# CUSTOMER INFORMATION

viledon®

## USING VDI 6022 TO ENSURE THE HEALTH OF EMPLOYEES AND POSITIVELY INFLUENCE FOOD QUALITY

VDI 6022

### VDI 6022 ensures hygienic air quality

Issued by the Association of German Engineers, the VDI 6022 series of guidelines "Ventilation and air conditioning, indoor air quality" defines hygiene requirements for ventilation and air-conditioning systems and units (VDI Ventilation Code of Practice). The guidelines focus on the prerequisites of filter systems for hygienic operation and air quality in ventilation systems. In most industrial companies, it is essential to differentiate between process air systems (PAS) and room air systems (HVAC). In the case of process air systems, the focus is on the process and its effects, whereas with air handling systems, the primary concern is the protection of people. Process air handling systems are designed for maximum process reliability. HVAC systems, on the other hand, are designed to contribute towards healthy indoor air conditions that are beneficial to human health.

HYGIENE RISK

- HIGH: high / Zone H
- MEDIUM: medium / Zone M
- BASIC: basic / Zone B

The zone concept in conformity with EHEDG Doc. 47 divides the individual manufacturing areas according to their hygiene risk. The required degree of hygiene depends on the product being manufactured and the processing stage.

**With HVAC systems, the protection of people is the main focus and forms the conceptual basis – for example, during the processing and packaging of food.**

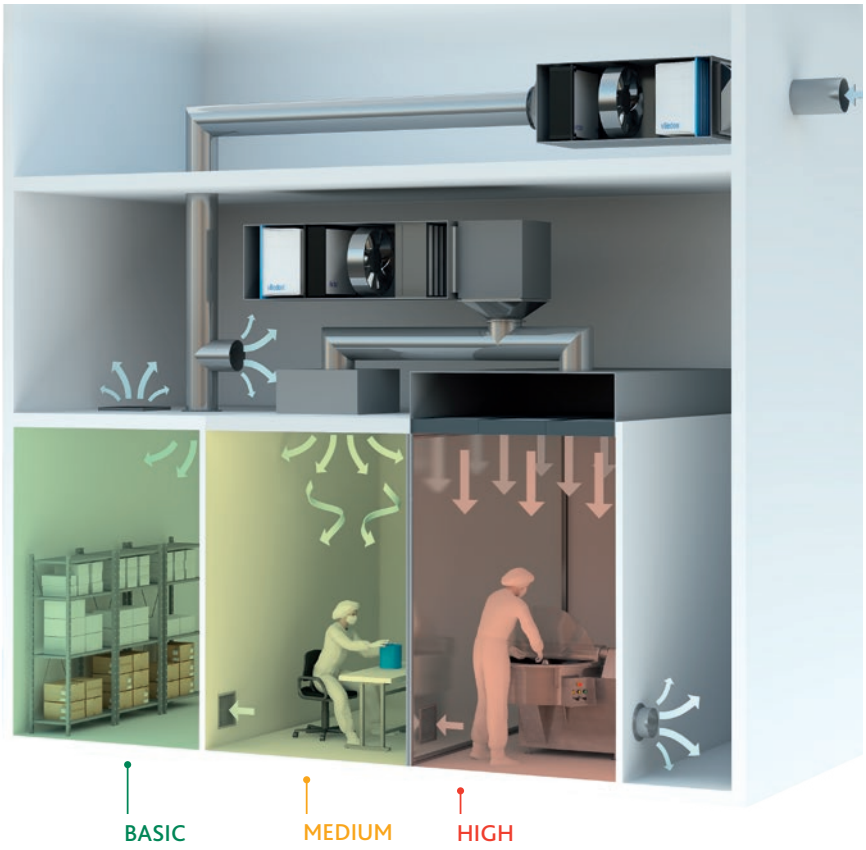


Illustration of a typical multi-stage air handling system supplying clean air to a food production plant

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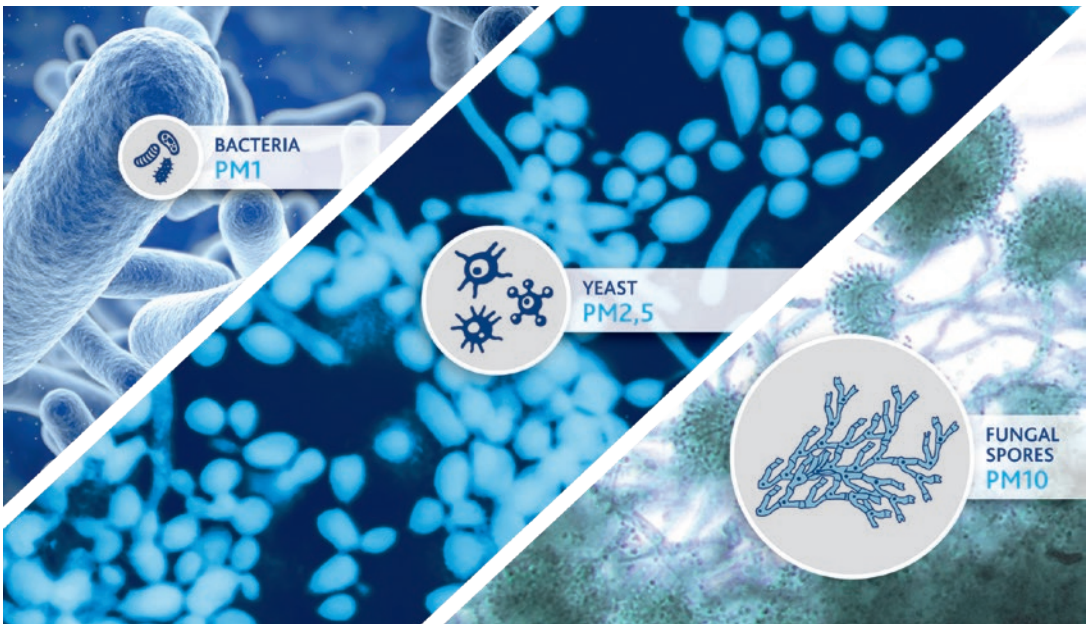


Typical classification of particles in the food industry according to PM fractions

### HVAC systems focus on health protection

VDI 6022 "Ventilation and air conditioning, indoor air quality" refers primarily to HVAC systems and was originally formulated with a view to its scope of application in Germany and Switzerland. By planning, designing,manufacturing, operating and maintaining the filter system in accordance with the guidelines, you make a decisive contribution to the health protection of your employees. Specifically, by complying with the VDI 6022 specifications in terms of hygiene and air quality, you ensure that the legal requirements of the German Workplace Ordinance (ArbStättV) and the German Occupational Safety and Health Act (ArbSchG) are met. We therefore expressly recommend compliance with the VDI 6022 specifications for room air systems (HVAC).

### German guidelines with international relevance

Even though the guidelines had their original scope of application in the German-speaking countries, VDI 6022 is groundbreaking worldwide in its validity and focus on hygiene issues in ventilation technology. This is what makes the guidelines relevant beyond the German borders in ensuring the health protection of your employees. The German laws cited are national implementations of corresponding EU directives and thus reflect European law. The Occupational Health and Safety Act takes into account the EU Directive 89/391/EEC, which deals with measures to improve the safety and health protection of employees at work. The Workplace Ordinance reflects the requirements of EU Directive 89/654/EEC, which, as a concrete implementation of 89/391/EEC, sets out minimum requirements for safety and health protection in workplaces. Both EU directives date back to 1989 and have thus been established and proven over many years.

### What is good for people is also good for food

In low concentrations, natural air components such as dust particles, bacteria or fungal spores are not harmful to humans. In the food and beverage industry, however, even the slightest level of air impurities can lead to the contamination of production processes and the food being produced. Consistent adherence to VDI 6022, and especially using the prescribed filters, is doubly beneficial for the food and beverage industry. On the one hand, separating unwanted microorganisms from the air enables employers to fulfill their duty of care and to effectively and efficiently supply employees with healthy indoor air and a physiologically beneficial indoor climate. On the other hand, the systematic separation of microorganisms from the supply air is also highly effective in preventing process and product contamination via the room air. This is linked to a positive influence on food quality and shelf life, which has been successfully proven in practice.

To implement VDI 6022 in the food and beverage industry, it is necessary to take account of the specific individual case with its unique product characteristics and production processes. We will be pleased to offer you comprehensive advice in this regard as part of our Viledon® filterCair services.

## HVAC requirements

HVAC systems can only make a significant contribution to health protection if they are properly designed, correctly operated and adequately maintained. Under these conditions, they ensure a physiologically favorable indoor climate in the respective areas by removing pollutants, odors, moisture or heat and providing hygienically pure supply air.

To achieve this, they have to be planned, constructed, operated and maintained in such a way that they prevent contamination by particulate matter, harmful gases and microorganisms. This also involves ensuring that the filters themselves do not become a source of contamination and germs. For example, VDI 6022 proposes the use of air filters with corresponding filter classes according to ISO 16890 for the appropriate supply air qualities, depending on different outdoor air qualities.

## The importance of professional installation and inherently rigid filter elements

In general, air filters must be selected so as to protect the health of employees and the components and equipment of the plant. VDI 6022 requires an airtight seal between the filter frame and the installation wall. This ensures that any type of supply air can pass through the filter elements.

Strict requirements are also placed on the inherent rigidity of the filter pockets. This is intended to prevent contact with other filter pockets, or with the wall or floor surfaces of the unit – even when the system is out of operation. This prevents soiling, avoids the filters from becoming damp and ensures the hygienic operation of the HVAC system.

## Extend filter service life, reduce operating costs

The service life of the filters depends on the outside air, supply air requirements and the quality of the circulating air. In the case of stricter hygiene requirements, regular filter replacement is mandatory. Otherwise, to ensure complete health protection, air filters must be replaced at the latest when the permissible final pressure drop is reached or in the event of functional defects.

Provided that people and processes are adequately protected, service life can be extended by means of a risk analysis – for example, up to the point at which energy-efficient filters have reached their final pressure drop. This saves operating costs and reduces downtime.


## Hygiene inspections ensure consistent hygiene and air quality

The hygiene inspections prescribed in VDI 6022 contribute to ensuring that both hygiene and air quality remain consistently high. In the course of these inspections, surfaces and air are analyzed for bacteria and fungi/yeasts. If there is a high incidence of colony-forming units (CFU), they are thoroughly cleaned. Initial or repeat hygiene inspections are carried out by our trained and qualified personnel. These inspections are an integral part of our Viledon® filterCair modular solutions for the food, beverage and pharmaceutical industries. In response to recent events, our range of application-specific Viledon® filterCair services has been extended to include corona hygiene monitoring. Please contact us if you are interested.

**Summary**

VDI 6022 is based on the reliable protection of people and concern for their wellbeing, and describes the current state-of-the-art for HVAC systems that supply people with healthy indoor air.

Although VDI 6022 can only be applied to process air to a limited extent, its application is certainly advantageous for the food industry. This is because it makes a sustained contribution to improved hygienic conditions and thus increased food quality.

Testing for molds, yeasts and colony forming units (CFU)

If you have any questions concerning the implementation of air filtration systems in the food and beverage industry, we will be happy to help you. You can find further information and contact details at:

**www.freudenberg-filter.com > World of Industrial > Standards und Certifications > Standards and Guidelines**

**www.freudenberg-filter.com > World of Industrial > Food and Beverage**



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