

## Purchasing non-hazardous disinfectants

City of Vienna (Austria)

### Background

The use of disinfectants is necessary for tackling germs and preventing the spread of infection. They are used on working surfaces, flooring, furnishings, medical devices and on the skin. However, they can also pose risks to human and environmental health. In contrast to other product groups, such as cleaning agents or cosmetics, none of the existing ecolabels cover disinfectants. Institutions and facilities of the City of Vienna use more than 400 tonnes of disinfectants annually (the Vienna Hospital Association alone uses 330,000 kilograms, which equates to 1.4 million euro). Main users are hospitals, nursing homes, schools and kindergartens. Disinfectants protect against infections and are indispensable for health protection by their core users. A disinfectant's main property is its antimicrobial efficiency in the area of application.



Green public procurement (GPP) has been a focus in Vienna since 1998, when the City started the [ÖkoKauf Wien](#) Programme (Eco-Buy Vienna) in order to provide ecological criteria and selection tools for product groups purchased by the City. As part of this, a Working Group (WG) on 'Disinfection' was created to consider how occupational health and environmental protection could be supported through the careful selection of disinfectants in hospitals, nursing homes, kindergartens and schools. In order to assist with the identification and assessment of hazardous substances associated with different types of commercially available disinfectants, this group created the Viennese Database for Disinfectants: WIDES. It became available for use by the public in October 2009 and for use by City of Vienna staff (internally) from 2007.

### Sustainability profile

Chemical disinfectants are indispensable for healthcare and other areas of hygienic risk; however they are also a source of health and environmental hazards. The cytotoxic substances used may cause allergies, eczema or asthma in users. Some ingredients are suspected of being carcinogenic or teratogenic. Once these substances enter waste water treatment plants through the sewage system they can impair the cleaning performance of the sewage treatment plant. Components of low degradability are emitted into the environment, damaging living organisms in water. With no ecolabels for disinfectants available it has been very difficult in the past to choose disinfectants not harmful to the environment and human health (source: [Green Public Procurement in the City of Vienna - Impact Analysis. 2014](#)).

## Overview of the WIDES Database

WIDES has two functions. The first is the compilation and structuring of information about disinfectants and their ingredients. The database incorporates more than 240 ingredients and around 280 products available on the market. Data on ingredients include classification (that is, hazard statements according to the [United Nations' Globally Harmonised System of Classification and Labelling of Chemicals](#) (GHS), properties and toxicity/eco-toxicity data. Product data considers the application, concentration of classified ingredients, material compatibility and spectrum of activity. Its second function is the assessment of both ingredients and products. The assessment starts with a grouping and scaling of hazardous ingredients using both numbers and a colour code, from pale yellow to deep red, to rank lowest to highest risk (the higher the number the higher the risk).

WIDES rates products according to its evaluation scheme, which takes into account all ingredients with hazardous properties at specific levels of concentration. More detailed explanations are provided through the information available on this page: [www.wien.gv.at/video/245328/Assessment-scheme-of-the-Viennese-database-for-disinfectants](http://www.wien.gv.at/video/245328/Assessment-scheme-of-the-Viennese-database-for-disinfectants)

Assessments of products are presented using the same colour coding scheme of light yellow to red - as shown below. Since products are grouped according to their application, comparative rankings of disinfectants in six hazard categories are generated (a seventh category is provided for flammable products). When information on a hazard is not available and data is missing, a question mark is inserted. To rank disinfectants, users select the required field of application, the spectrum of activity, and time exposure. This generates a product grid which looks like the following.

Hazard categories:		Acute toxicity (respiratory tract)	Irritation and corrosivity	Allergenic potential	Mutagenic, carcinogenic, toxic for reproduction, chronically toxic	Behaviour in surface water - Acute*	Behaviour in surface water - Chronic*
Assessed Products :	A	Orange	Yellow	Orange	Yellow	Yellow	Yellow
	B	Yellow	Orange	Yellow	Yellow	Yellow	Yellow
	C	Orange	Orange	??	?	Orange	?
	D	Orange	Yellow	Yellow	Yellow	Yellow	Yellow
	E	Orange	Yellow	???	?	Orange	?
	F	Orange	Orange	Yellow	Orange	Orange	?
	G	Orange	Yellow	Yellow	Orange	Orange	?
	H	Orange	Orange	Orange	Yellow	Orange	Yellow
	I	Orange	Orange	Orange	?	Yellow	?
	J	Yellow	Orange	Yellow	Yellow	Yellow	Yellow
	K	Orange	Orange	?	?	Orange	?
	....						

\* The ecotoxic assessment will be implemented with the next update.

Disinfectants contain a fairly standard set of biocidal active substances. So although the database has been developed based on the Vienna context, it has the potential to be used globally. In January 2018 the WIDES database included information on 57 biocidal active substances. Emphasis is now on covering all substances used for human hygiene included within the [Biocidal Product Regulation of the European Union](#). As such, the database has been shared online in [German](#) and [English](#), and is free of charge and open for anyone to use. The ultimate purpose of the database is to encourage the gradual substitution of the most toxic ingredients used in disinfectants, on a global scale.

## WIDES in practice

The WIDES database helps to identify risk potentials in disinfectants and to substitute them gradually. Several examples of WIDES in use are described below.

**Vienna Hospital Association (KAV):** [KAV](#) is the umbrella organisation for the city's hospitals, geriatric centres and nursing homes, and in terms of quantity, KAV is the largest user of disinfectants in Vienna. KAV uses WIDES to consider the substitution potential of alternative disinfectant products. Therefore, a team of hygiene experts drew up a recommendation list and performance profile for hand, surface, instruments and skin disinfectants, while WIDES operators proposed alternatives with less impact on human health and on the environment. This profile contains information on the amounts required, size of packaging, range of efficacy, etc. With input from both teams, it has been possible for KAV to take an informed and calculated approach to substitution. The list of recommendations is updated every other year so that any new findings from the data available on hazards of disinfectants and interesting new product developments can be integrated regularly.

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Vienna's WG on Disinfection has contributed significantly to making employment and environmental protection easier and more transparent for the procurement of disinfectants. Kindergartens in Vienna also procure disinfectants upon consultation with the WG and according to the WIDES results.

**Selecting low hazard disinfectants (for pregnant workers):** In 2015 the Central Labour Department of the [Austrian Federal Ministry of Labour, Social Affairs and Consumer Protection](#) published a [Decree about hand disinfectants for pregnant employees](#). This only allows the use of hand disinfectants where certain hazards are excluded. In particular, products are excluded which contain substances classified as carcinogenic, mutagenic, repro-toxic, sensitizing, chronic or (highly) acute toxic and substances with a lack of data in these categories. Instead of requiring the checking of safety data sheets and [EU REACH](#) Registration Dossiers in each case, which would be a laborious process, the decree recommends to screen the colour code of the WIDES product assessment and thereby quickly select products without above named hazards. The decree is highly influential, as most hospitals would only want to procure disinfectants that can also be used by pregnant employees as standard.

Furthermore, the application of WIDES is recommended by the [Austrian Action Plan for Sustainable Public Procurement](#) and by the Austrian Study Group on Indoor Air Quality.

The WIDES database will be developed further in 2019 so that it can also provide a selection function to exclude products with specified hazards. This function is intended to test the market supply of less hazardous products prior to a tendering process.

In terms of costs, the database costs around € 50,000 per year, and is financed by the [City of Vienna](#), the [Austrian Workers Compensation Board](#), and the [Austrian Federal Ministry of Sustainability and Tourism](#). Most of the work on WIDES was and is being done by the [Bureau for Chemical Engineering TB-Klade](#).

## Results

WIDES criteria allow for a simultaneous assessment of health and environmental impacts. Benefits include:

- Reducing allergenic, toxic, carcinogenic, mutagenic and teratogenic components improves the working conditions for employees using disinfectants. Allergenic fragrances and aldehydes, for example, have been phased out in all hospitals of the KAV. The products with the highest toxicological burden, according to WIDES, have disappeared from the market in the last few years. Its widespread use by companies, hospitals, and the legal relevance for maternity protection have all contributed positively to its further development.

- WIDES helps to strengthen initiatives for environmentally sound procurement. The WG 'Disinfection' networks at the national and international levels (for example, cooperation with [Health Care without Harm - Europe](#), [World Health Organisation](#), etc.) and presents their activities at international conferences and meetings.
- The toxicological data, which are integrated and regularly updated in WIDES, can be used and applied in differing national contexts. The data can support all purchasers of disinfectants to choose products containing active substances that are less harmful to human health: [www.wien.gv.at/wuawides/internet/Inhaltsstoffsuche/Bewertungen](http://www.wien.gv.at/wuawides/internet/Inhaltsstoffsuche/Bewertungen)
- In the City of Vienna, all municipal departments are legally required (by decree) to use the WIDES database (including the KAV, kindergartens, ambulance services, pools, schools and laundry services) to identify disinfectants with low hazardous properties. In 2014, the WG on Disinfection evaluated whether all major purchasers knew of and used the WIDES database in their procurement decisions. An analysis of the products purchased, quantities, and the level of toxicity compared to less hazardous alternatives available on the market, was carried out. A benchmarking scheme was developed in order to calculate the emissions of highly hazardous substances in kilograms per year. The analysis showed that out of 21 products purchased, only three demonstrated a low benchmarking performance. As a result, the annual consumption of one of these products could be halved, an anti-microbial soap was replaced by a conventional soap, while the remaining product could not be substituted due to material incompatibilities.

The WIDES database significantly contributes to transparency in the disinfectant market. Its impact is reflected in the increased purchases of disinfectants with a low risk potential, and on the influence it has on producers. One can deduce that there has been a general reduction in the substances harmful to the environment and human health. Detailed quantification of the reduced harm to the environment and human health requires precise procurement volumes for the individual product groups, which are not available. The WIDES database is one of a kind internationally and has subsequently stirred much national and international interest.

### Lessons learned

Two factors were especially relevant for the successful substitution of hazardous substances through the use of the WIDES tool:

- The legal/political commitment of its use by local government decrees enacted by the City of Vienna, the KAV and the Ministry for Social Affairs.
- The high service orientation of the operators of the database to acquaint procurers with the instrument and to consult them actively in choosing the optimal and at the same time most affordable products.

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More information about WIDES: [www.wien.gv.at/english/environment/ombuds-office](http://www.wien.gv.at/english/environment/ombuds-office) [www.wides.at/en](http://www.wides.at/en). A short brochure in English is downloadable [here](#).

For related information, please see European GPP criteria for [Cleaning Products and Services](#) (currently in the process of being updated) and the [Technical Background Report](#).