

DANGERS OF DUST



Whitepaper written by

Ing. Paul Harleman

Global Application Manager

FHCS Vileda Professional

Dust and microdust originate from all kinds of sources. It floats in the air, partly falls down on surfaces and is inhaled by humans and animals. Dust contains things like soot particles, dust mites, dander, pet allergens, mold, bacteria, spores and viruses. It's all there. Pathogenic micro-organisms that are spread via dust is a fact of life we must deal with. Understanding the nature of dust, its dangers and what to do in order to limit the negative effects is crucial. Effective and professional dust removal is an important aspect that should not be underestimated.

WHAT IS DUST?

There are two categories of dust, ordinary dust and microdust. Ordinary dust is a collection of fine, dry particles that are typically less than 500 micrometers (μm) in diameter. These particles originate from various sources including objects, living creatures, industrial and natural processes. The composition of dust differs and can be composed of a wide range of materials including mineral grains, pollen, skin cells, textile fibers and soot. Moreover, ordinary dust often harbours living organisms such as bacteria, viruses and fungi. Analyzing dust reveals that there is a lot of life in a little bit of dust.



DID YOU KNOW?

- There is a cloud of dust around a moving person of approximately 2 meters.
- A working person, sitting on a chair, produces 1 million dust particles per minute.
- A walking person produces between 2,5 to 5 million dust particles per minute.
- 1 gram dust can contain thousands of dust mites.
- People with pets at home carry allergens on their clothes, which are released everywhere.

When particles are, on average, smaller than 10 micrometers in diameter we refer to them as microdust. Due to their significantly smaller size and lower mass than regular dust particles, they often remain suspended in the air for longer periods. Like ordinary dust, microdust originates from all kinds of sources, some of which can be extremely harmful to living creatures. Dust and microdust is everywhere, inside and outside. Except at rooms where due to human interaction dust exposure is highly controlled (clean rooms).

“ There is a lot of life in a little bit of dust ”

HOW DANGEROUS IS DUST?

It depends. Is it “ordinary” dust or microdust? What exactly is the composition of the dust and in what concentration? How sensitive is a person to the substances and how long has that person been exposed to dust? However, in general, the negative impacts of specifically microdust are alarmingly growing and emerging as an important silent killer. According to the WHO, 99% of all people are exposed to air pollution levels that exceed the recommendations set by the WHO in their latest guidelines [↗](#). Every breath we take is keeping us alive but can also kill us over time. Respiratory issues, allergies, cardiovascular effects and weakened immune systems are among the consequences of persistent and increasing pollution in the air we breathe. The WHO estimates that, globally, air pollution is responsible for approximately 7 million premature deaths annually [↗](#). These deaths result from ischemic heart disease, stroke, chronic obstructive pulmonary disease and lung cancer, but also from acute respiratory infections such as pneumonia which mainly affect children in low and middle-income countries. Is dust and microdust a serious issue? Yes, absolutely.

WHAT ELSE?

Beyond health implications, dust accumulation poses multifaceted challenges. Electrical appliances, and ventilation systems are susceptible to damage and cause performance degradation when inundated with dust. Additionally, layers of dust on floors and furnishings are not attractive. While not as destructive as other consequences of dust, maintaining cleanliness is still important for aesthetic reasons and to prevent potential damage to floors and furniture.

CLEANING HAS THE MOST IMPACT

Air movements are an important cause of dust becoming airborne. And what goes up,...comes down again. You can reduce dust in the air through filtration, ventilation and good environmental cleaning. The first methods are important but do not have the most impact⁽¹⁾. Environmental cleaning however, is the most effective method, considering ... you clean properly. Dust can be removed in many ways, both mechanically and manually. Whatever you choose to do, methods and materials must retain the dust.

“Every breath we take is keeping us alive but can also kill us over time”

REMOVE DUST FROM SURFACES, HOW?

As explained, dust on surfaces can be removed in basically two ways: mechanically or manually.

MECHANICAL DUST REMOVING

Mechanical dust removing is done with a vacuum cleaner. That can be a non-autonomous (human-operated) machine or an autonomous vacuum cleaner (robot). To minimize the amount of dust that becomes airborne at the exhaust opening of the machine, it is important to use vacuum cleaners with a good and multiple filter system (HEPA).



Apart from vacuum cleaners I have observed another mechanical way of dust removal on big floor surfaces, such as at airports. It looks like a mobility scooter with a big dustmop frame at the front.



To remove dust from objects with hard-to-reach spots like for instance keyboards, a high-pressure air blower can be used. Bear in mind this method transfers dirt from one place to another, so outdoor execution is recommended.

MANUAL DUST REMOVING

To remove dust manually, wiping is the most common method. Wiping can be done with a durable wipe or mop, or a disposable variant. Important is to use wipes and mops that pick up the dust and retain it. There are several options to realize this:

Water impregnation

Mostly used in combination with a durable mop or wipe. The mop or wipe should be slightly moistened. If too wet, the dust can turn into "mud" causing stripes on the surface after drying. Wet conditions also stimulate growth of micro-organisms.

Oil impregnation

Basically, oil impregnated floor wipes are disposable.

Characteristics:

- Relatively low price
- Effective dust pick-up
- Excessive oil can leave residue on the floor
- Regularly rotating of the pack of wipes is necessary to prevent oil migrating to the wipes on the bottom of the pack
- Leaving the the frame with the wipe on the floor during a break can cause oil stains on the floor
- Plano packed, not available on a roll

Glue impregnation

Glue impregnation is an alternative to oil impregnation. The impregnation grade and type of glue should be correct in order to prevent a glue residue on the surface. Characteristics:

- Slightly more expensive than oil impregnated wipes
- No risk of glue residue on the floor
- Regularly rotating the pack of wipes is not necessary
- No risk of stains on the floor when leaving the frame with the wipe on the floor during a break
- Available on a roll

Static electricity

Static electricity works like a "magnet", attracting dust and retaining it on the wipe or mop. Therefore this type of wipe or mop is highly effective on hard or elastic surfaces with a



3D structure, such as wood imitation pvc floorings. Other characteristics:

- Relatively expensive
- Disposable floor wipes are available on a roll
- Durable dust mops can be washed and re-used

TIP:

Glue impregnated, disposable wipes are made to remove dust from floors but you can also use these wipes to remove dust from furniture. For instance, antique wooden furniture that is sensitive to water or oil.

DURABLE OR DISPOSABLE

Removing dust with durables or disposables are options that have their own specific advantages and disadvantages. If durables are used to remove dust from floors, it is important to remove the collected dry dirt from the mop before laundering. If not properly pre-cleaned, there is a high chance that mops emerging from the laundering process are not sufficiently clean. There is also a potential risk of damage to the pump of the washing machine over time. Use a vacuum cleaner with HEPA filter to remove the dry dirt from the mop before laundering.

“Durables and disposables have their own advantages and disadvantages”

Sometimes cleaning operators brush the dirt from the mop, not realizing that a lot of dust becomes airborne which is unhealthy and inefficient.



Generally speaking, disposables are more hygienic, comfortable and efficient and therefore recommended to use in healthcare environments.

WHAT ABOUT THE DUST WIPE FRAME?

There are different types of frames on the market to attach a disposable dust wipe to. In healthcare environments it is important to use utensils that are easy to clean, have a minimum number of dirt traps and are made of materials with a closed structure to prevent the formation of “micro-organism hotels”. Therefore, a frame with a flexible removable sole made of synthetic rubber is preferred.

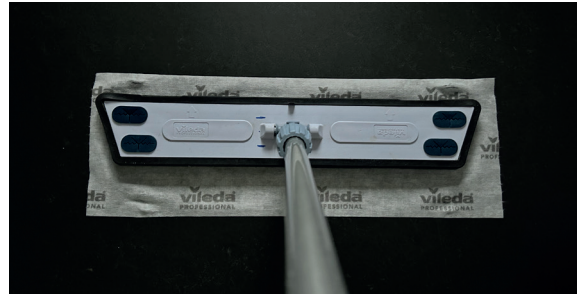


VERMOP UNIVERSAL ONE MOP, WIPING DUST AND REMOVING STAINS IN ONE ACTION

Usually, dry dirt and dust is removed from a floor surface, followed by the use of another mop to remove stains.

The double-sided Vermop Universal One mop can accomplish both tasks in the same action. Wipe the dust away with the dry side of the mop and switch to the dampwet side when you encounter a stain. Take a look at the [video](#) to hear and see how it works.

QR Code to video:



DROP AND DUST FRAME

Vileda Professional offers a very solid dust wipe frame that securely holds a wipe without attaching it to the frame. Drop the wipe on the floor, put the frame on it and off you go. Due to its weight and synthetic rubber sole the wipe remains in place without the need of attaching it to clips. This brings multiple advantages: optimal utilization of the wipe surface, faster, no finger hurting and easy to wipe underneath furniture close to the floor.

HEALTHY CLEANING

In 2004 the Dutch Cleaning Research Association (VSR [↗](#)) published a guide about the importance of healthy, professional cleaning (VSR vaknieuws "Gezond Schoonmaken"). It provides a lot of insights into the importance of cleaning related to a healthy indoor environment and healthy cleaning practices.

While all details can be found in the VSR publication, here are the five rules of thumb for healthy cleaning:

1. Clean the right things (to be most effective)
2. Clean the things right (professional)
3. Clean as dry as possible (to prevent growth of micro-organisms)
4. Don't clean at high speed (to prevent dust becoming airborne)
5. Clean regularly (expiration date of cleanliness is on average 1-2 days)

Dust presents significant health risks as well as aesthetic concerns. Specifically in healthcare environments with, by definition, vulnerable individuals, dust with everything in it can be a significant threat. However, through consistent and professional cleaning practices, we can reduce these dangers and create healthier environments. We not only safeguard our well-being but also improve productivity and keep the environments we work, stay and live in, as beautiful as they were created. Environmental dust control may seem straightforward, but it requires the expertise of a cleaning professional to manage it in a healthy and effective way.

MORE INFORMATION

Ready to combat dust hazards and create a healthier environment? Contact us today to learn more about our professional dustmopping solutions.

www.vileda-professional.com www.vermop.com