

IMPROVE PRODUCTIVITY
& WELLBEING WITH ROOM
ACOUSTIC COMFORT IN THE
PHARMACEUTICAL SECTOR

ECOPHON

PHARMACEUTICAL AREAS



Contents

04 ABOUT ECOPHON

06 THE IMPORTANCE OF GOOD ACOUSTICS

08 SUSTAINABILITY

10 CLEANROOMS, PRODUCTION & PROCESSING

12 TECHNICAL

14 ECOPHON HYGIENE™

16 OFFICES IN PHARMACEUTICAL ENVIRONMENTS

18 ECOPHON HYGIENE™ SYSTEMS

18 Ecophon Hygiene Meditec™

18 Ecophon Hygiene Protec™

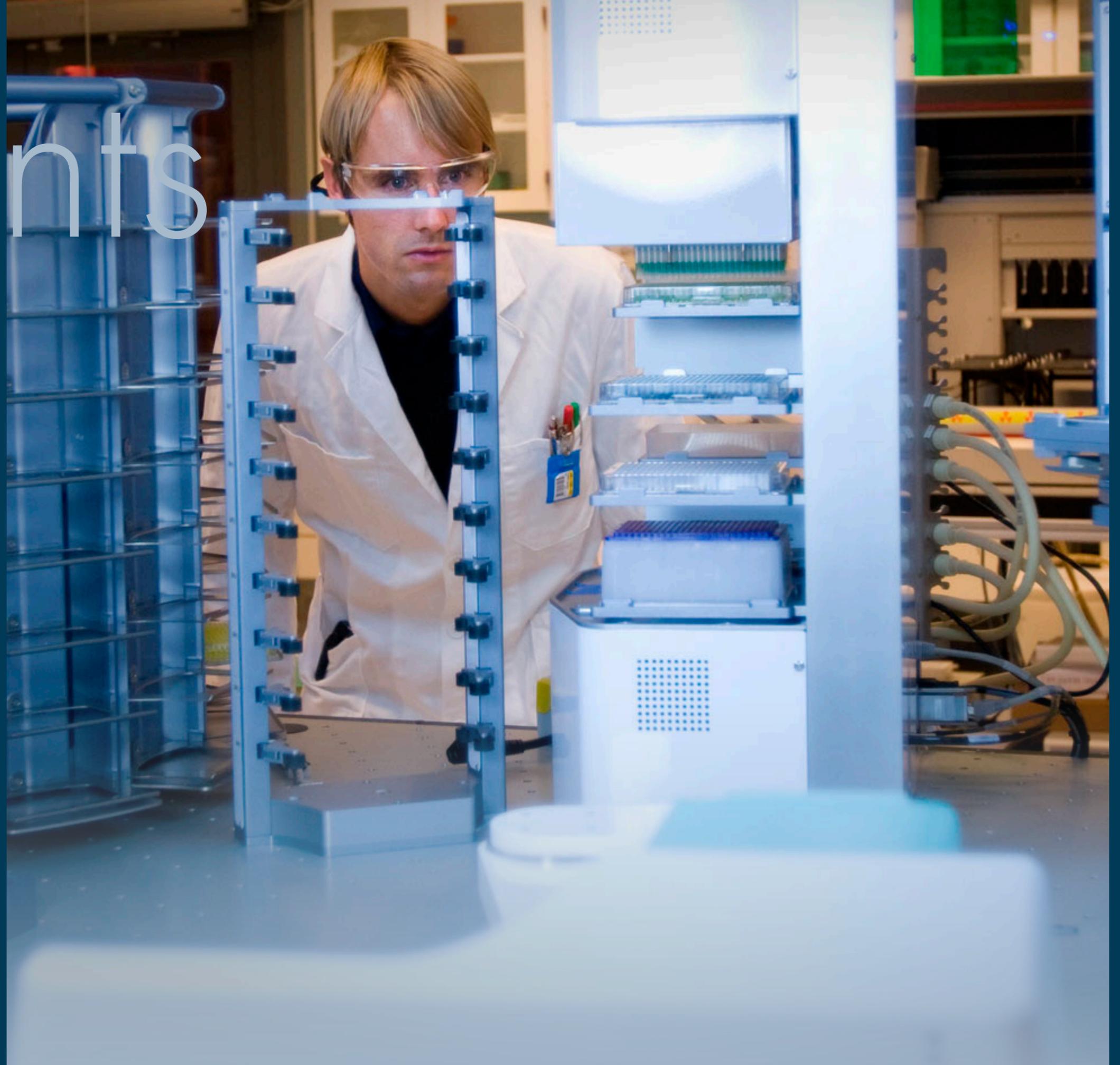
18 Ecophon Hygiene Performance™

19 Ecophon Hygiene Advance™

19 Ecophon Hygiene Clinic™

19 Ecophon Hygiene Lavanda™

This publication shows products from Ecophon product range and those of other suppliers. The specifications are intended to provide a general guide to which products are most suitable for the preferences indicated. Technical data is based on results obtained under typical testing conditions or long experience in normal conditions. The specified functions and properties for products and systems are only valid on condition that instructions, installation diagrams, installation guides, maintenance instructions and other stated conditions and recommendations have been taken into consideration and followed. Deviation from this, such as changing specific components or products, will mean that Ecophon cannot be held responsible for the function, consequences and properties of the products. All descriptions, illustrations and dimensions contained in this brochure represent general information and shall not form part of any contract. Ecophon reserves the right to change products without prior notice. We disclaim any liability for misprints. For the latest information go to www.ecophon.com or contact your nearest Ecophon representative.



A Sound of nature

IN EVERYDAY LIFE

Saint-Gobain Ecophon contributes to good indoor environments for working, healing and learning. We do this by developing, manufacturing and delivering acoustic products and systems designed around the natural evolution of human hearing – replicating the outdoor sound experience indoors, because that's just better for people.

Having a sound effect on people, in every way we can, is what we do proudly. That promise makes every one of us a passionate advocate for the importance of room acoustics to people's wellbeing – whatever the space, activity or need.

DEVELOPING THE OPTIMAL ACOUSTIC ENVIRONMENT IN PHARMACEUTICAL PREMISES

The aim is to achieve the optimum value for the descriptors that are relevant to the room's function. According to Room Acoustic Comfort™, auditory strength and reverberation should be the focus when designing industrial premises, this means reducing the auditory strength and limiting reverberation in a room.

Production equipment generates a large amount of direct sound, and it is important to prevent this sound from being amplified by the premises themselves. This is achieved, by installing, among other things, class A sound absorbers in ceilings, on walls or as suspended baffles.

Acoustics

SOUND IS AN IMPORTANT PART OF THE WORKING ENVIRONMENT

Sound affects us in many ways. A good sound environment is proven to lead to an increase in creativity, concentration and productivity within the workplace as well as an improvement in mental health. Disturbing noise causes fatigue, stress and communication problems. This impairs both productivity and safety, which in turn reduces profitability and can violate work environment regulations. Sick leave and high staff turnover also impact negatively on staff welfare and profitability. There is much to be gained from achieving an optimal acoustic environment.

REDUCE DISTURBING NOISE AND BACKGROUND NOISE

Certain mechanical processes in the pharmaceutical industry generate loud and disturbing noise. Eliminating as much of this noise as possible has many benefits. Above all, it creates a calmer, more pleasant atmosphere, making employees more alert and focused. It also facilitates communication, which not only raises efficiency but also improves safety. Minimising the need for hearing protection also offers benefits in terms of teamwork and communication.

ACTIVITY BASED ACOUSTIC DESIGN

One of the first things you need to consider when designing is that people will most likely perform a variety of activities, at any given time, these activities may require their own acoustic solution. We call this Activity Based Acoustic Design. Ecophon's solutions support the activity taking place, and as a result, enhance people's job satisfaction, job performance and overall wellbeing. For example, when designing an office, acoustic consideration should be given to both tasks requiring high levels of concentration and to group working and how these functions can co-exist; whilst on a factory floor sound reduction and hearing safety will probably be of utmost importance.

HOW CAN THE ACOUSTIC ENVIRONMENT BE IMPROVED

Noise policy - Define a noise policy to raise awareness about the acoustic environment

Equipment - Make demands on suppliers of machinery and other equipment including PPE

Treating the room - Measure sound levels at various points within the space, especially close to the areas where people are working

- Consider the possibility of acoustic zoning
- If possible, gather together noise sources and create quiet areas in the room
- Install sound absorbers in ceilings, on walls or as suspended baffles





Building on Better

**COMMITMENT - TRANSPARACY -
CIRCULARITY - INNOVATION**

Sustainability is more than a word – it’s a collective movement to protect people and the planet that requires honest commitment and genuine care. That’s why Ecophon is building on better materials, transparency, and principles, to name just a few.

We actively support an industry-wide drive to standardized, easy-access Environmental Product Declarations for individual products, rather than product families. Their inclusion of full lifecycle data, from raw material sourcing to end of life, rather than only the favorable stages. A move away from self-declared labels, or non-independently verified sustainability claims. And for any promises of net zero carbon emission targets to be validated by the Science-Based Targets initiative.

If we’re going to build a sustainable future, it has to start with an honest approach, high ambition and the best of intentions – to build on better together.



Cleanrooms Production & Processing

AREAS WITH STRICT HYGIENE DEMANDS

It is well known that pharmaceutical facilities contain equipment and processes that generate disturbing noise. In addition, the surfaces are hard and smooth, so sound bounces off of them and spreads around the room. Taking measures to improve the acoustic environment offers many benefits; however, any sound-absorbing systems installed must not impact negatively on hygiene. The various Ecophon Hygiene systems offer solutions for this particular combination of needs.

Often the environment must be controlled to ensure quality throughout the production chain, bacterial growth and particle emissions can cause major problems and downtime. The surface of Ecophon Hygiene products is resistant to mould and bacterial growth.

PRESSURISED ROOMS

In addition some areas may have a requirement for air pressure control and may require an air flow resistant ceiling system.

STANDARDS AND REGULATIONS

Pharmaceutical manufacturing must satisfy specific customer and government hygiene requirements. GMP (Good Manufacturing Practice) is often used as a standard. GMP is divided into four classes and includes minimum requirements for equipment, knowledge, quality and procedures relating to production. The ISO 14644-1 standard is used for the classification of air cleanliness by particle concentration. All products within the Ecophon Hygiene range meet a minimum of ISO Class 5 with specific products meeting ISO Class 3.

Acoustic Ceilings that meet

**ISO
CLASS 3**



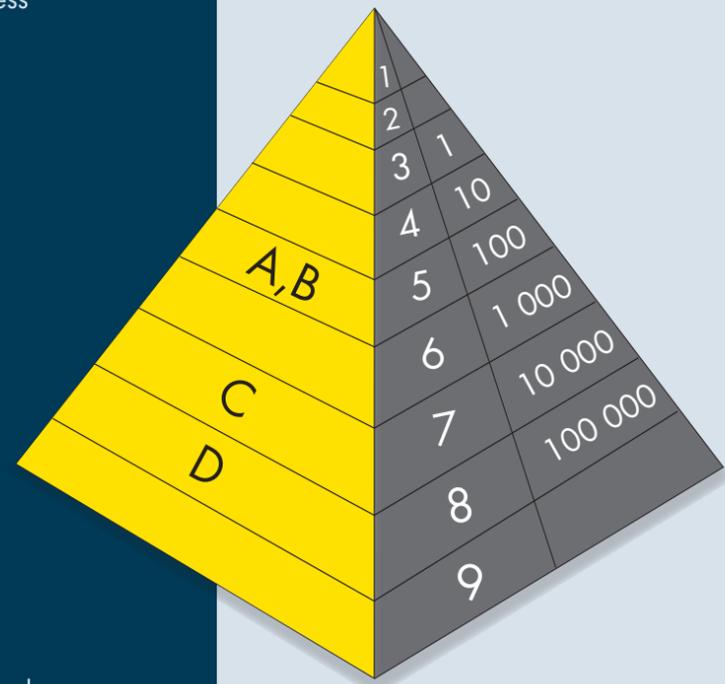
Technical

INFORMATION & REQUIREMENTS

PARTICLE CONCENTRATION

Ecophon products have been classified according to ISO 14644-1:2015 (Classification of air cleanliness by particle concentration).

This to ensure their compatibility with clean room requirements, in terms of the number of air borne particles (sizes ranging from 0,1 µm to 5 µm) expressed as a concentration in air volume.



AIR PERMEABILITY

Our systems have been designed to limit the air leakage at pressure differentials. The declared values are valid for pressure differentials up to 50 Pa at both positive and negative pressure.

- Hygiene Advance A:
20 mm: 1,1 m³ / (1h x 1m² x 50Pa)
- Hygiene Advance A:
40 mm: 0,3 m³ / (1h x 1m² x 50Pa)
- Hygiene Protec Air A:
20 mm: 0,3 m³ / (1h x 1m² x 50Pa)
- Hygiene Protec Air A:
40 mm: 0,2 m³ / (1h x 1m² x 50Pa)

Differentiating properties – Ecophon Hygiene™

| | | Clinic | Meditec | Protec | Performance | Advance |
|-------------------------------|--|---------|---------|---------|-------------|---------|
| Range | Installation methods | | | | | |
| Cleanability | Dusting & vacuum cleaning | ● | ● | ● | ● | ● |
| | Wet wiping | ● | ● | ● | ● | ● |
| Advanced cleanability | Steam cleaning | - | - | - | ● | ● |
| | Wet cleaning | - | - | - | ● | ● |
| | High pressure washing | - | - | - | ● | ● |
| | Hydrogen peroxide vapour | ● | ● | ● | ● | ● |
| Surface endurance | Withstand 200 cycles (ISO 11998) | - | ● | ● | ● | ● |
| | Withstand cycles beyond ISO 11988 | - | - | - | - | ● |
| Chemical resistance | Resistant to disinfection chemicals (ISO 11998) | - | ● | ● | ● | ● |
| | Resistant to strong chemicals (ISO 2812-1) | - | - | - | - | ● |
| Air permeability | Ceiling for areas with air pressure control requirement | - | - | ● | - | ● |
| Humidity resistance | Dry area system, compatible with corrosion class C1 areas | ● | ● | ● | - | - |
| | High humidity area system, compatible with corrosion class C3 areas | - | - | - | ● | ● |
| | Swimming pool area system, compatible with corrosion class C4 areas | - | - | - | ● | ● |
| | Constant wet area system, compatible with corrosion class C4 areas | - | - | - | - | ● |
| Mould and bacteria resistance | Mould, method A (ISO 846) | Class 0 | Class 0 | Class 0 | Class 0 | Class 1 |
| | Bacteria, method C (ISO 846) | Class 0 | Class 0 | Class 0 | Class 0 | Class 0 |
| Clean room (Advanced) | Clean room classification ISO 3 (ISO 14644-1) | - | - | ● | - | ● |
| | Kinetic class for particle elimination, CP _(0,5) 1 (NFS 90-351) | - | - | ● | - | ● |
| Page | | 30 | 34 | 38 | 44 | 56 |

- Properties important for controlled atmosphere areas
- Property stating that systems are 100% recyclable
- Property stating fire safety class
- See website for more details
- See website for more details
- Surface endurance of scrub cycles with disinfectants

- Property stating which chemical substances can be used
- Property stating the permeability of the ceiling in areas that require air pressure control
- Property stating whether the system is suitable for dry (corrosion class C1), humid (corrosion class C3) and/or wet areas (corrosion class C4). Swimming pool area is displayed separately due to the highly corrosive effects of chloride use
- Property stating that mould and bacteria do not grow on the product

For the latest information go to www.ecophon.com

Ecophon Hygiene

THE MOST PROVEN SYSTEMS IN THE MARKET

SYSTEMS FOR ALL ROOMS

Sensitive production will require enhanced cleaning procedures. In order for a sound-absorbing system to produce optimum results, hygiene requirements must be achieved from a cleanability perspective. Ecophon has developed sound-absorbing systems that meet hygiene requirements for different type of rooms in the pharmaceutical industry.

DIFFERENT METHODS OF CLEANING AND DISINFECTION

The cleaning of the premises is central to the hygiene process. The whole room must withstand the cleaning methods chosen to ensure the level of hygiene required. Within Ecophon hygiene range, ceilings and wall panels are available that can be cleaned to variety of requirements.

WIDELY USED METHODS

DRY CLEANING

Particles are removed with a microfibre cloth or a vacuum cleaner.

DISINFECTION

Micro-organisms are killed by spraying the surfaces with disinfectant.

STEAM

Micro-organisms are killed with steam.

WET CLEANING

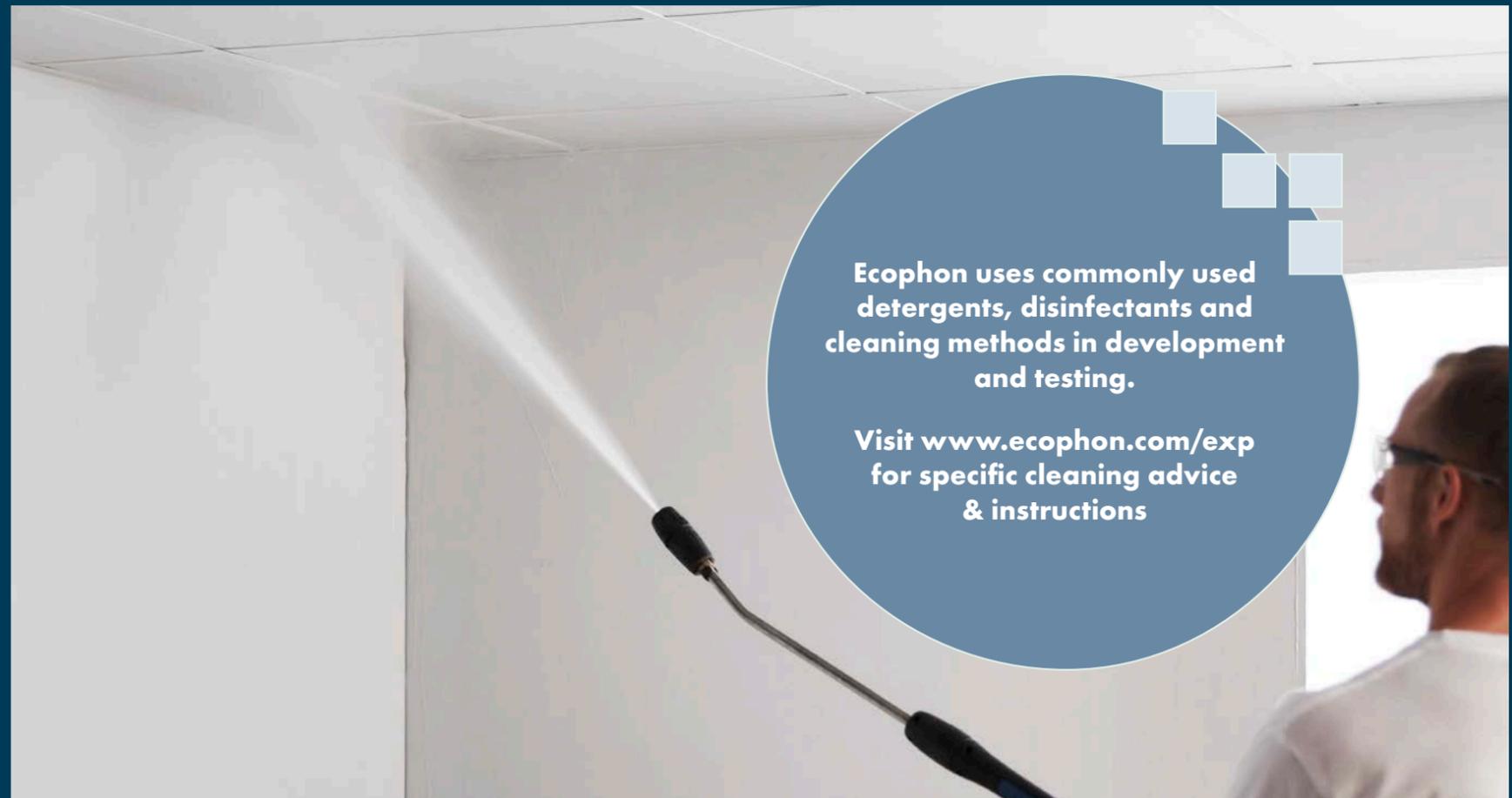
Particles and micro-organisms are removed with a moist mop or a microfibre cloth often used in association with detergents.

HIGH PRESSURE CLEANING

A wet cleaning method using high pressure water spray, alongside detergents or disinfectants.

HYDROGEN PEROXIDE VAPOUR (HPV)

HPV decontamination uses a vapour from hydrogen peroxide solution to effectively kill pathogens on exposed surfaces.



Ecophon uses commonly used detergents, disinfectants and cleaning methods in development and testing.

Visit www.ecophon.com/exp for specific cleaning advice & instructions

Offices

IN PHARMACEUTICAL ENVIRONMENTS

NOISE IS ONE OF THE MOST COMMON COMPLAINTS IN OFFICE ENVIRONMENTS

Whilst a good room acoustic environment aids concentration, communication, productivity, and staff wellbeing.

Within our offices people are involved in a variety of tasks involving communication, collaboration and team work; whilst others involve detailed task requiring high levels of concentration. Yet we often expect our staff to work in the same space whatever the task or personal preference. This is particularly noticeable in open plan offices where people are often subject to a range of sound stimuli without the ability to change or influence their environment.

Ecophon provide a range of room acoustic products for offices linked to activity based design and offering a choice of different aesthetic and acoustic solutions.

ECOPHON FOCUS™

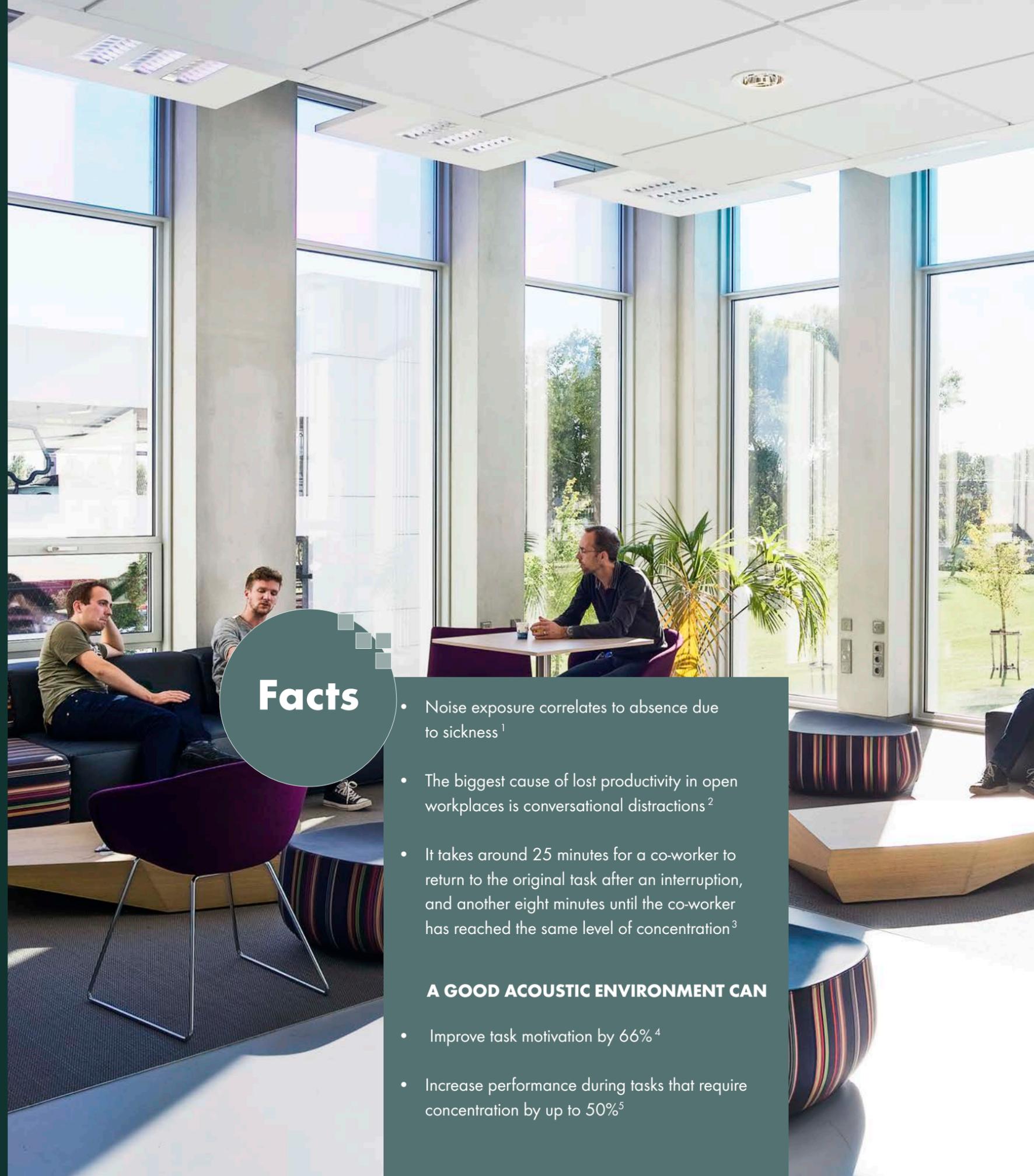
Our most comprehensive system family, Ecophon Focus will always offer a range of opportunities through different edge designs, forms, levels and installation options, allowing it to be used in most application areas.

ECOPHON AKUSTO™

A complement to acoustic ceilings, Ecophon Akusto solves acoustic challenges whilst also providing opportunities to follow current trends in design and installation. An array of colours and different textured finishes ensure that Akusto is suitable for a range of applications.

ECOPHON SOLO™

The ever trend-sensitive Ecophon Solo comes in several shapes and sizes, allowing freedom of design and the opportunity to create striking new expressions whilst also keeping up-to-speed with sustainable architectural developments.



Facts

- Noise exposure correlates to absence due to sickness¹
- The biggest cause of lost productivity in open workplaces is conversational distractions²
- It takes around 25 minutes for a co-worker to return to the original task after an interruption, and another eight minutes until the co-worker has reached the same level of concentration³

A GOOD ACOUSTIC ENVIRONMENT CAN

- Improve task motivation by 66%⁴
- Increase performance during tasks that require concentration by up to 50%⁵

ECOPHON HYGIENE™ SYSTEMS FOR THE PHARMACEUTICAL INDUSTRY

Back in the late 1980s, we delivered our first sound absorbers to the Swedish pharmaceutical industry. We have evolved our systems since then, and today offer several different Hygiene systems suitable for various applications. Below are more products within our Hygiene range and an accompanying table of the differentiating properties

ECOPHON HYGIENE MEDITEC™

Suitable for dry areas where disinfection and/or cleaning is required on a regular basis. The surface is resistant to mould and bacteria growth and common detergents and disinfectants. The absorbers have low emission levels, ensuring high indoor air quality. Available with different edge details.



ECOPHON HYGIENE PROTEC™

These tiles are particle-repellent for clean rooms where disinfection and/or cleaning is required on a regular basis. The fully sealed absorbers have low emission levels, ensuring high indoor air quality. They are resistant to mould and bacteria growth. With a range which can withstand HPV cleaning.



ECOPHON HYGIENE PERFORMANCE™

Suitable for humid areas and withstands advanced cleaning, such as steam and high/low pressure washing on a regular basis. The surface is resistant to common detergents and disinfectants.



ECOPHON HYGIENE ADVANCE™

A sound-absorbing ceiling with an exposed grid that sustains daily advanced cleaning and disinfection with strong chemicals. Suitable for the most demanding conditions. Available with corrosion class C3 grids for humid areas and C4 grids for constantly wet areas. Hygiene Advance Technical tiles should be used where there are penetrations in the ceiling.



ECOPHON HYGIENE CLINIC™

The absorbers have low emission levels, ensuring high indoor air quality, suitable for dry areas. They are resistant to mould and bacteria growth and withstand HPV cleaning.



ECOPHON HYGIENE LAVANDA™

Ecophon Hygiene Lavanda™ T5 C3 is a flush-mounted luminaire specifically developed for rooms with strict hygiene requirements. It has IP65 classification (dust- and water-proof). The luminaire is easy to mount and withstands high-pressure cleaning. It is designed to fit edge A ceiling systems such as Advance A and Foodtec A.



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Ecophon is the leading supplier of indoor acoustic solutions that improve working performance and quality of life. We believe in the difference sound can make to our everyday lives, and are passionate advocates for the importance of room acoustics to people's wellbeing – whatever the space, activity or need.

Having a sound effect on people is the principle that guides all we do. We're proud of the Swedish heritage and human approach that promise is founded on. Our uncompromising commitment to transparent sustainable practice. And, as members of the Saint-Gobain Group, to be doing our part in making the world a better home.

