

TASKI[®]

The **ULTIMATE**
Cleaning Machines[™]



TASKI AERO

Overcoming the Unseen Threat to Health

How Diversey's leading vacuum technology is transforming the standard of indoor air quality to ensure we can all breathe easy...

The TASKI route to improving Indoor Air Quality

The issue of outdoor air pollution is well-known. Media reports have kept this threat to human health consistently in the public eye, while governments around the world have responded with education programmes and legislation. As a result there is a clear focus on the need to control air pollution to safeguard health and the future of our planet from its impact on global warming and the environment.

In comparison, poor Indoor Air Quality (IAQ) has a much lower profile. This is partly because of its unseen nature – where the gradual build-up of contaminants expose us over time to risk in domestic, school, office, work, hospitality and healthcare environments. Conversely, these are precisely the places where we should feel at our most safe. Poor IAQ is a hidden killer, exacerbated by the concentration of pollutants from what are viewed as inert and innocuous items that are staples of our modern lifestyle, such as carpets, desks and seating. These are some of the contradictions and assumptions that have helped to obscure the impact of IAQ.

Indoor lifestyle increases risks

Europeans spend on average almost 90% of their time inside various types of buildings.¹ This state of affairs has evolved through a range of complex and diverse factors. These include changing employment patterns in post-industrial societies, alongside significant changes in lifestyle brought about by developments in technology - the internet reducing the need to physically leave the house. There are also demographically-driven factors where time spent indoors increases as a by-product and social necessity, such as the phenomenon of growing elderly populations. People are living longer with complex health conditions and spending many more years confined at home or in residential care.

An anomaly is becoming more widely recognised, whereby risks to health due to exposure to poor IAQ are actually worse than where we might popularly perceive them to be. Growing scientific evidence indicates that the air within buildings can be more seriously polluted than the outdoor air. This contradiction is inherent in the statement from the European Environment Agency: "The air in an urban street with average traffic might actually be cleaner than the air in your living room."²

IAQ - the hidden killer

The impact of negative IAQ on our health is causing deaths and creating new symptoms and conditions that are affecting our wellbeing. A report from the Royal College of Physicians (RCP) and the Royal College of Paediatrics and Child Health (RCPCH) states that indoor air pollution may have caused or contributed to 99,000 deaths annually in Europe.³ The World Health Organisation (WHO) has put the spotlight on to the global burden of bad indoor air quality. They record that in 2016, indoor air pollution was responsible for 3.8 million deaths, and 7.7% of total global mortality.⁴ However, this needs qualification as many of these deaths are in less developed countries with a high dependence on fossil fuels for heating and cooking.

The European Lung Foundation concur: their figures state that indoor air pollution is the eighth most important risk factor for disease and is responsible for an estimated 2.7% of the global burden of disease. They estimate that between 1.5 million and 2 million deaths a year could be linked to indoor air pollution.⁵





One important factor driving these alarming figures is that often those least able to cope are precisely the ones who are most exposed to indoor air pollutants. Especially at risk are the young and old age groups, or those with compromised tolerance to infection - such as the aforementioned chronically ill and those with existing conditions that are aggravated - including asthma, respiratory or cardiovascular disease. There is consistent evidence from the WHO that exposure to indoor air pollution can lead to acute lower respiratory infections in children under five, and ischaemic heart disease, stroke, chronic obstructive pulmonary disease and lung cancer in adults.⁶

A complex issue

Old buildings are most likely to allow pollutants such as pesticides and air pollution to enter from outdoor sources. Conversely heat escapes easily through various openings, cracks, areas around badly fitting doors and windows, and due to old and inefficient systems. Responding to this, new homes constructed to the highest energy saving standards are also more efficient in aggregating the aggravating pollutants in rooms which, in turn, are becoming smaller as population growth limits regulated space.

Beyond the more obvious contaminants caused by fossil fuels and tobacco, there is scarcely anything in the indoor environment that doesn't contribute - even in some small way - to producing an unhealthy atmosphere, including: building materials and furnishings, insulation, and products for cleaning and personal care. The burden is increased by inefficient or failing heat and ventilation systems which might promote the development of

mould and damp conditions. The dilemma is that although we need to let air into our buildings, ventilation loses significant energy.

The European Commission sums up the difficulties in combating the problem of poor IAQ: "Assessing air exposure and health risks in buildings is a complex issue due to a wide number and type of sources and pollutants, exposure levels and health implications as well as the differences in cultural habits, living style, building stock and climates across the EU."⁷

This very varied and diverse amalgamation of causes defies singular attempts to tackle the problem. There have been a number of clean air laws and those encompassing employee protection, yet these need to be applied in conjunction with a holistic approach to make our air healthier and safer to breathe. This approach also needs to focus in the context of advanced energy efficiency and sustainability, which is central to the philosophy of Diversey's development of the TASKI vacuum cleaner.

There is a contrast here between home and the office environment, with people generally having less control over the indoor environment in their offices than at home. This is reflected by the increasing health problems identified among workers and a growing recognition of the potential scale of this development: "In the opinion of some World Health Organisation experts, up to 30 per cent of new or remodelled commercial buildings may have unusually high rates of health and comfort complaints from occupants that may potentially be related to indoor air quality."⁸

Health effects

The illnesses have become familiar. For example, outbreaks of Legionnaires' disease, which is a biological contaminant that lives in cooling towers, humidifiers, dehumidifiers, air conditioners, or the inside surfaces of ventilation ductwork. Raised rates of asthma are commonplace and there are also more unusual conditions which have been defined by names that connect them with their source, for example, humidifier fever. The symptoms of these have been recognised as concrete by some health professionals but also they have been dismissed as the subject of imagination - psychosomatic imaginings - by being attributed to specific building problems. What has been termed 'sick building syndrome' is an umbrella term to cover a very broad range of: "dry or burning mucous membranes in the nose, eyes and throat; sneezing; stuffy or runny nose; fatigue or lethargy; headache; dizziness; nausea; irritability and forgetfulness." ⁹

In common with domestic environments, the key factor affecting IAQ is the presence of pollutant sources. These include among others: formaldehyde from pressed wood products, carpets and other office furnishings, cleaning materials and activities, and contaminants from ventilation systems that are ill maintained.

Cleaning as control with TASKI AERO

There is no substitute for effective and efficient cleaning. Minimising or preventing the release of pollutants requires regular cleaning protocols and processes. These are essential to keep environments free of allergens and particulates, dust and mould. At the core of this is the cleaning machines you use. Applying their demonstrable record of research and knowledge in the cleaning industry, Diversey have specifically developed TASKI AERO vacuum cleaners to contribute directly to better indoor air and environmental quality.



The definition of cleaning is to remove soilage and the accepted technology relied upon to do this is vacuum cleaners, which remove this soilage through suction. Vacuums typically expel the air back into the environment. Preventing particles from being redistributed back into the environment as a result is an obvious necessity. Yet many manufacturers do not recognise this correlation and the importance of doing the utmost to improve IAQ. Consequently, many vacuum cleaners fail to achieve the product claims and to live up to customer expectations.

Poor IAQ radically affects people's quality of life. Increasing filtration will help improve IAQ and this was Diversey's starting point. Diversey's philosophy is that good filtration produces good IAQ but in the case of the TASKI AERO project this was not enough and the aim is transformative - to achieve better filtration than is available on the market to therefore attain better IAQ.

TASKI AERO vacuums have exceptional filtration as standard but can be specified with multi-levels of filtration and thanks to the state-of-the-art air flow system can be relied upon to provide a better working environment for everyone. With this leading standard 3-Stage filtration system TASKI AERO vacuums already meet - without EPA/HEPA (Efficiency Particulate Air) filtration - the requirements of the American Carpet and Rug Institute (CRI) Green Label Programme and all of the New TASKI AERO range are CRI-certified.

The three stages of the TASKI filtration system are as follows:

First Stage: TASKI Paper and Fleece Filter Bags (standard)

TASKI Filter Bags are the first and most obvious component to act as a filter. Switching to non-OEM paper bags is a false economy. As well as invalidating the manufacturer's warranty this also degrades the level of filtration which reduces IAQ. They are highly likely not to fit correctly, or will burst - and also will degrade quicker.

The TASKI Disposable Fleece Bag offers better cost in use and superior performance than conventional paper dust bags. Fleece bags have superior filtration and can be a simple, low cost upgrade from paper bags. Fleece bags can last up to twice as long and maintain filtration for longer.



Second Stage: TASKI Filter Cloth (standard)

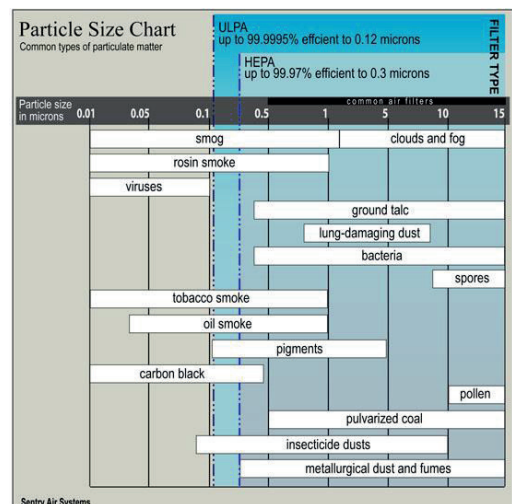
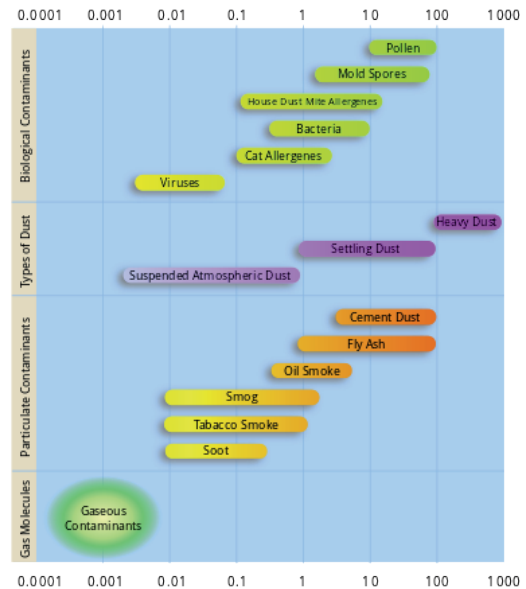
The second level of filtration is a tight-fitting TASKI Filter Cloth. For improved IAQ TASKI Cloth Filters should be vacuumed regularly to maintain performance and whilst they are washable it is recommended that they are disposed of on a regular basis. These could be replaced at intervals, or as part of your annual service and safety test.

Third Stage: TASKI Exhaust Air Filter (standard)

These deliver further improvements to air quality. This helps to reduce emissions such as carbon brush deposits which are not captured by filtration stages before the motor. Manufacturers must test and declare the rating for carbon emissions; which is a recognition that carbon deposits as a particulate must be filtered.

Super-Efficient cleaning

TASKI AERO vacuums come with excellent filtration as standard but can be improved further with TASKI EPA/HEPA filters. EPA prevents the vacuumed dust and allergens being re-released back into the room you are cleaning. The definition of EPA mandates testing at 0.3 micron. Smaller particles are easily filtered, 0.3 is the most difficult size to filter out. With an EPA filter, an exceptional 99.6% of particulates down to as low as 0.3 microns are arrested HEPA raises to an even to a higher level to 99.95%). This is a threshold instigated by the Institute of Environmental Sciences and Technology which must be achieved for a filter to be rated as an HEPA/EPA filter, although most will perform above this limit. Mould for example is 3 – 12 microns, while Bacteria is even smaller.



Third Stage: TASKI HEPA Filter (optional)

The TASKI HEPA H13 Filter retains 99.95% of mass. This is 10 x better than the Fleece bag - particles of 0.3 µm and larger are filtered out of the air including particulates which are very, very small - smaller even than the human eye can see. HEPA/EPA filters trap air contaminants in a complex arrangement of fibres in four specific ways: Inertial Impaction, Diffusion, Interception, or Sieving.¹⁰

True or absolute HEPA filters must be tested and meet a specific standard to be considered as such and have a serial number assigned to them. This strict test protocol ensures TASKI customers are assured of very high levels of filtration.¹¹

An upgrade to TASKI HEPA Filter is a simple, tangible and demonstrable measure to improve IAQ. While the changing of filter bags and replacing filters are basic and routine maintenance which must be part of your regime.

Everyone can breathe easy

In sectors such as healthcare poor IAQ is a well-known issue, however, more sectors and individual businesses are evaluating their IAQ for the benefit of both guests and employees. Where pathogens may not be a perceived issue, air-borne particulates and allergens can be an issue for those with allergies. It can be an important factor in hospitality for those who want peace of mind that their host is doing everything to make their stay as hygienic and comfortable as possible.

If you are in the hotel and leisure sectors you can achieve 5 Star IAQ - which even matches that of hospitals - to minimise problems for guests who have health complaints or allergies, or for guests who simply demand the best. TASKI AERO vacuums are designed for very frequent cleaning in any environment. The TASKI AERO offers unrivalled benefits, exceptional ease of use and superior filtration that is perfect for discreet cleaning. With the TASKI AERO Tub and Backpack you can clean to meet fast developing day time cleaning demands and respond to modern environmental, economic and social needs that offer both employers and staff new benefits.

Diversey have focussed on two specific sectors which display the wide benefits of using the TASKI AERO range.

Healthcare

The reduction of hospital acquired infections is a pressing problem. The reduction of pathogens (microorganisms causing illness and disease) in the air is a major contributor to better IAQ. Improved filtration will reduce air-borne pathogens and particulates.

Due Diligence

- 1) Always ensure TASKI vacuums are fitted with TASKI Filter Bags. Never use reusable cloth bags.
- 2) Use TASKI HEPA Filters in acute environments in accordance with local infection control guidelines.
- 3) Always dispose of bags immediately they become full (TASKI AERO has a bag full indicator to make this obvious.)
- 4) Close the full bag to ensure dust is not inhaled.
- 5) Replace TASKI HEPA Filters in accordance with local infection control guidelines.
- 6) Vacuum the cloth filter regularly and at least after each full bag is disposed.
- 7) Consider and review the disposal of consumable items as hazardous waste and follow local infection control guidelines.

Good Practice

- 1) Always ensure vacuums are fitted with either TASKI Paper or ideally - Fleece Filter Bags.
- 2) Always use TASKI Filter bags not copies or unbranded items.
- 3) Consider using TASKI HEPA filters for general environments.
- 4) Always dispose of full bags (the TASKI AERO has a bag full indicator to make this obvious.)
- 5) Close the full bag to ensure dust is not inhaled.
- 6) Vacuum the cloth filter regularly and at least after each full bag is disposed.
- 7) Replace the TASKI Exhaust Filters regularly.

Opportunities for Improvement

- 1) Consider a low cost upgrade to TASKI Fleece Bags.
- 2) Consider an upgrade to TASKI HEPA Filter replacements.
- 3) Share your commitment to improved IAQ with your patients and employees.
- 4) For non-acute or sensitive environments consider the use of TASKI Tapi Deo to condition and fragrance the expelled air for an even better patient and employee experience.
- 5) Replace the TASKI Exhaust Filters regularly at the same interval as replacing the TASKI EPA Filters.

Hospitality

Good IAQ in sectors such as hotel and leisure should be a given. However, more and more prestigious business are realising potential guests are demanding even higher standards. To obtain the maximum benefits follow Diversey's prescribed regime which provides users with three levels of attainment. With these protocols in place you can move immediately to achieve good practice; while the 5 star level also offers opportunities to aspire to the highest standards of IAQ:

Due Diligence

- 1) Always ensure vacuums are fitted with either TASKI Paper or Fleece Filter Bags.
- 2) Always dispose of full bags (TASKI AERO has a bag full indicator to make this obvious.)
- 3) Close the full bag to ensure dust is not inhaled.
- 4) Vacuum the cloth filter regularly and at least after each full bag is disposed.

Good Practice

- 1) Have a service engineer check and test vacuums every year for safety.
- 2) Dispose of the cloth filter on a regular basis and at least at the service check interval.
- 3) Dispose of the motor filter at least at the service check interval.
- 4) Replace the TASKI Exhaust Filters regularly.

Opportunities for Improvement

- 1) Consider a low cost upgrade to TASKI Fleece Bags.
- 2) Consider an upgrade to the TASKI HEPA Filter.
- 3) Replace the TASKI Exhaust Filters regularly and at least at the service check interval.
- 4) Share your commitment to improved IAQ with your guests and employees
- 5) Consider the use of TASKI Tapi Deo to condition and fragrance the expelled air for an even better guest and employee experience.

Moving With the Industry

TASKI products are designed and engineered to perform the best they possibly can within the method or application of the markets they serve.

The TASKI AERO vacuum is the fulfilment of this credo, introducing a new level of ultra-low noise level, robust low profile

design, ergonomics and superior filtration for discreet cleaning. The emphasis is on great productivity and minimal use of resources in a product that resists obsolescence and delivers significant ROI, all of which reduces the Total Cost of Ownership.

Day Time Cleaning is a method of working developed to meet modern environment, economic and social factors. Many more sectors and forward-thinking businesses recognise the importance of a clean, hygiene and safe working environment. Day Time Cleaning brings a number of benefits for both employer and employees. TASKI is actively engaged with key global agencies and associations helping develop solutions for this modern way of working.

The TASKI AERO range is the answer to these changes and sets a new standard, providing unrivalled benefits with one of the most efficient vacuum cleaners in the professional market. All of which is clear evidence of Diversey's commitment to sustainability, lower emissions and the transformation of indoor air quality.

- 1 <https://ec.europa.eu/jrc/en/research-topic/human-exposure>
- 2 <https://www.eea.europa.eu/signals/signals-2013/articles/indoor-air-quality>
- 3 <https://www.rcplondon.ac.uk/news/doctors-say-40000-deaths-year-linked-air-pollution>
- 4 https://www.who.int/gho/phe/indoor_air_pollution/en
- 5 <https://www.europeanlung.org/en/lung-disease-and-information/risk-factors/indoor-air-pollution>
- 6 https://www.who.int/gho/phe/indoor_air_pollution/en/
- 7 <https://ec.europa.eu/jrc/en/research-topic/human-exposure>
- 8 <https://www.eea.europa.eu/signals/signals-2013/articles/indoor-air-quality>
- 9 <https://www.cleanlink.com/hs/article/Impact-Of-Poor-Indoor-Air--22894>
- 10 <https://learn.allergyandair.com/hepa-filters/>
- 11 With the leading standard 3-Stage filtration system TASKI vacuums already meet, without HEPA filtration, the requirements of the American Carpet & Rug Institute (CRI) Green Label Program. All New TASKI AERO range vacuums are CRI-certified.



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Diversey 

TASKI is one of four core areas of the Diversey business.

Diversey has been, and always will be, a pioneer and facilitator for life. We constantly deliver revolutionary cleaning and hygiene technologies that provide total confidence to our customers across all of our global sectors. Headquartered in Fort Mill, South Carolina, USA, Diversey employs approximately 8,800 people globally, generating net sales of approximately \$2.7 billion in 2018.

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For more information, visit www.taski-aero.com or follow us on social media.

