



Solutions for Halal

F&B Industry &
Commercial Kitchen

Hygiene**First** H₂ 







Note

Any more questions?
askACO – your local
ACO team is proud to offer
experience and service

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ACO. we care for water

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For ACO Kitchen
Drainage Solution,
scan the code



ACO. we care for water

ACO is a Water-Tech company that protects water. Building on our global drainage expertise that protects people from water, we increasingly see our mission as also protecting water from people.

With the ACO WaterCycle, ACO provides systems that collect and channel, clean, retain and ultimately reuse water. In this way, ACO contributes to the preservation of clean groundwater as a vital resource, and makes a contribution to tomorrow's world. In its Agenda 2030, the UN global community set the improvement of water quality as one of 17 sustainable development goals.

Intelligent drainage systems from ACO increasingly use smart technology to ensure that rainwater and wastewater are drained, or temporarily stored. With innovative separation and filter technology, we prevent water contamination by pollutants such as fat and grease, fuels, heavy metals and microplastics.

Today, ACO goes one step further: we accept the challenge of reusing water, and thus establishing a resource-saving cycle. For all products and systems, ACO attaches great importance to durability, reusability and a low carbon footprint. The pursuit of sustainability is an ongoing process that we strive to meet every day.

The ACO Group is a global family business that is one of the world market leaders in the Water-Tech segment. Founded in Schleswig-Holstein in 1946, it operates as a transnational network in over 50 countries. Worldwide, ACO is characterised by a high level of decentralised ownership, and explicit regional market proximity.

www.aco.com

Owners

Iver and Hans-Julius Ahlmann



Headquarters of the ACO Group

in Rendsburg/Büdelndorf



5,300

Employees in more than 50 countries
(Europe, North and South America,
Asia, Australia, Africa)

40

production sites
in 20 countries

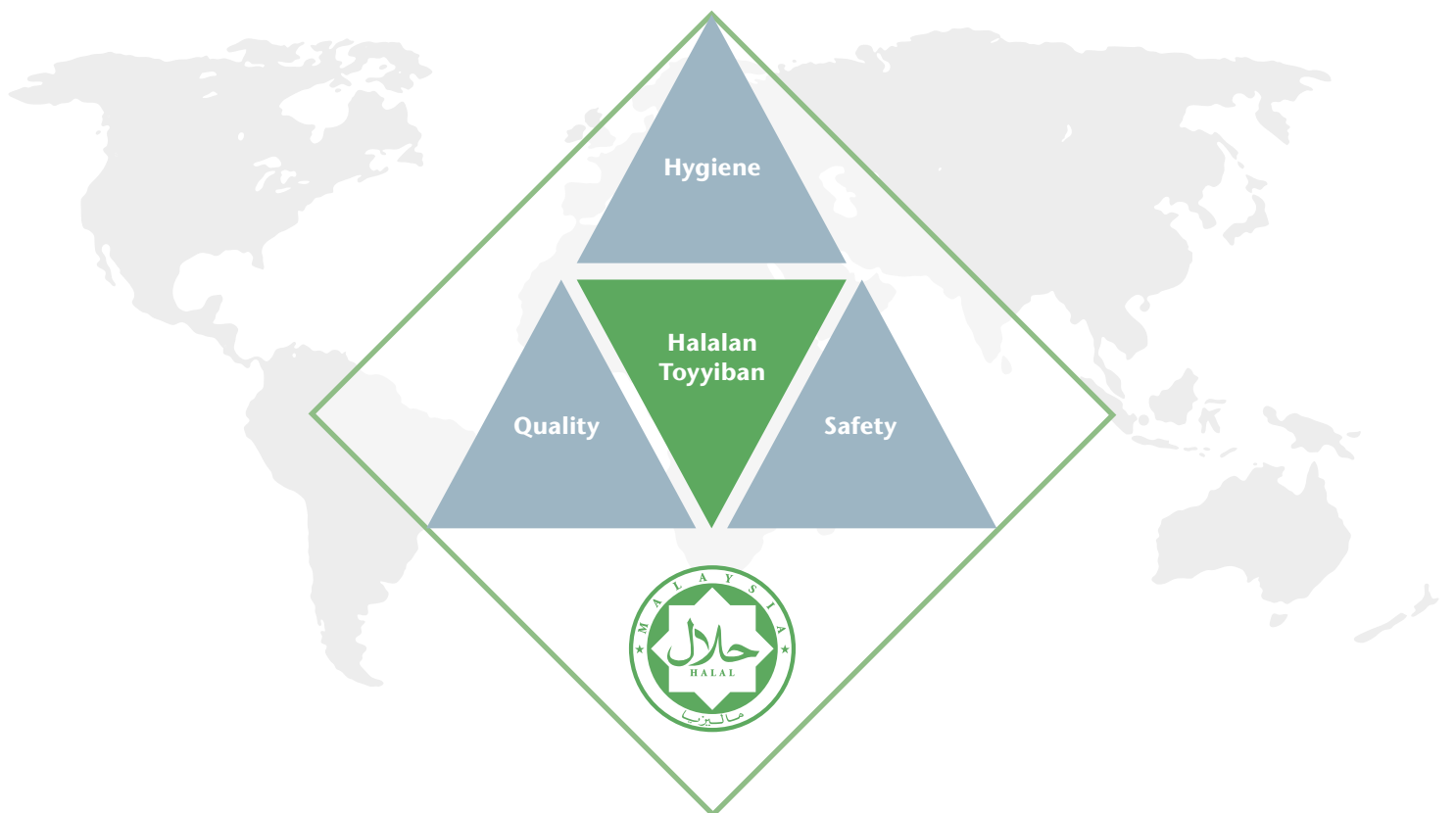
ACO. Hygienic Solution for Halal Production and Kitchen

ACO is the global leader in hygienic drainage solutions. We are committed to addressing future needs and to raising industry standards. In the food sector, ACO addresses the changes in food consumption preferences and the increasing importance placed on hygiene and hygienic design.

Our solutions tackle two of the food industry's biggest concerns: reducing the risk of food contamination and optimizing cleaning cost. We incorporate hygienic design principles that are normally reserved for food contact equipment (BS: EN 1672) to deliver full hygienic solution because we believe that hygienic performance is essential.

Our complete portfolio allows us to safely control water as it passes along the system to ensure it can be ecologically and economically reused in a viable way at the same time championing ESG. As we are committed to raising industry standards, ACO integrates HygieneFirst philosophy into Halal operation(H2O) which adheres to Halalan Toyyib in the aspect of hygiene practice.

Halal			Toyyiban			
Halal Sources	Avoid from Haram Sources	Avoid Syubhah	Hygiene Practice	Nutrition of the Food	Halal Management	Halal Control
Halal from the aspects of animal, plant and chemical.	Jauhi Haram sources such as porcine, carcasses, and all other najis.	Avoid the mixing of halal and haram.	Prioritize hygiene practice in the production process of the food.	Make sure that the food is nutritious and do not give side effects.	Create a team that will make sure that there will be no syubhah and haram sources.	Create an inner halal organisation for supervision.



Healthy Business starts with healthy wastewater management

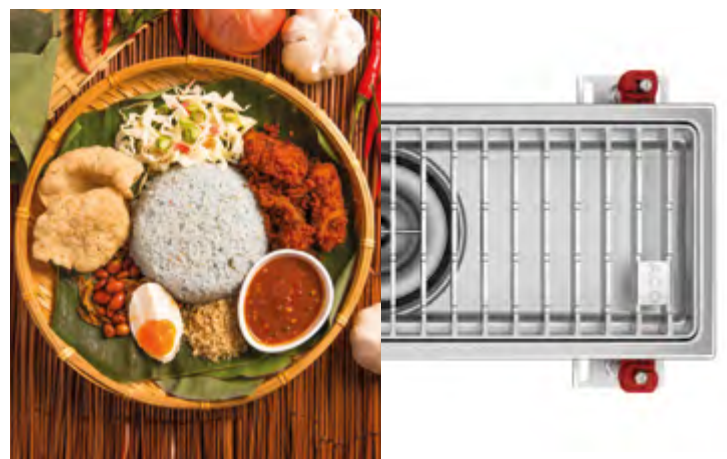
A well designed kitchen which has effective wastewater system promotes ESG methodology (Environment, Social, Governance). This will benefit its customer, owners, employees and the environment in general.

Grease management

The wastewater generated by commercial kitchens is rich in fats, oils and grease (FOG) and if this is discharged down the drain, it can have a negative effect on your business.

The industry standard is to protect the sewer network but ACO goes further and adopts a two-phase approach which also protects the building itself.

ACO's high performance grease separators and grease removal units are specifically designed to help prevent the build-up of FOG in kitchen drainage and ultimately prevent fatbergs from forming in the main sewer network.





Water Management for the Halal Food & Beverage Industry

The ACO system chain provides integrated water management solutions that comply with Halal requirements, meeting the current and future needs of the Halal Food & Beverage Industry.

In the Halal food production context, where cleanliness and safety are of utmost importance, it is essential that every facility involved in processing Halal food is equipped with sophisticated drainage concepts that meet Halal standards.

ACO achieves this by harnessing the power of connected water systems, adopting a more holistic approach to water management, specifically tailored for Halal food production to address unique challenges. Our integrated system solutions prioritize optimal Halal food safety, people, and plant protection, as well as water preservation concerns.

Every ACO product plays a vital role within the ACO optimal system chain, ensuring that water is safely controlled throughout its journey as it passes along the chain. This process guarantees that water used in Halal food production can be handled in the most viable, hygienic, economical, and ecologically responsible way, adhering to Halal principles.





Industrial Halal food & beverage production

8 — ACO and the Power of Hygienic Design for Halal Food Production

Cleanability research findings conducted by the renowned Fraunhofer Institute IVW Dresden in 2016 demonstrated that ACO's hygienically designed channel dramatically improves cleanability, making it ideal for Halal food production.

The tests showed that the ACO hygienic channel can be efficiently cleaned without additional mechanical cleaning steps, taking approximately 8 minutes of cleaning time with 0% residual soiling. This level of cleanliness aligns perfectly with the strict hygiene standards required for Halal food processing. In contrast, the cleaning of the non-hygienic channel required considerably

more effort, and it was not possible to completely clean it within the tested cleaning procedure time, making it unsuitable for Halal food production facilities.

Adopting ACO's hygienically designed channels ultimately helps Halal food and beverage manufacturing companies to enhance the safety of their

facilities, ensure the quality of their Halal products, and reduce cleaning costs and time.

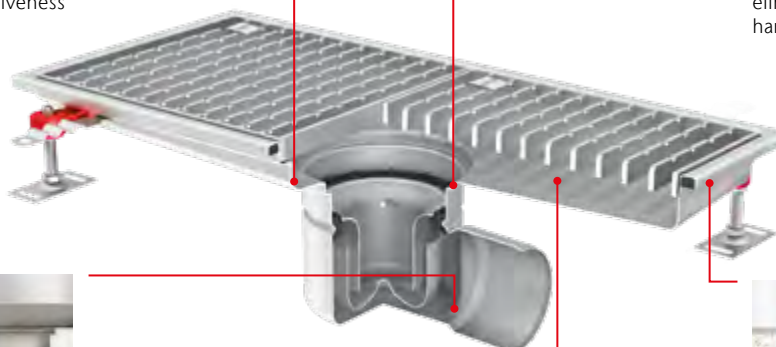
Associated benefits include hygienic design, economic time and cost savings, and facility safety, all of which are crucial aspects in Halal food production.



All **internal radii** equal or larger than 3 mm which greatly increases cleaning effectiveness



Hygienic joints: deep-drawn body ensures smooth contours eliminating crevices that can harbour dangerous bacteria



Dry sump design, completely drainable - eliminating stagnant water, smells, microbial growth and potential chemical hazards.



Cleaning performance



Edge in-fill ensures stable and durable transition between the gully and surrounding floor and helps to minimise the risk of floor cracks which could harbour microorganism



Commercial Halal kitchens

We believe that creating a healthy halal commercial kitchen starts with the specification of an effective wastewater management system which aids cleaning, optimises productivity and helps create a safe kitchen environment.

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Floor Drainage

ACO's product portfolio has been developed to provide an effective solution which can be tailored to suit individual project-specific requirements. System components are selected to suit the composition of the flooring being used, maintenance requirements and budget.

Commercial kitchens require drainage systems that optimize cleanability, durability and flow rate to minimize operational costs, improve health and safety, and help ensure food safety.



ACO Grease Capture

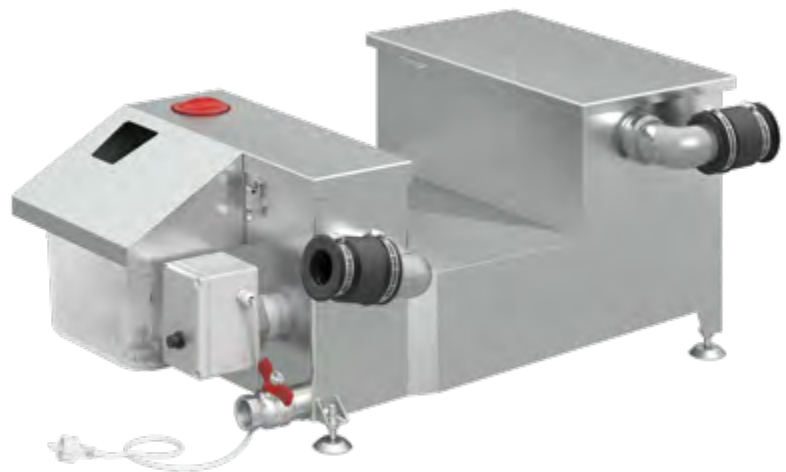
Commercial kitchens unintentionally dispose of food waste down the drain when using sinks, cleaning dishes or equipment. One of the main wastes are fats, oils and greases (FOG) used or produced during cooking, which frequently solidify in drains causing them to block.

If external sewers or internal draining become blocked then wastewater can't leave the kitchen resulting in foul smells and flooding. Grease separators remove FOG from wastewater, keeping the drains flowing.

Due to its compact design it can be used in food service establishments where space is limited and a larger grease separator cannot be installed.

Product benefits

- Automatically removes fats, oils and greases from wastewater
- High Maintenance Comfort
- Small size unit fits under kitchen sink
- Installed directly at the source of contamination.
- Protects drainage system in the building



The wastewater generated by commercial kitchens is rich in fats, oils and grease (FOG) and if this is discharged down the drain, it can have a negative effect on your business.

The industry standard is to protect the sewer network but ACO goes further and adopts a two-phase approach which also protects the building itself. It supports in the longevity of the building's piping systems, decreasing the potential for blockage and degradation.

ACO's high performance grease separators and grease removal units are specifically designed to help prevent the build-up of FOG in kitchen drainage and ultimately prevent fatbergs from forming in the main sewer network.

For ACO grease capture dimensions and drawings, scan the code





Masjid al-Haram of Holy Makkah

Saudi Arabia

In 2011, Masjid al-Haram of Holy Makkah underwent its Third Saudi expansion under King Abdullah's government, with plans to accommodate 1.2 million worshippers and increase its capacity to over 2.5 million. ACO, a world leader in water drainage solutions, was entrusted by the project's stakeholders to design and implement drainage solutions that met rigorous standards of safety, purity, durability, and sustainability. ACO rose to the challenge, employing their ACO HygieneFirst philosophy, and successfully installed their water drainage systems throughout the entire Masjid al-Haram, contributing to its enhanced functionality and impeccable hygienic standards.

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During the project, ACO confronted several critical challenges, all of which demanded prompt and effective solutions:



The accumulation of rotten food and waste in the drainage system, both before and after floor cleaning, posed significant health risks.

Solutions:

ACO provided an effective solution by introducing a hygienic design for their drainage systems. This innovative approach enabled fast and precise cleaning, ensuring top hygiene standards for all visitors and worshippers at Masjid al-Haram.



The persistent foul odour emanating from the drainage added to the discomfort experienced by visitors and worshippers.

Solutions:

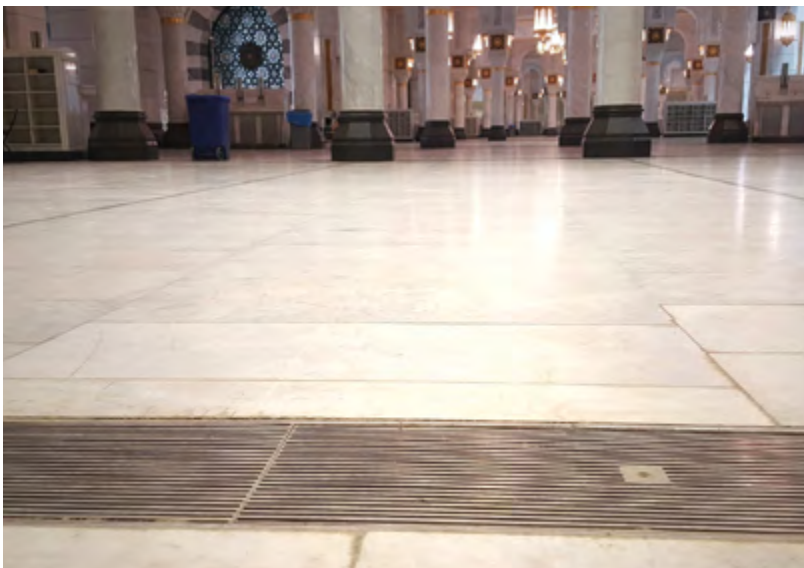
ACO provided an effective solution by supplying their ACO Foul Air Trap. This innovative product is specifically designed to prevent odors from escaping the sewage system. Additionally, it acts as a backflow preventer while remaining fully drainable at the same time, ensuring a more pleasant and odor-free environment within Masjid al-Haram complex.



Maintenance and cleaning issues also arose, requiring regular drainage changes due to reduced durability and recurrent leakage problems.

Solutions:

ACO's hygienic systems are specifically designed using stainless steel and incorporate the latest manufacturing technologies, making them exceptionally durable compared to other materials such as steel, plastic, or marble. As a result, ACO's drainage solutions provided a long-lasting and reliable option, minimizing the need for regular drainage changes and effectively resolving the recurrent leakage problems.



ACO, a global leader in hygienic stainless steel drainage solutions, exemplifies unparalleled readiness for monumental challenges, as demonstrated in their crucial role in the expansion of Masjid al-Haram of Holy Makkah. With innovative designs ensuring top hygiene, comfort, and durability, ACO showcases its commitment to excellence and capability to conquer the most prestigious projects worldwide.



Product Overview

ACO offers sustainable, integrated drainage systems designed to protect your business and the environment.

Our aim is to constantly improve every aspect of safety, hygiene and functional performance.

We believe our systems and services are truly unique, delivering unparalleled benefits to everyone involved in project delivery or subsequent operation.



ACO Hygienic Gully

The ACO hygienic gully range incorporates hygienic design principles to ensure the optimum hygienic performance. ACO hygienic gullies are available in three body sizes to cater for different flow rates and construction requirements including shallow construction depths and applications where preventative fire measures are required. ACO hygienic gullies are certified according to EN 1253.



ACO Modular Slot Channel

Our modular range with standardised widths provides a most versatile system with off-the-shelf availability. Accessories such as corner units and a choice of grating make this system perfect for a wide range of applications. Certified to EN 1433, CE marked.



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ACO Hygienic Box Channel

The ACO hygienic box channel range incorporates hygienic principles to ensure the optimum hygienic performance. The hygienic box channel range is ideal for applications where high standards of hygiene are required as they are capable of handling large volumes of fluid. ACO hygienic box channels are certified according to EN 1253.



ACO Pipe

A stainless steel push-fit pipe system designed for grey or black water. ACO pipe offers 40+ years product life thanks to the use of stainless steel. Easy installation and handling on site is ensured by push-fit assembly. ACO pipe is more hygienic, robust and durable when compared to plastic pipes systems for gravity and vacuum drainage.





ACO Grease Capture

ACO Grease Capture is designed for food service establishments where space is limited and a larger grease separator cannot be installed. Removing FOG before it enters the drainage system and protects against blockages. Certified to EN 1433, CE marked.



ACO Grease Separator, Below and Above Ground

A comprehensive range addresses all size requirements within the EN 1825 specification, with performance at or beyond the Standard's requirement. Certified to EN 1825, CE marked. Separators are tested and certified according to EN 1825 and are CE marked.



ACO Stormbrix

is a unique and patented plastic geocellular storm water management system. Designed for surface water infiltration and storage, its versatility allows it to be used in applications across all construction environments as a standalone solution or as part of an integrated sustainable drainage (SUDS) scheme.



ACO Qmax

has been developed to satisfy the demand for a versatile, high capacity slot drainage system for a wide range of applications involving small to large catchment areas to any load class. The system is specifically designed to form an integral part of any modern, sustainable surface water management solution requiring effective storage and attenuation while eliminating carry over in storm water conditions.



ACO Stormclean

ACO presents the ACO Stormclean stormwater filter as a compact solution to advanced stormwater treatment needs. Due to its small footprint, it is an attractive alternative to large above ground soil filters when space is at a premium. ACO Stormclean combines four crucial processes – sedimentation, filtration, adsorption and precipitation – to ensure bound and dissolved pollutant are removed from stormwater.



ACO Monoblock PD/RD

The innovative drainage system which unique monocast construction guarantees extremely high levels of safety and stability in all transport surface drainage applications. Monoblock is poured in polymer concrete as a single piece: no lines of weakness along adhesive joints, producing a much tougher and safer product.



Every ACO product
supports the ACO WaterCycle



- Floor drainage
- Bathroom drainage
- Parking deck drainage
- Roof drainage
- Balcony and terrace drainage
- Pipe systems
- Wall protection
- Grease separators
- Starch separators
- Light oil separators
- Process technology
- Backflow systems
- Lifting stations
- Pumping stations

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