Noise reduction

in the food industry

Ecophon®

A SOUND EFFECT ON PEOPLE

Photo: Patrick Saloun

Less noise creates a calmer, more pleasant atmosphere, making employees more alert and focused.

Room Acoustic Comfort™ in industrial premises

Room Acoustic Comfort™ is Ecophon's concept for room acoustic design, this puts emphasis on people, their activities and the space. The acoustic descriptors defined are reverberation, speech clarity, auditory strength and spatial decay. 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. In practice, 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.

Photo: Studio-e

 Idea and layout: Navigator. Printer: Skånetryck. Cover: Studio-e. Technical photographs: Studio-e.

Sound is an important part
of the working environment

A good sound environment facilitates communication and improves safety.

Sound affects us in many ways. 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 profitability. There is much to be gained from achieving an optimal acoustic environment.

Dampen disturbing noise and background noise

Certain mechanical processes in the food 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 and providing better conditions. It also facilitates communication, which not only raises efficiency but also improves safety when important messages need to be heard and understood. Minimising the need for hearing protection also offers benefits in terms of better teamwork and easier communication.

How can the acoustic environment be improved?

- Define a noise policy to raise awareness about the acoustic environment
- Make demands on suppliers of machinery and other equipment
- If possible, gather together the noise sources and create quiet areas in a room
- Install sound absorbers in ceilings, on walls or as suspended baffles

For the eye, the ear and the mind

Ecophon specialises in developing sound-absorbing solutions for all environments where people work and communicate. Long experience combined with innovative thinking has made us a leading player in the industry. Our mission is to contribute to a good working environment for the eye, the ear and the mind.

Controlled environment

with strict hygiene requirements

It is well known that modern food production facilities contain equipment and processes that generate disturbing noise. In addition, the surfaces are hard and smooth, so the sound bounces off them and spreads though 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 Ecophon Hygiene System offers solutions for this particular combination of needs.

The importance of a controlled environment

In the food industry, certain critical aspects are absolutely vital to a company's survival. The environment must be controlled to ensure high product quality throughout the production chain. Bacteria growth and particle emissions can cause major problems, leading to downtime or a risk of substandard products entering the market. The consequences can be disastrous in both practical and economic terms, and in the form of negative publicity.

Customer requirements, standards and regulations

Food manufacturers must be able to prove that they satisfy customer and government hygiene requirements. Many major companies have adopted the BRC Global Standards of the British Retail Consortium.

The BRC Global Standards regulate:
- HACCP system (identification, evaluation and control of risk)
- Quality management systems
- Plant and production site
- Product and process control

Products must withstand aggressive factors

In order for a hygiene-critical production environment to meet prevailing requirements, all products and systems installed there must be designed to adequately withstand various critical factors such as:
- Temperature
- Relative air humidity
- Chemical contaminants (e.g. acids, alkalines, chlorides)
- Physical contaminants (e.g. dust, soot)
- Biological contaminants (e.g. grease, proteins)

In addition, it is imperative that the environment can be cleaned regularly, easily and efficiently.

Rules set by EU regulation

Rules governing hygiene in premises used for food production, drink production and catering activities are set out in the European Parliament and Council regulation (EC) 852/2004 on food hygiene. Inspection is carried out by local food inspectors.

Premises where food is prepared, handled or processed must be designed and planned to permit good food hygiene practice, including protection against contamination between and during the various stages.

Ceilings or (where no ceiling is installed) roof interiors and ceiling fittings must be designed and constructed in such a way as to prevent the collection of dirt and to minimise condensation, the growth of undesirable fungi and the emission of particles.

Photo: Patrick Salotin

The most proven systems

in the market

Product facts

Inert glass wool is the raw material used in our sound absorbers, and is predominantly made of recycled glass. Microbiological tests of the finished product, performed by TNO Nutrition and Food Research, show that the product is not a breeding ground for micro-organisms.

Our products have the following labels/classifications:

- Indoor Climate Label
- Emission class M1 for building materials
- Recommended by the Swedish Asthma and Allergy Association
- Most of our products are marked with the Nordic Swan Ecolabel
- Fire class A2-s1,d0 according to EN 13501-1
- Sound Absorption class according to standard SS-EN ISO 11654, P-labelled to guarantee the classification

Some common cleaning methods:

- Dry cleaning
  Particles are removed with a microfibre cloth or a vacuum cleaner.
- Wet cleaning
  Particles and micro-organisms are dissolved with foam, gel detergent or disinfectant. After this, the area is sprayed with water at varying pressure.

Ecophon has 30 years experience of developing acoustic solutions that meet stringent requirements for cleanliness. Our solutions are developed in consultation with leading food manufacturers, consultants and suppliers who must address and prioritise aspects of hygiene on a daily basis.

Multi-step evaluation process

Different rooms in a food manufacturing facility have different hygiene requirements. First of all, the conditions that characterise each room must be evaluated. These conditions are then matched to specific needs, based on internal objectives, external requirements, standards and regulations.

The following conditions must be taken into account in the evaluation:

- Air humidity
- Temperature
- Cleaning Agents, types of detergents and/or disinfectants and their frequency of use
- Corrosion risk
- Overpressure or normal conditions
- Permitted materials
- Type of contaminants

Different cleaning methods

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 by internal goals, customers, standards and regulations.

All products and systems installed in the premises must withstand the established cleaning methods. The most widely used detergents and disinfectants are alkali, acid, hypochlorite and/or tenside-based. For this reason, Ecophon uses these detergents and methods in its development and testing operations. We also offer acid proof stainless steel systems for corrosive environments.

Systems for all rooms

Hygiene requirements in production facilities vary depending on the sensitivity of the operations. All hygiene requirements must be satisfied in order for a sound-absorbing system to produce optimum results, including from a cleaning perspective. Ecophon has developed sound-absorbing systems that meet prevailing hygiene requirements for most types of room in the food industry.

THE INDOOR CLIMATE LABEL

EMISSION CLASS FOR BUILDING MATERIAL M1

NORDIC ECOLABEL 310 007

Recommended by the Swedish Asthma and Allergy Association

Ecophon Hygiene System

for the food industry

Back in the mid-1980s, we delivered our first sound absorbers to the facilities of the cured meats company Gomans in Malmö, Sweden. We have evolved our systems since then; today we offer several variants, either wall to wall ceiling systems or open baffle systems.We have gathered them under Ecophon Hygiene Foodtec™. However, for constantly humid environments or areas requiring daily cleaning, we recommend Ecophon Hygiene Advance™.

Ecophon Hygiene Advance™ A C4

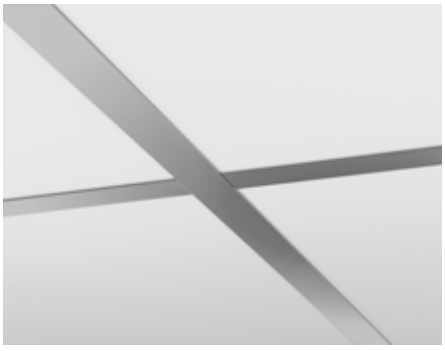
Ceilings for environments where the risk of soiling is extremely high, for example where the surface risks staining from liquids or grease, so that the ceiling needs frequent cleaning. The system is suitable for areas with constant high air humidity and high risk of corrosion.

System description:

- Hygiene Advance A tiles are encapsulated in a smooth high-performance film that is dirt, grease and chemical resistant, and impervious to particles and water.
- Exposed Connect T24 C4 grid in acid proof high-performance, austenitic stainless steel, corrosion class C4 (EN ISO 12944-2).
- Hygiene Clips fix the tiles to the grid

Cleaning:

Withstands daily cleaning with water at high or low pressure using strong detergents and disnfectants, e.g. peracetic acid.



Hygiene Advance A C4 system

Hygiene Advance A tile

Ecophon Hygiene Advance™ A C3

Ceilings for environments with a high risk of soiling, for example where the surface maybe splattered with matter, so that the ceiling needs frequent cleaning.

System description:

- Hygiene Advance A tiles are encapsulated in a smooth high-performance film that is dirt, grease and chemical resistant, and impervious to particles and water.
- Exposed Connect T24 C3 lacquered galvanised steel grid, corrosion class C3 (EN ISO 12944-2).
- Hygiene Clips fix the tiles to the grid.

Cleaning:

Withstands daily cleaning with water at high or low pressure and commonly used detergents and disinfectants.

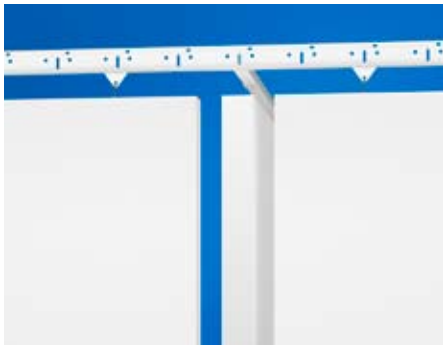
Hygiene Advance A C3 system

Ceiling System Baffle System Wall System

Hygiene Foodtec A C3 system

Hygiene Foodtec A C3 section with Connect Hygiene clip 20

Hygiene Advance Baffle



Hygiene Foodtec Baffle C3 in chequered pattern

Ecophon Hygiene Foodtec™ A C3

Ceilings for premises with temporary high air humidity. For areas in the food industry where the ceiling needs to be cleanable with wet cleaning methods.

System description:

- Hygiene Foodtec™ A tile, with the painted Akutex™ HS surface to give stain protection. Painted back and edges.
- Exposed Connect T24 C3 lacquered galvanised steel grid, corrosion class C3 (EN ISO 12944-2).
- Hygiene Clips fix the tiles to the grid.

Cleaning:

Withstands cleaning with water at high or low pressure twice a year and wet wiping once a week with commonly used detergents and disinfectants.

Ecophon Hygiene Advance™ Baffle C3

A system of vertical baffles, for rooms with high air humidity where a wall to wall ceiling cannot be installed. For areas with a high degree of soiling. The system may be supplemented with wall-mounted sound absorbers.

System description:

- Hygiene Advance™ Baffle is encapsulated in a smooth high-performance film that is dirt, grease and chemical resistant, and impervious to particles and water.
- Connect T24 C3 lacquered galvanised steel grid, corrosion class C3 (EN ISO 12944-2).

Cleaning:

Withstands daily cleaning with water at high or low pressure and commonly used detergents and disinfectants.

Ecophon Hygiene Foodtec™ Baffle C3

A system of vertical baffles, for rooms where a wall to wall ceiling cannot be installed. For areas in the food industry where the baffles need to be wet cleanable. The system may be supplemented with wall-mounted sound absorbers.

System description:

- Hygiene Foodtec™ Baffle, with the painted Akutex™ HS surface on both sides to give stain protection. Painted edges.
- Connect T24 C3 lacquered galvanised steel grid, corrosion class C3 (EN ISO 12944-2).

Cleaning:

Withstands cleaning with water at high or low pressure twice a year and wet wiping once a week with commonly used detergents and disinfectants.

Ceiling System Baffle System Wall System

Ecophon Hygiene Advance™ Protection C3

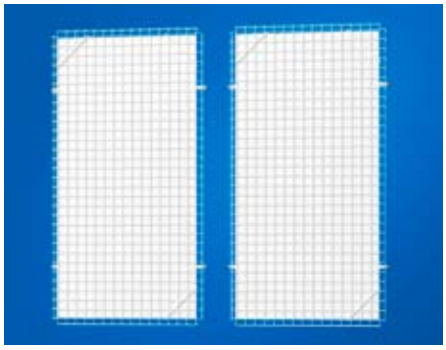
The wall mounted sound absorber is protected by a cage. It is designed for use in areas of high humidity with a high risk of soiling.

System description:

- Hygiene Advance™ Wall panel is encapsulated in a smooth high-performance film that is dirt, grease and chemical resistant, and impervious to particles and water.
- Connect Protection cage C3 is a protective cage of coated steel wire with square mesh, corrosion class C3 (EN ISO 12944-2).

Cleaning:

Withstands daily cleaning with water at high or low pressure and commonly used detergents and disinfectants.



Hygiene Advance Protection C3 system

Detail of Hygiene Foodtec Protection C3

Ecophon Hygiene Foodtec™ Protection C3

The wall mounted sound absorber is protected by a cage. It is designed for use in areas of high humidity with a high risk of soiling.

System description:

- Hygiene Foodtec™ Wall panel, with the painted Akutex™ HS surface on both sides to give stain protection. Painted edges.
- Connect Protection cage C3 is a protective cage of coated steel wire with square mesh, corrosion class C3 (EN ISO 12944-2).

Cleaning:

Withstands cleaning with water at high or low pressure twice a year and wet wiping once a week with commonly used detergents and disinfectants.

Ceiling System Baffle System Wall System

Photo: H.G. Esch Photography

All products and systems installed must meet standards and requirements according to the specific conditions in the premises.

Detail of Hygiene Advance Wall C3

Hygiene Advance Wall C3 system

Detail of Hygiene Foodtec Wall C3

Ecophon Hygiene Advance™ Wall C3

A wall mounted sound absorber for use at high level (away from the risk of impact) in rooms where there is a high risk of soiling.

System description:

- Hygiene Advance™ Wall panel is encapsulated in a smooth high-performance film that is dirt, grease and chemical resistant, and impervious to particles and water.
- Connect Wall fixing C3, wall mounting fixture in stainless steel, corrosion class C3 (EN ISO 12944-2).

Cleaning:

Withstands daily cleaning with water at high or low pressure and with commonly used detergents and disinfectants.

Ecophon Hygiene Foodtec™ Wall C3

A wall mounted sound absorber for use at high level (away from the risk of impact) For areas in the food industry where the system needs to be wet cleaned.

System description:

- Hygiene Foodtec™ Wall panel, with the painted Akutex™ HS surface on both sides to give stain protection. Painted edges.
- Connect Wall fixing C3, wall mounting fixture in stainless steel, corrosion class C3 (EN ISO 12944-2).

Cleaning:

Withstands cleaning with water at high or low pressure twice a year and wet wiping once a week with commonly used detergents and disinfectants.

Hygiene Lavanda T5 C3 installed in an edge A system

Lighting

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 with edge A ceiling systems such as Advance A and Foodtec A.

Ceiling System Baffle System Wall System

Photo: H.G. Esch Photography

Contact us

for an optimal solution

Many factors determine which system best meets the requirements and expectations for a specific room. These factors include impact from air and operations, regulations, safety aspects, cleaning requirements, special conditions etc. All these factors must be taken into account in an evaluation process. This is best done in consultation with Ecophon's representative to satisfy the specific needs of each individual industrial facility. Our aim is to suggest the optimum solution for the company and its employees.

Read more on our website

Visit our website to find out more about Ecophon and our acoustic solutions for the food industry. You will also find more technical information about our systems and a description of the standards we follow and the tests we have performed.

www.ecophon.com

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A SOUND EFFECT ON PEOPLE

Ecophon dates back to 1958, when the first sound absorbers from glass wool were produced in Sweden to improve the acoustic working environment. Today the company is a global supplier of acoustic systems that contribute to good room acoustics and a healthy indoor environment, with the focus on offices, education, healthcare and industrial manufacturing premises. Ecophon is part of the Saint-Gobain Group and has sales units and distributors in many countries.

Ecophon's efforts are guided by a vision of earning global leadership in acoustic ceiling and wall absorber systems by providing superior end user value. Ecophon maintains an ongoing dialogue with government agencies, working environment organisations and research institutes, and is involved in formulating national standards in the field of room acoustics where Ecophon contributes to a better working environment wherever people work and communicate.

www.ecophon.com

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