure is to explain the most commonly used terms and to give an overview of the environmental compatibility of wallpapers. German wallpaper manufacturers lead the field in ecological production standards, offering consumers products that do not pose any health risks.

I. RAL quality mark

More than 20 years ago, wallpaper manufacturers formed a quality assurance association with the aim of providing security for consumers when choosing wallpapers. The products made by these manufacturers undergo continuous checks by independent testing institutes. The membership of the quality assurance association has been composed solely of German manufacturers ever since it was first founded.

The quality assurance and test specifications were drawn up by RAL, the German Institute for Quality Assurance and Certification, and the Association of the German Wallpaper Industry and have been recognised by the relevant expert groups and interested parties. The quality assurance and test specifications are subject to regular revisions, the most recent of which was carried out in January 2011. Compliance with the quality assurance specifications is continuously monitored by the independent Fraunhofer Institute for Wood Research in Braunschweig.

The DIN standards specified in the scope of application include, for example, technical requirements relating to minimum water resistance, washability, colour fastness to light, impact resistance and the use of symbols for labelling. In addition, the members of the quality assurance association have voluntarily undertaken to carry out a large number of measures aimed at ensuring that wallpapers do not pose any risks to health or the environment. Only wallpapers meeting all the prescribed quality specifications are awarded

the RAL quality mark. The specifications guarantee the high quality of the products. The aim of the Wallpaper Quality Control Association is to ensure that the products manufactured do not pose any risks to health or the environment, allowing the consumer to concentrate on patterns and colour when selecting wallpapers without having to worry about anything else.

II. REACH ordinance

The abbreviation REACH stands for the registration, evaluation and authorisation of chemicals. The REACH ordinance came into force on 1 June 2007 and harmonises the law on chemicals throughout Europe.

The declared aim of the ordinance is to increase consumers' knowledge about the dangers and risks that substances can pose, with a high level of responsibility placed on the companies that manufacture, market and use the substances. REACH aims to enable the consumer to make informed purchasing decisions.

The REACH ordinance imposes various obligations concerning registration of the relevant information and preparations of substances on everyone involved in the supply chain from the manufacture or import of substances to their sales and distribution up to their application and further processing. Responsibility for the duty to furnish information in the supply chain rests with the manufacturer or the importer and downstream users in the supply chain. The aim of these rules is to prevent risks to the environment or health in the interests of the consumer.

III. Indoor climate

Consumers want to be able relax in their homes in an ambient climate that poses no risk to their health. To achieve this aim, the VOC concentrations (volatile organic compounds) in the ambient air should be kept to the absolute minimum by systematically selecting building products, furniture and fixtures in order to prevent diseases.

Volatile substances

The World Health Organisation defines VOCs as organic substances with a boiling range of 60 to 250°C. VOCs include, for example, compounds of the substance groups

aliphatics, aromatics, esters, ketones, alcohols, glycols, chlorinated compounds, siloxanes and aldehydes. Environmental pollution by VOCs is caused by various factors, including road traffic and chemical products used in the construction industry such as paints, adhesives or sealing compounds.

Furniture and fixtures, cleaning agents and skin care products, products for hobbyists and DIYers, office chemicals and especially tobacco smoke are considered to be possible sources of VOCs indoors, as well as building materials. Odour problems are not only caused by microbial substances formed by metabolic processes. The typical smell associated with renovation work, for example, which some people find unpleasant, is the total of all the emissions released by all the new and old materials that have been used. Newly hung wallpaper can also smell.

Volatile substances accumulate in the air, whereas semi-volatile organic compounds (SVOCs) largely remain in the product. Volatile organic substances (VOCs) are constituent parts of the organic materials required to manufacture wallpapers. Residual substances in the product can be released again into the ambient air under living conditions.

In order to limit the emissions, manufacturers who are members of the Wallpaper Quality Control Association undertake to have the samples submitted for the quality mark tested for VOCs. The test is based on VDA method number 277 ("Determination of emissions from organic compounds in non-metallic materials in vehicle interiors"). The limit values for this test are clearly lower than those required by law.

IV. Chemicals and heavy metals

The manufacture of vinyl wallpapers calls for the use of stabilising agents which are mainly based on the calcium, zinc or barium salts of organic acids. Strict limit values, which are well below the prescribed values, are maintained in the case of barium. Organic tin stabilising agents have not been used for several years.

Users of the RAL quality mark do not use pigments that contain heavy metals such as arsenic, lead, cadmium, chromium, mercury and selenium.

Wallpapers are CFC-free.

V Formaldehyde

Formaldehyde is a substance that occurs naturally in nature. It has also been manufactured by synthesis since the turn of the last century. Formaldehyde is a colourless gas with a pungent odour that reacts readily with other substances and decomposes quickly when exposed to ultraviolet radiation.

Wallpapers, in common with all wood products, emit small amounts of formaldehyde. Paragraph 3.2.7 of the RAL quality assurance specifications prescribes strict limit values for this substance. Wallpapers therefore do not contribute to increasing the normal formaldehyde content in a room. In the light of these tests, the legislative authority has excluded wallpapers from the substances listed in the ordinance on hazardous substances.

VI. PVC and wallpapers

Wallpapers can be coated with various materials in order to alter and improve their appearance and wearing qualities. This is why PVC is used in the manufacture of many wallpapers. PVC (polyvinyl chloride) is manufactured from crude oil and industrial grade salt.

PVC has been manufactured for more 50 years and is one of the oldest synthetic polymers. Since then the material has become one of the most important plastics used in industry with a very wide range of applications. Most PVC products are inexpensive and cost little to maintain.

PVC is used on embossed and flat vinyl wallpapers either as a full surface coating or as partial texturing. There are also a large number of wallpapers that are manufactured without the use of PVC. Examples of other products made from hard and soft PVC include window and door profiles, PVC cables, products used in medical applications (e.g. blood bags, adhesive plasters or cold packs), floor coverings (for example in buildings such as schools and hospitals, and also for domestic use in the bathroom and kitchen) or the interior trim of vehicles (for example dashboards).

VI.I PVC and plasticisers

About 30 percent of the PVC produced is treated with plasticisers to produce soft PVC products. Plasticisers give PVC products special wearing qualities which are similar to those of rubber. The material, which is naturally hard, is made flexible and ductile, while retaining its dimensional stability, by the addition of this additive. The manufacture, processing and storage of plasticisers are subject to strict statutory rules and regulations. The plasticisers, DINP and DINCH, used in the manufacture of wallpapers do not pose any risk to humans or the environment.

VI.II Phthalates

Phthalates are part of the plasticiser group of substances. These substances undergo intensive toxicological and ecological tests. According to scientific findings on the risk analysis of the most important phthalates, the plasticiser DINP, which is used by many German wallpaper manufacturers, poses no risks to humans or the environment.

Further information can be found in the information sheet "Wallpapers, PVC & plasticisers".

VII. No fire risks

Wallpapers pasted to walls do not represent any special risk factor in the event of room fires. Vinyl and embossed vinyl wallpapers are included in the new European product standard DIN EN 15102 "Decorative wallcoverings – roll and panel form". They do "not contribute materially to the occurrence of fires" and meet the new requirement, Euroclass D-s3, d2. This is essentially a rather stricter version of the old requirement, "normally flammable" under DIN 4102 building material class B2, which has now been withdrawn. Information on this point is given on the outer packaging of these products.

All German wallpapers meet the strict EU requirements. The use of suitable products is recommended, especially in kitchens, hotel rooms and nurseries.

VIII. Disposal of wallpapers

Wallpapers can be disposed of as normal household waste, that is in the dustbin or in additional refuse sacks. Old wallpapers stripped off the walls should not be placed in the waste paper bank.

This information brochure demonstrates the efforts made by German wallpaper manufacturers to provide consumers and customers with sustainable products that are absolutely safe in ecological and health terms. At the same time, German manufacturers are able to comply with the strict EU directives, and in some cases manufacture products that are clearly below the specified limit values.