

Criteria for allergy-friendly building materials

BACKGROUND

Building materials are listed as a separate category, as they must be considered differently from cosmetics, detergents or cleaning agents. What matters here is the way the products are processed, because allergies can of course already be triggered in the professionals working with the products. Safety data sheets and appropriate protective equipment are therefore important in this context.

However, the ECARF Seal is primarily directed at users. In concrete terms, this means, for example, that adhesive can emit allergens during processing, but this no longer occurs after a certain evaporation time (for example 48 hours). Thereafter, the adhesive can be regarded as allergy-friendly. However, it must be clearly stated that entering the site is only recommended after a certain period of time has elapsed, as the adhesive used only ceases to be problematic once it has evaporated. Building materials must be tested individually, based on where and how long the material will be used before the users move in.

A special case are building materials in the broader sense such as wall paints, wallpapers or carpets that are used during renovation work, even while the occupants are living in the renovated rooms. Particularly strict requirements apply in this case.

1. TEST CRITERIA

1.1. Test categories of important building materials

Below you will find a list of important building materials and what needs to be taken into consideration:

- **Paint:** Some paints, especially those containing volatile organic compounds (VOCs), can cause allergic reactions, including eye, nose and throat irritation, headaches and damage to the liver, kidneys, and central nervous system. Special requirements apply to paints, as they are also used in renovation work. See also <https://ecarf-siegel.org/en/criteria/wall-paint/>.
- **Wood and wood products:** Certain types of wood, such as cedar, pine, and other softwoods, can produce dust or sap to which some people are allergic. Furthermore, manufactured wood products such as plywood or chipboard often contain adhesives such as formaldehyde, which can outgas and cause allergic reactions.
- **Insulation:** Some insulation materials, such as fibreglass, can cause skin, eye, and respiratory irritation if particles are inhaled or come into contact with the skin. Certain insulating foams may also contain isocyanates which can cause allergic reactions.
- **Carpets and upholstery:** Carpets may outgas VOCs. This is often due to the plastic backing, but attention must also be paid to how the carpet is laid. If adhesives are used over a wide area, this should also be taken into account. DIY installation with double-sided adhesive tape is unproblematic.

- **Adhesives and sealants:** Many building material adhesives, glues and sealants contain substances that can cause allergic reactions, including formaldehyde and isocyanates.
- **Plastics and vinyl:** These materials may outgas VOCs, including phthalates, which can cause allergic reactions.
- **Plasterboard and render:** These materials can generate dust during installation or renovation, which causes allergies in some people. But they could also contain flame retardants or preservatives to prevent mould. This must be considered in individual cases
- **Metals:** Some people can be allergic to certain metals used in construction, such as nickel or copper. However, contact allergy only occurs with direct skin contact and it depends on the contact time. This is why the nickel content in a stair handrail, for example, where there is friction with the skin, is assessed differently from the nickel content in a button on a lift.
- **Mould:** Although it is not a building material, it is important to mention mould as it can grow in damp or improperly sealed areas of a building, such as bathrooms, kitchens, and basements. Mould spores can cause allergic reactions if inhaled. It can therefore be allergy-friendly to use mould-resistant building materials in certain rooms. Of course, this must be declared in detail.

1.2. General requirements

- All materials must be tested and evaluated for flame retardants, plasticisers, antistatics, biocides, wood protectants and preservatives.
- All materials must be tested to see if they produce an odour that can be perceived at a distance.
- Substances of natural origin such as carboxylic acids, terpenes and essential oils can also cause problems depending on the concentration; this must be taken into account in the materials used.
- In many cases, the concentration and means of exposure (e.g. via vapours) determine the impact; for many substances, however, there are no clear threshold values, which often requires case-by-case consideration.

The following substances can be present in building materials; there are threshold values for them that should not be exceeded:

- 1,1-Dimethylhydrazine
- 1,2-Diaminoethane
- 1,2-Dimethylhydrazine
- 1,3-Dichloropropene (cis and trans) 1,4-Dihydroxybenzene 1-Allyloxy-2,3-epoxypropane 1-Chloro-2,3-epoxypropane (Epichlorohydrin) 1-n-Butoxy-2,3-epoxypropane 2,4,6-Trinitrophenol
- 2,4,6-Trinitrotoluene
- 2,4-Toluylenediamine
- 2-Aminoethanol
- 2-Butyne-1,4-diol
- 2-n-Octyl-2,3-dihydroisothiazol-3-one

- 4-(2-Nitrobutyl) morpholine (70 wt %)
- 4,4'-Diaminodiphenylmethane
- 5-Chloro-2-methyl-2,3-dihydroisothiazol-3-one and 2-Methyl-2,3-dihydroisothiazol-3-one (mixture in a ratio of 3:1) Acrylamide
- Acrylates
- Acrylonitrile
- Benomyl
- Bisphenol A (BPA) Methylchloroisothiazolinone/Methylisothiazolinone (MCI/MI) Methyl chloroacetate
- Chromium Chromium (VI) compounds Cobalt
- Diethanolamine Disulfiram
- D-Limonene
- Ethyl acrylate Ethyl hexyl acrylate
- Formaldehyde
- Glutardialdehyde
- Isocyanates (monomers and prepolymers) Rosin
- Latex
- Maleic anhydride
- Mercury (vapour and aerosol) Mercury compounds, organic Mercury compounds, denatured subtilisins
- Methyl acrylate
- Methyl methacrylate
- Methyl mercury Sodium diethyldithiocarbamate n-Butyl acrylate
- Nickel
- Nickel salts, soluble
- Nickel compounds, insoluble N-methyl-N-2,4,6-tetranitroaniline o-Phenylenediamine
- p-Benzoquinone
- Phenyl glycidyl ether
- Phenyl hydrazine
- Phthalic anhydride
- Platinum compounds
- Portland cement (dust) p-Phenylenediamine
- p-tert-Butylphenol

- p-Toluidine
- Pyrethrum
- Turpentine oil
- Thiurams
- Trimellitic anhydride (smoke/fine dust) Zinc chromate (calculated as Cr)

2. QUALITY CONTROL AND COMPLAINTS MANAGEMENT

The manufacturer has established a functional system of quality control that effectively documents, processes and follows up complaints. The following is also ensured:

- The manufacturer's contact details, such as the address, telephone number and/or email address, are clearly visible on the product packaging;
- Consumer complaints are handled and followed up in an appropriate manner by qualified and experienced personnel of the manufacturer;
- The assessment of consumer complaints and, if applicable, any inferred areas of improvement are reapplied to product quality and safety. The manufacturer agrees to make this data available to ECARF on an ongoing basis.