

# Noise reduction

in catering kitchens



**Ecophon**<sup>®</sup>

A SOUND EFFECT ON PEOPLE



Photo: Thierry Le Gwyader

A good sound environment creates better conditions for work that needs a high level of concentration.

### **Room Acoustic Comfort™ in kitchen premises**

Room Acoustic Comfort™ is Ecophon's concept for room acoustic design, this puts emphasis on people, their activities and the room. The acoustic descriptors defined are reverberation, speech clarity, auditory strength and spatial decay. The aim is to achieve the optimum values 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 kitchen premises. In practice, this means reducing the auditory strength and limiting reverberation in the 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 or on walls.



Photo: Patrick Sablin

This publication shows products from Ecophon's product range and those of other suppliers. The specifications are intended to provide a general guide to which product will be most suitable for the preferences indicated. Technical data is based on results obtained under typical testing conditions or from 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](http://www.ecophon.com) or contact your nearest Ecophon representative. © Ecophon Group 2010. Idea and layout: Navigator. Printer: Skånetryck. Cover: Åke E:son Lindman. Technical photographs: Studioe.

# Sound is an important part of the working environment

## Noise- and Vibration Safety Regulation



Two European guidelines regarding noise (2003/10/EC) and vibrations (2002/44/EC).

The responsibility to establish and execute a noise reducing program now already exists at a exposition level higher then 85 dB(A).

$L_{EX,8h} > 85 \text{ dB(A)}$  or  $L_{pC,peak} > 137 \text{ dB(C)}$

First action to reach safety protection should be through providing technical solutions (devices with low noise emissions, room acoustic treatment), and earliest after that through organisation and personal actions (e.g. hearing protection).

Modern catering kitchens contain equipment and processes that generate disturbing noise. The work pace is high with many people working at once. In addition, all the surfaces are hard and smooth, so sound bounces off them and spreads around the room. Disturbing noise causes fatigue, stress and communication problems. Eliminating as much of this noise as possible has many benefits. Above all, it creates a calm, pleasant atmosphere, making employees more alert and focused and providing better conditions for higher quality work. It also facilitates communication, which not only raises efficiency but also improves safety when important messages need to be heard and understood. However, the sound-absorbing systems installed must not impact negatively on hygiene. Ecophon Hygiene System offers solutions for this particular combination of needs.

### 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 the room
- Install sound absorbers in ceilings or on walls

### For the eye, the ear and the mind

Ecophon specialises in developing sound-absorbing solutions for all environments where people work and communicate. Many years 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 environments

## with strict hygiene requirements

A modern kitchen is a challenging working environment. Ecophon Hygiene Systems offer solutions for any specific requirements that should be met.

### **The importance of a controlled environment**

In a commercial kitchen, certain aspects are vital to a company's success. The environment must be controlled to ensure high quality throughout the production chain. Bacteria growth and particle emissions can cause major problems, leading to downtime or a risk of substandard meals reaching the consumer. The consequences can be disastrous in both practical and economic terms, also in the form of negative publicity.

### **Humidity tests and microbiological tests**

Ecophon Hygiene acoustic ceiling systems are tested according to the methods and instructions in ISO 4611, and must withstand a permanent relative air humidity of up to 95% at 30°C without warping, defecting, sagging or delaminating. These values may be temporarily exceeded without impairing the products or their function, for example when being wet cleaned. Ecophon does not present higher values than 95% RH at 30°C due to the technical and physical limitations of the test methods. For further information please go to [www.ecophon.co.uk](http://www.ecophon.co.uk) To minimise the risk of corrosion, mould and/or changes in product appearance, the relative moisture level should only exceed 70-80% temporarily.

The risk of mould and bacteria is an important consideration in environments with high relative humidity. Ecophon products themselves do not serve as a natural breeding medium for mould and bacteria. The risk of micro-organism growth can be significantly reduced by keeping the sound absorbers clean and observing critical moisture and temperature values.

Ecophon acoustic panels are tested for microbiological growth according to ASTM standard G 21-96 at the Swedish University of Agricultural Science (SLU). This standard grades the products in 6 classes (0-5). All tested Ecophon acoustic panels were in class 0, meaning that they are unaffected by microbiological growth. Ecophon Hygiene acoustic panels were not found to serve as a breeding medium for micro-organisms when tested by TNO Food and Nutrition Research in the Netherlands according to standard BS 3900.

The foil used for Ecophon Hygiene Advance™ cannot be penetrated by water or steam.

### **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) 853/2004 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.

# The most proven systems

in the market

## Product facts

Inert glass wool is used as a raw material 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 microorganisms.

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

Ecophon has 30 years of experience of developing acoustic solutions that meet stringent cleanliness requirements.

## Multi-step evaluation process

Different rooms in a kitchen 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 and external requirements, standards and regulations.

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

- Air humidity
- Temperature
- Type of detergents and/or disinfectants and their frequency of use
- Corrosion risk
- 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 kitchen premises must withstand the established cleaning methods. The most widely used detergents 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 kitchen 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 cleanability perspective. Ecophon has developed sound-absorbing systems that meet prevailing hygiene requirements for most types of room in the kitchen areas.



Recommended  
by the  
Swedish Asthma  
and Allergy Association

# Planning the interior

## for cleanability and maintenance

*Ecophon's Hygiene systems can be wet wiped and washed at high or low pressure, dependant upon the type of sound absorber and the ceiling design. To achieve an acoustic ceiling with a long life and low maintenance cost the exposed areas must be dirt- and dust-repellent and easy to keep clean. Ecophon Hygiene meets these criteria.*

All the systems in the Ecophon Hygiene family can be cleaned with the most widely used cleaning methods. In addition, certain systems designed for specific environments withstand the cleaning methods required for the activities conducted in those environments. Almost all Ecophon Hygiene systems are demountable, and some can be cleaned on both sides.



### Wet wiping



Wet wiping can be done with a soft sponge or microfibre cloth and mild detergent. All Ecophon Hygiene systems can be wet wiped once a week. Hygiene Advance can be wet wiped daily.

### High- and low-pressure cleaning



Ecophon Hygiene with Ecophon Connect C3 grid is recommended for rooms that require regular cleaning or cleaning with foam and low/high-pressure cleaning. We also have grids available in corrosion class C4 that withstand atmospheres with a high salt content and highly corrosive disinfectants.

### Accessibility



When planning for a suspended ceiling, it is important to consider if or how often access to the ceiling void is required. In order for the ceiling tiles to remain in place during cleaning they often need to be fixed to the grid using clips, which makes them non demountable. Where access to the void is needed one can choose to install Connect Inspection hatches or Connect Demo clips. If one chooses to demount the ceiling during cleaning clips are not needed.

# Application guide

## for kitchen areas



### Illuminance

● 200 Lux   
 ● 300 Lux   
 ● 500 Lux

Ceiling System

Wall System

Lighting recommendations are according to European standard EN 12464-1.

Area	System performance	System
Frying and boiling	Dirt, grease and chemical resistant, daily high-pressure washing	Hygiene Advance™ A C3 <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>
Frying and boiling	Dirt, grease and chemical resistant, daily high-pressure washing, impact resistant	Hygiene Advance™ Protection C3 <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>
Frying and boiling	Dirt, grease and chemical resistant, daily high-pressure washing	Hygiene Advance™ Wall C3 <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>
Preparation, storage, plating,	Stain protected, high pressure washing 2/year	Hygiene Foodtec™ A C3 <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>
Preparation, storage, plating,	Stain protected, high pressure washing 2/year, impact resistant	Hygiene Foodtec™ Protection C3 <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>
Preparation, storage, plating,	Stain protected, high pressure washing 2/year	Hygiene Foodtec™ Wall C3 <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>
Dish	Dirt, grease and chemical resistant, daily high pressure washing, constant high humidity, stainless steel*	Hygiene Advance™ A C4 <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>
Restaurant	Meets the strictest demands of form and function	Focus™ family <span style="border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span>

\* acid-proof high performance austenitic stainless steel

# Ecophon Hygiene System

**for kitchens**

We supplied our first sound absorbers to catering kitchens back in the late 1980s. We have evolved the systems since then, and today offer several variants depending on the application. We provide ceiling systems in addition to systems for mounting on walls or at specific points. We have called this range Ecophon Hygiene Foodtec™, however, for constantly humid environments or environments requiring daily cleaning, we recommend Ecophon Hygiene Advance™.

## Ecophon Hygiene Advance™ A C4



Ceilings for environments where the risk of soiling is extremely high, so that the ceiling needs frequent cleaning. The system is suitable for areas with constant high air humidity and a 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 low or high pressure using strong detergents and disinfectants, e.g. peracetic acid.



Hygiene Advance A C4 system

## Ecophon Hygiene Advance™ A C3



Ceilings for environments with a high risk of soiling, for example when the air has a high grease content or where the surface risks being 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 low or high pressure and commonly used detergents and disinfectants.



Hygiene Advance A tile



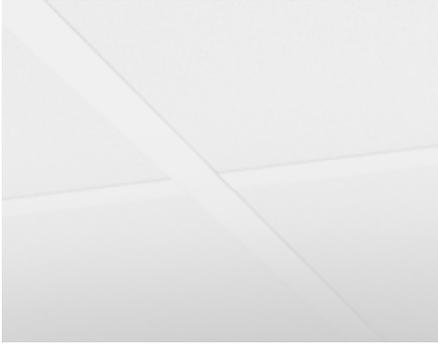
Hygiene Advance A C3 system



Ceiling System



Wall System



Hygiene Foodtec A C3 system

### Ecophon Hygiene Foodtec™ A C3



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

#### System description:

- Hygiene Foodtec™ A tile, with the painted Akutex™ HS surface on both sides 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 low or high pressure twice a year and wet wiping once a week with commonly used detergents and disinfectants.



Hygiene Foodtec A C3 section with Connect Hygiene clip 20

### Ecophon Hygiene Advance™ Protection C3



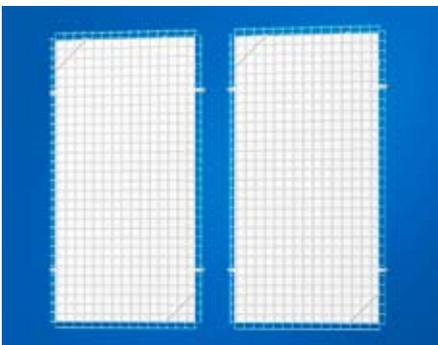
The wall mounted sound absorber is protected by a cage. It is designed for use in areas of high humidity with a high risk of soiling.

#### 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 with commonly used detergents and disinfectants.



Hygiene Advance Protection C3 system

### 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.



Detail of Hygiene Foodtec Protection 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.



Detail of Hygiene Advance Wall C3

### 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 Advance Wall C3 system



Detail of Hygiene Foodtec Wall C3

### Lighting

Ecophon Hygiene Lavanda™ T5 C3 is a flush-mounted luminaire specially 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.



Hygiene Lavanda T5 C3 installed in an edge A system



# Contact us

## for an optimal solution



Less noise creates a calm, pleasant atmosphere, and increases the possibility to exchange information.

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

### **Read more on our website**

Visit our website to read more about Ecophon and our acoustic solutions for catering kitchens. 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.co.uk](http://www.ecophon.co.uk)**

# Ecophon®

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.co.uk](http://www.ecophon.co.uk)*

