

FAQs on the benefits and risks of disinfectants used in private households

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For private households, cleaning agents and laundry detergents are available which can contain biocidal active ingredients. The products are often advertised for their antibacterial properties, i.e. it is claimed that they eliminate harmful microorganisms.

The use of such disinfectants does not always have health benefits or they cannot be demonstrated beyond doubt. Health risks posed by such products must be taken into account. In addition, the risk of the microorganisms building resistance to biocidal active ingredients is currently the subject of debate.

In the opinion of the Federal Institute for Risk Assessment (BfR), disinfectants should only be used in private households in justified exceptional cases. To protect against infection, it is sufficient as a general principle to observe the basic rules of hygiene in the household and to use cleaning agents and laundry detergents without any biocidal active ingredients. Justified exceptions are medically indicated situations where disinfectants are used based on advice given by medical professionals.

What are antimicrobial products?

Cleaning agents and laundry detergents are sold for use in private households. Many of these are advertised for their antimicrobial properties.

Products with antimicrobial properties aim to reduce the ability of microbes to multiply and / or minimise their infectivity. Among this group of products are, for example, disinfectants, antibiotics and preservatives.

What are disinfectants?

The ability of disinfectants to reduce the number of microorganisms which can have unwanted effects on humans, animals or materials must be measurable. One aim amongst others of using these products is to prevent the spread of diseases.

Household cleaning agents and laundry detergents which have proven antimicrobial properties may be referred to as disinfectants in the narrow sense of the term. These are subject to European legislation on biocidal products.

How do disinfectants work?

Each active substance used in a disinfectant is only efficacious against certain microorganisms (e.g. non-enveloped viruses or mycobacteria). The products can, therefore, not be used universally.

The efficacy of a disinfectant not only depends on the active substances and their concentrations but also on the conditions of use such as exposure time and temperature. Even when using disinfectants in private households, for example as cleaning agents or laundry disinfectants, the products must be used correctly and under precisely defined conditions which are in practice difficult to follow.

Are disinfectants necessary to prevent infectious diseases?

Microorganisms are found everywhere in the environment and do not necessarily cause illness. On the contrary, many of them have protective and supportive functions (for example microorganisms that populate the human skin and the intestinal tract). To avoid health risks, it is essential that the basic rules of hygiene in the household are observed. Apart from personal hygiene and regular cleaning of the household, this also means hygienic preparation and storage of food. However, the use of disinfectants is not necessarily required.

Are there cases where it makes sense to use disinfectants?

In exceptional cases the use of disinfectants in private households is sensible and necessary in order to avoid transmission of pathogens and to protect exceptionally sensitive members of the household. In such situations disinfectants should be used upon consultation with the treating physician or the health authorities.

What health risks may arise from by the use of disinfectants in the household?

From the documentation on poisoning with household chemicals it is known that health problems frequently occur as a result of accidents with detergents and disinfectants. Poisoning severity is determined by the type, chemical composition and time of exposure to the various products. In most cases, only minor health problems are observed. However, depending on the active substances in the products, chemical burns can occur, especially of the eyes and the skin. If the products are accidentally ingested, this can lead to chemical burns in the gastrointestinal tract. In addition, a special health risk can arise from products that have sensitising properties, i.e. products that can cause allergies.

To avoid allergies and poisoning accidents, consumers using disinfectants should under all circumstances ensure that the products are used correctly and stored safely. In addition, the warnings on the product packaging and, where applicable, the instructions for use must always be complied with.

Do disinfectants contribute to the build-up of resistance in pathogens?

Whether the use of disinfectants in private households can contribute to a situation where (pathogenic) microorganisms build up resistance to the used active substances must be assessed on a case-by-case basis. In that case, the products can lose their effectiveness.

Microorganisms can build resistance to a biocide active substance, if they are regularly exposed to low, non-lethal concentrations of this active substance. The resistance mechanism then offers them a survival advantage compared to non-resistant microorganisms. Bacteria and yeasts are capable of passing on genetic information and hence also resistance properties to other microorganisms.

In addition, some active substances in disinfectants may facilitate the development of microorganisms resistant to antibiotics - even if the microorganisms are not resistant to the active substance itself.

Do disinfectants have to be approved before they can legally be sold?

Disinfectants are legally categorised as biocidal products which means: the used biocidal active substance must, in accordance with Biocidal Products Regulation (EU) No. 528/2012, first be assessed and approved at the European level. The individual products must then be authorised at the national level. As part of this authorisation procedure, the entire product with all active substances it contains is assessed taking into account the product's intended conditions of use.

In Germany, authorisation is granted by the Federal Office for Chemicals which is part of the Federal Institute for Occupational Safety and Health (BAuA).

For biocidal products whose active ingredients were used for biocidal purposes prior to 14 May 2000, transitional provisions apply. Such products may be marketed without authorisation, as long as the active substances have not been conclusively assessed and approved. These transitional provisions will be in force until 31 December 2024 at most and currently apply to most chemical disinfectants.

What recommendations does the BfR make on the use of disinfectants in the household?

The use of disinfectants in private households does not result in any general hygienic benefit. Rather, such products can pose health risks (poisoning accidents, allergy development) as well as the risk of microorganisms building resistance to biocidal active substances.

In private households, disinfectants should therefore only be used in exceptional circumstances. Exceptions are medically indicated situations where such products are used for a limited period of time on the advice of a medical professional.