Aqwise
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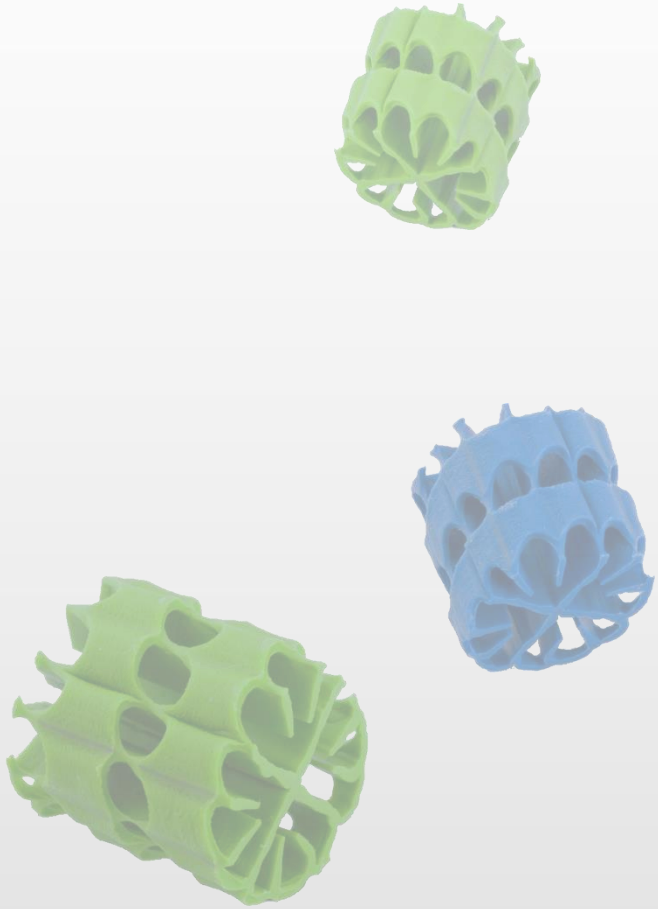
Advanced Solutions for Wastewater Treatment

Industrial Sector
Food & Beverage



About Aqwise

Aqwise is an industry leader in advanced bio-film based technologies for water and wastewater treatment – Municipal and Industrial

- Expertise
  - Strong biological process know-how
  - Multi-disciplinary expert staff
- Global Reach, Local Presence
  - Over 450 installations in > 35 countries
  - World-wide regional offices, sales representatives and partners

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Global Solution Provider

Aqwise is a trusted solution provider for municipal and industrial customers

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Serving Tier-one Clients

Aqwise generates repeat business from global strategic clients

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Supporting Global Brands

Helping to reduce the environmental impact of world renowned brands

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Strong Customer Base

The Food & Beverage Industries

Beverages

Aqwise has specific experience with diverse beverages applications

Soft drinks

Juice

Breweries & Distilleries

Energy/Sport drinks

Winery

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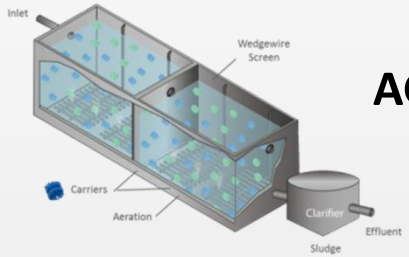
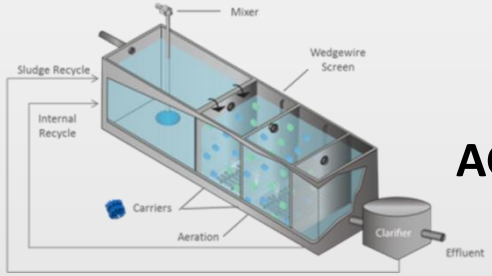
The Aqwise Technology

Diverse Biological Processes

AGAR® Aerobic Processes

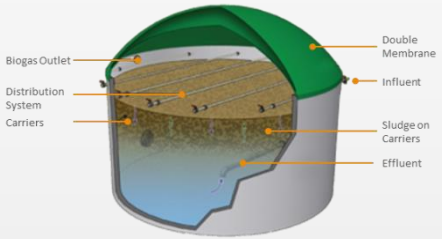


AGAR® MBBR

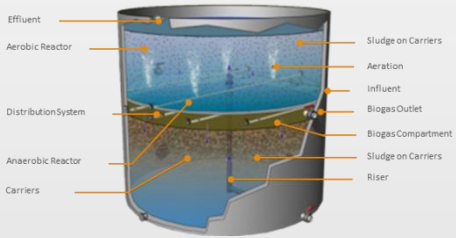


AGAR® IFAS

DACS® Anaerobic Processes



DACS®



DACS® DANA

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Innovation That Works

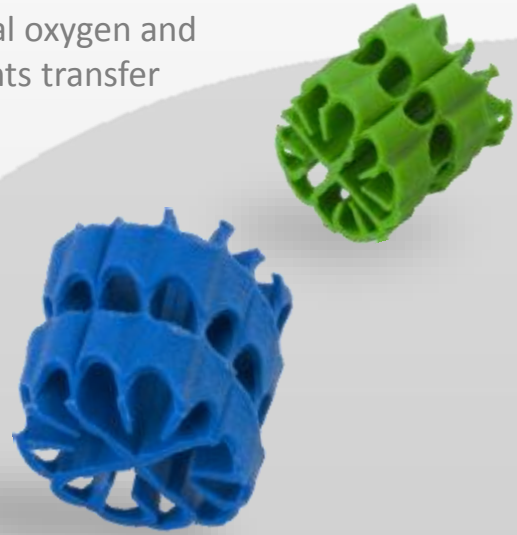
Aqwise Biomass Carriers protect biofilm against abrasion and ensure mass transfer efficiency

Recycled, high-density polyethylene

Highly open external design

Applicable for various biological processes

Optimal oxygen and nutrients transfer



> 650 m^2/m^3

Effective surface area

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Customer Benefits

SMALL FOOTPRINT

Suitable for both new applications and existing plant upgrades.

DURBLE & STABLE

Highly resistant to hydraulic shock loads with short recovery time after toxic loads.

COST EFFICIENT

Requires minimal civil works, short project life cycle and lower CAPEX/OPEX.

LOW MAINTENANCE

Simple maintenance and low operational costs.

SCALABLE & FLEXIBLE

Smooth upgrade or gradual expansion based on just-in-time investment.

ECO FRIENDLY

Recycled materials, less land usage, no scenery obstruction and less sludge.

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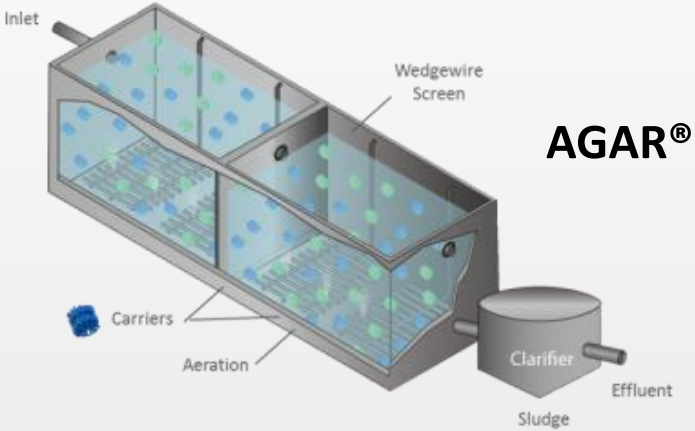
Aqwise Technology for the F&B industry

Versatile Configurations for the F&B Sector

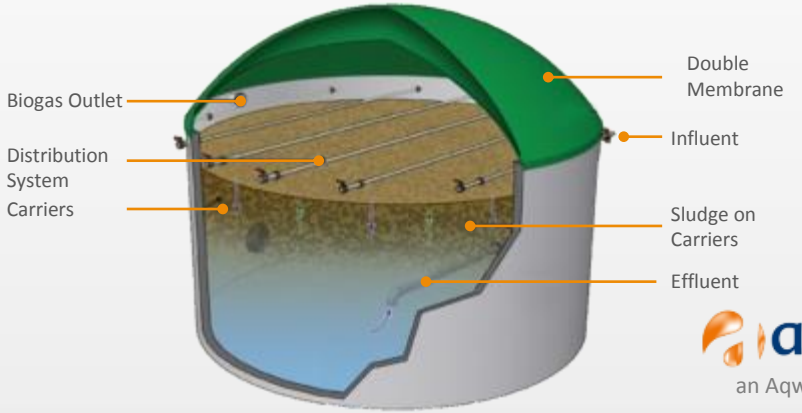
AGAR® Aerobic Processes



AGAR® MBBR

- Simple, single-through process
- Reduces soluble pollutants with minimal process complexity
- Requires a significantly smaller footprint

DACS® Anaerobic Processes



DACS®

aqana
an Aqwise company

- Suitable for heavily loaded industrial applications
- Very fast Return on Investment through energy generation
- Unique retrofit capabilities

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Case Studies

Case Study: Coca Cola, Poland

Coca Cola Factory Poland, 2014

HIGHLIGHTS

- Customer: Coca Cola
- Location: Poland
- Capacity: 1,200 m^3/d

REQUIREMENTS

- Replace existing submerged bio-beds, before activated sludge process (improve performance)
- Very limited footprint

SOLUTION

- New AGAR® MBBR tanks, on same footprint as existing bio-bed vessels
- Effluent requirement: COD / BOD / TSS < 125 / 20 / 30 mg/l, respectively

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Case Study: Törley, Hungary

Winery, Hungary, 2012

HIGHLIGHTS

- Customer: Törley Winery
- Location: Hungary, Budapest
- Capacity: 200/350 m^3/d - low / high seasons

REQUIREMENTS

- Significant seasonal variations in wastewater loads
- Very limited space available to construct the WWTP

SOLUTION

- AGAR® MBBR 2 stages configuration - with both stages in operation at high season and a single stage in operation at low season
- Effluent requirement: discharge to the environment

Case Study: Friesland Campina, NL

Dairy Factory, The Netherlands, 2009

HIGHLIGHTS

- Customer: Friesland Campina, dairy products
- Location: The Netherlands
- Capacity: 1,440 m^3/d

REQUIREMENTS

- Fluctuation in wastewater composition
- Very limited footprint

SOLUTION

- AGAR® MBBR-DAF configuration by using an existing tank
- Effluent requirement: Discharge to sewage, at 70% COD removal

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Case Study: TAB Koncentraty, Poland

HIGHLIGHTS

- Customer: TAB Koncentraty
- Location: Poland
- Capacity: 1,000 m^3/d

REQUIREMENTS

- Treatment of high COD levels – from apple concentrate factory

SOLUTION

- Two DACS® reactors followed by a two-stage AGAR® MBBR
- Treating variable loads in minimal footprint

TAB Apple Concentration Factory, Poland

Case Study: ENGEL food, Germany

HIGHLIGHTS

- Customer: ENGEL food
- Location: Germany
- Capacity: 2200 mc/day, max 12 ton COD/d

REQUIREMENTS

- Treatment of variable COD levels – from potato product factory

SOLUTION

- Four DANA® reactors / each reactor equipped with bottom DACS® & top stage AGAR® MBBR
- Treating variable loads in minimal footprint

ENGEL potato food Factory, Germany

Case Study: ZUMOS food, Spain

HIGHLIGHTS

- Customer: SUEZ/AQUALOGY – ZUMOS food
- Location: Spain
- Capacity: 3000 mc/day, max 40 ton COD/d

REQUIREMENTS

- Treatment of high COD levels – from orange concentrate juice product factory

SOLUTION

- One DACS® reactor, biogas production up to 8000 mc/day
- Treating seasonally BOD loads most economical way

ZUVAMESA orange food Factory, Spain

Case Study: Lowicz, PL

HIGHLIGHTS

- Customer: Lowicz
- Location: Poland
- Capacity: 4,000 m^3/d

REQUIREMENTS

- Upgrade of an existing treatment plant (Trickling Filters) to treat higher capacity and improved effluent

SOLUTION

- AGAR®MBBR single staged AGAR® followed by an IFAS reactor using existing clarifiers

Dairy Factory, Poland, 2015

Case Study: Mondelez, PL

Mondelez, Poland, 2015

HIGHLIGHTS

- Customer: Mondelez
- Location: Poland
- Capacity: 400-500 m^3/d

REQUIREMENTS

- Increase WW treatment capacity
- Minimum footprint expansion due limited area

SOLUTION

- AGAR® MBBR 1 stage config. using exiting tank
- Increasing treatment capacity (25%)
- Effluent requirement: discharge to sewage

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