



*The World's Best, and Only Eco Certified, Grease Recovery Unit*

Presentation by:

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- Manufacturer of the award winning GreaseShield® products which offer :-
  - The grease management solution to Fats, Oils and Grease (FOG) drainage problems.
  - Cost reductions by eliminating :-
    - **Pumping Costs.**
    - **Recurring Drain Blockages.**
    - **Bio Additives – recurring expense of ineffective products.**
    - **Heating Elements and achieving energy cost reductions.**
- Our corporate mission is to protect the environment by delivering cost effective, sustainable and environmental solutions to FOG drainage problems.



- Certified to the following ISO standards:-



## ISO 9001:2015

QUALITY MANAGEMENT  
SYSTEMS

## ISO 14001:2015

ENVIRONMENTAL  
MANAGEMENT SYSTEMS

## ISO 45001:2018

OCCUPATIONAL HEALTH AND  
SAFETY MANAGEMENT SYSTEMS

## ISO 27001:2013

INFORMATION SECURITY  
MANAGEMENT

- EPAS Ltd is also accredited with the following industry standards:-





- EPAS Ltd products are globally certified to all known and recognised North American and European grease trap / interceptor standards along with being the only grease trap / interceptor in the world to be Green Eco certified by GreenTag Global.



- Our products meet and exceed all local guidelines.



- GreaseShield® – Certified by **Global GreenTag LCA Rate Gold**.
- Directly contributing to the following United Nations sustainable development goals.



# Fatbergs

- Oxford English Dictionary – 2015

*“very large mass of solid waste that is found in a sewer consisting especially of fat and items that people throw down toilets”*



# FOG – Fats, Oils And Grease



Vegetable oils and dairy creams,  
removed by a GreaseShield®.



Solidified animal fats demonstrating the  
GreaseShields ability to remove emulsified  
animal fat from waste water.

## FOG – Fats, Oils And Grease

- FOG is a natural by-product of most cooking and food preparation.
  - **Fats from meats, dairy & animal products.**
  - **Vegetable oils and lard used in baking, cooking & frying.**
  - **Residue from pots, pans, and dishes after cooking.**
  - **Oils naturally-present in most vegetables.**
- FOG wastes enter the sewer system via drains and congeal to clog lines.



# The Effect of FOGs in The UK

## **FOG Facts – Source FWR Newsletter Issue 3 August 2016**

- 366,000 Blockages In a Year For Water Companies Alone
- £88million + Cost To Water Companies
- >80% Of Blockages Are Avoidable Caused By 'Non Flushable' Products And FOG.
- Majority Of Pumping Station Failures Are The Result Of Blocked Pumps – Not Included In The Above Costs.
- Pollution Incident Clean Up Costs And Prosecution Fines Not Included In The Above Costs
- 80% Of Sewer Flooding And Pollution Incidents Are As A Result Of A Sewer Blockage

## The Building Regulations 2010 – Drainage And Waste Disposal

2002 addition incorporating 2010 amendments which states:

### Section 2.21

*Drainage serving kitchens in commercial food premises should be fitted with a grease separator complying with BS EN 1825-1:2004 and designed in accordance with BS EN1825-2:2002 or other effective means of grease removal.*

## Water Industry Act 1991

### Section 111

*It is a criminal offence under section 111 of the Water Industry Act 1991 to cause or knowingly permit discharge into the public sewers any matter which may interfere with the free flow of wastewater. Where the water company has incurred costs in removing blockages, cleaning sewers, investigating and remedying flooding or pollution incidents, it can take legal action to recover these costs.*

## Recharge

Regulatory requirements AMP6 ODI Ofwat, the Water Services Regulation Authority developed the Outcomes Delivery Incentives (ODI) framework to make sure that performance outcomes of water utility companies remain at the heart of the industry. AMP6 ODI incorporates severe penalties for under delivery of performance outcomes which includes incentives to reduce interruptions to water supply, reduction of leakages and pollutions from the public sewer network.

# Legalisation In The UK

## Water Industry Act 1991 - Fines

- M&B – The Turnpike - **£91,000**
- **Dosing Fluid** - “The court heard The Turnpike was using a type of grease management called enzyme dosing, which doesn’t remove fats and oils at source, meaning they can still cause problems in the sewer network.”
- The Angel – Henley - **£16,000**
  - **No Grease Management**
- Saffron Cottage, at Ford - **£9,266**
  - **No Grease Management**
- Food Express in Mansfield Rd, Nottingham - **£8,419**
  - **No Grease Management**
- Café Saffron in Church Rd, Codsall - **£5,495**
  - **No Grease Management**



Source: the Angel on the Bridge in Henley. Thames Water said it began tracing pollution incidents to the Brakspear pub more than 10 years ago

## PUB LANDLORD SEWER SHAME

**EXCLUSIVE**  
By **JAMES BURTON**  
Chief reporter  
jburton@henleystandard.co.uk

**A HENLEY landlord has been ordered to pay more than £16,000 for allowing fats from his pub's kitchen to leak into a sewer.**

Mark Dunlop, who runs the Angel on the Bridge in Thames Side, was prosecuted after Thames Water tried repeatedly to contact him about a number of leaks.

He was sentenced at Reading Magistrates' Court on Friday.

Dunlop, 59, from Knowl Hill, had pleaded guilty on behalf of his company, the Angel (Henley) Ltd, to one count of releasing matter likely to interfere with the free flow of a public sewer in February last year.

But he maintained his own innocence until January this year, when he admitted the same charge.

The court heard that Thames Water began tracing pollution incidents to the Brakspear pub in 2010.

In 2016 it spent £100,000 installing a device to improve its outflow to the sewer, reducing the risk of sewage backing up.

There were five "serious" leaks after that so the Angel went on a "watch list", meaning technicians checked the device every three months instead of six. They often logged evidence of "excessive fats, oils and grease".

Between 2016 and 2019, Thames Water sent numerous letters to the pub, many signed by inspectors, who also left calling cards at the pub.

They also made phone calls, including one in which they spoke to Dunlop, and sent emails. The team advised him to install a grease management system, which separates oils from water as it drains from sinks or dishwashers or breaks it down using chemicals. They even suggested three suppliers.

Sarah Valentine, for Thames Water, read aloud from an expert's report saying it was "easy" to install grease management systems and they were frequently found in commercial kitchens.

The document said fats readily flow down drains but solidify and build up further along the pipework. In the worst cases this creates large lumps, or "fatbergs", which totally block it. This can make sewage back up into neighbouring properties or leak into waterways like the Thames, which the pub overlooks.

It can kill wildlife by reducing oxygen levels and increasing toxic ammonia.

The court heard Thames Water tried to contact Dunlop 15 times to take action but they heard nothing back until after he was sent a court summons in October 2019.

He spent then £3,351 plus VAT installing measures to tackle the problem and sent the company invoices but by then it was too late.

Ms Valentine said: "It was fully clear at this time that there were issues on this site and in the period after the business came into compliance, no further fats have been found. It's fair to say the grease management has been working effectively.

"As a food service business, you would expect the defendant to have complied with this. Even with good practices like wiping plates thoroughly, you still need grease separation.

"It's highly likely that a blockage at this location would cause sewage to enter neighbouring watercourses. There is a history of non-compliance and warnings in this environmentally sensitive area."

**Continued on page 5**

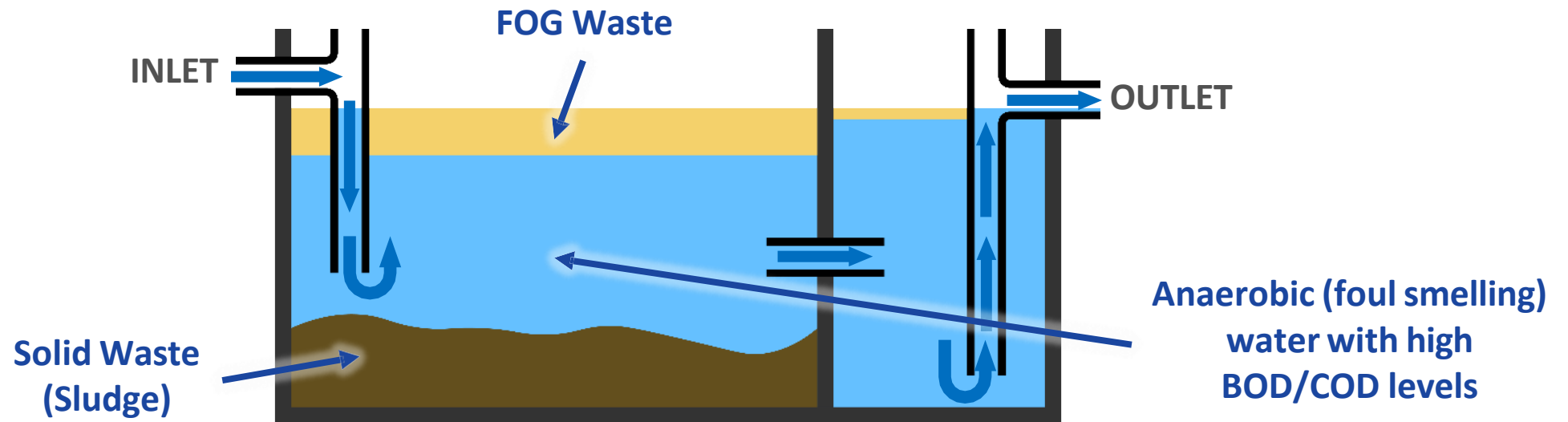
Leaks: landlord Mark Dunlop and fat from his pub found in the sewer

Picture: Thames Water

Letters – 10-12, Entertainment – 23 & 24, Property – 25-36, Sport – 37

# Grease Traps

- Grease Traps suffer from the dual problem of twin contamination layers comprising of FOGs and solid, organic contaminants, separated by a layer of oxygen depleted water giving rise to anaerobic conditions.

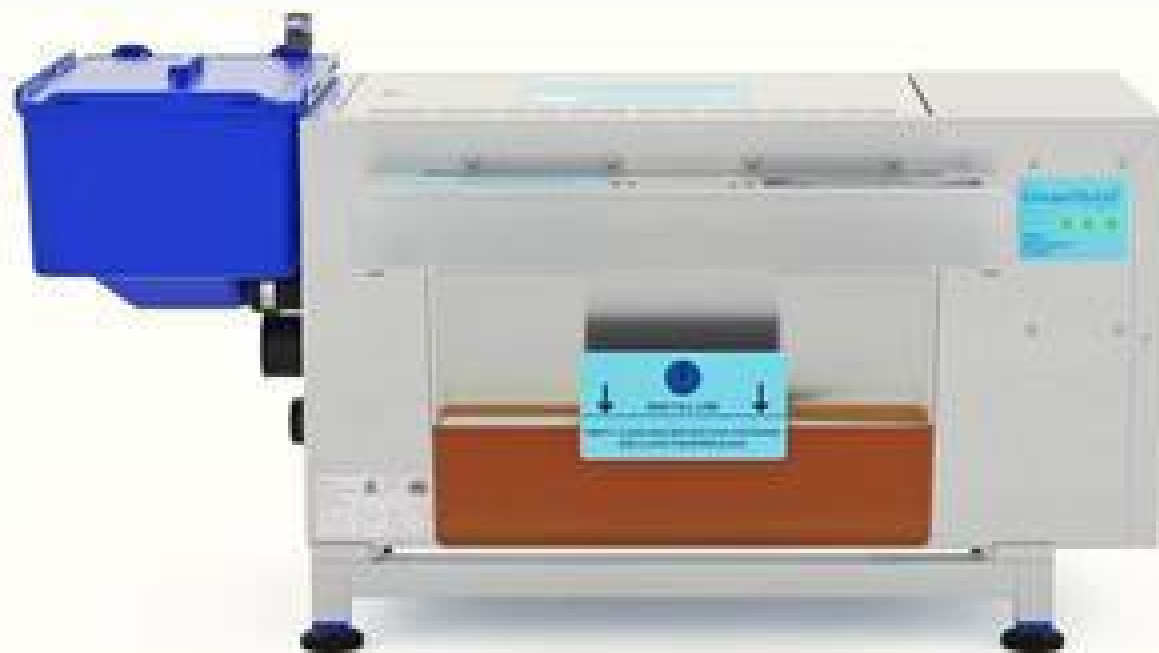


- Most Grease Traps are undersized. It is estimated that **>55%** of the entrained FOGs will simply pass through the Grease Trap to cause problems downstream.
- In accordance with the British Standard **BS EN 1825-1** for **Grease Separators**, passive traps should be pumped out at least once a month and preferably every two weeks.
- A costly, recurring expense for an inefficient process that does not eliminate the problems downstream.

# GreaseShield®

The Grease Management Solution

*The World's Best, and Only Eco Certified, Grease Recovery Unit*



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# GreaseShield®

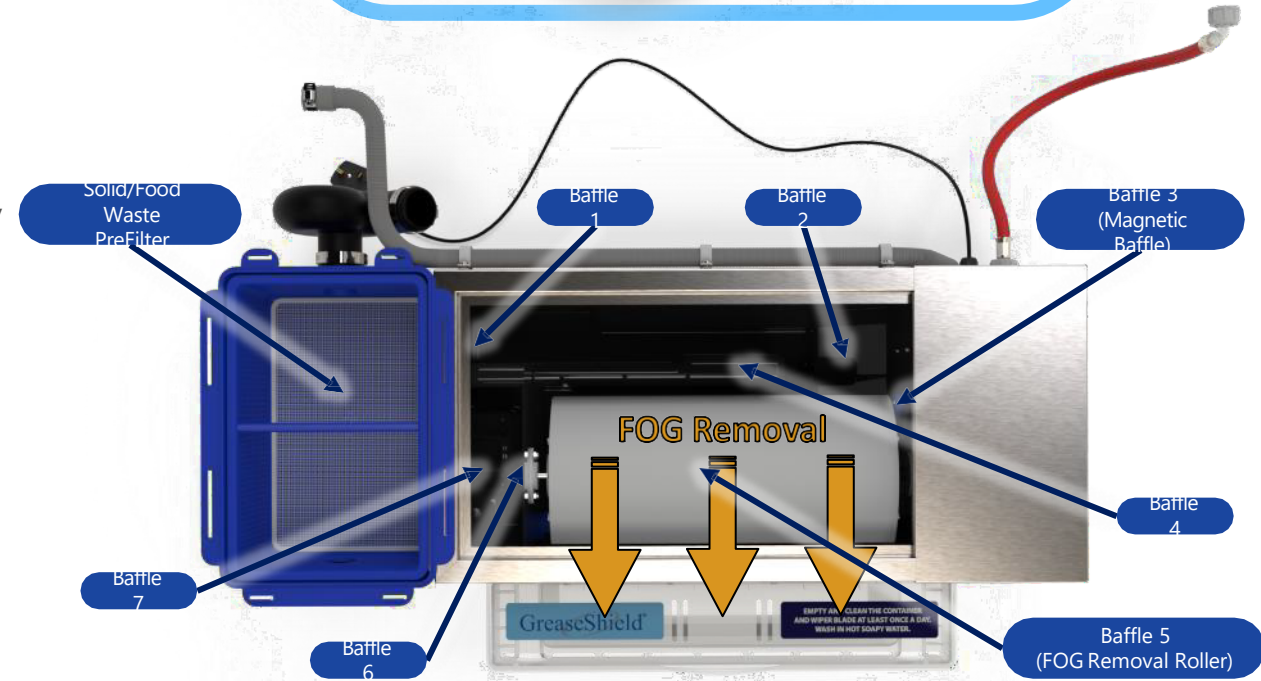
1. The first and only proactive grease management system.
2. Superior performance removing more fats, oils and grease in real time compared to any competitor .
3. Takes advantage of waste thermal energy discharged from commercial kitchens to remove emulsified FOGs, particularly saturated animal fats before they solidify.
4. Removes and dewateres organic solid matter preventing anaerobic foul smelling conditions brought about by biological activity, depleting dissolved oxygen present in the effluent.
5. The Worlds only ECO certified Grease Recovery Unit.
6. <https://youtu.be/OCZnKPBOke0>



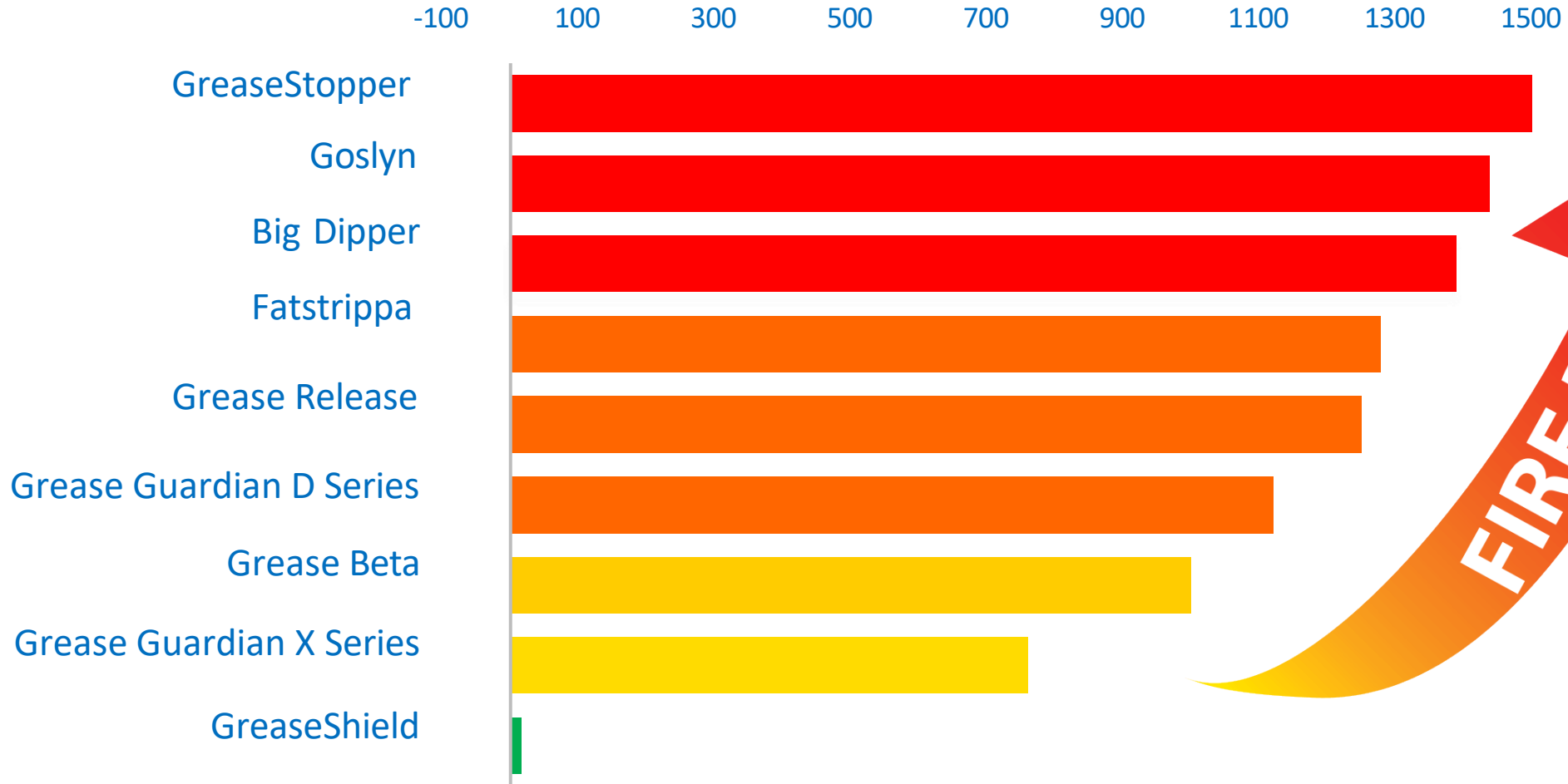


# Unique And Patented Design

1. **Food Waste Filtration** – above the water line preventing anaerobic digestion of food preventing foul smells.
2. **Reverse Directional Flow** - Inlet and Outlet on same side, doubling the flow through the GreaseShield®.
3. **7 Baffle System** – to enhance the removal of FOG.
4. **Oleophilic & Hydrophobic Roller** – attracts FOG and repels water.
5. **Superior Grease Removal Performance** – independently tested and certified to achieve removal to 100 parts per million discharge to drain.
6. **Magnetic Baffle** - encourages in-situ bioremediation without the need of additives.



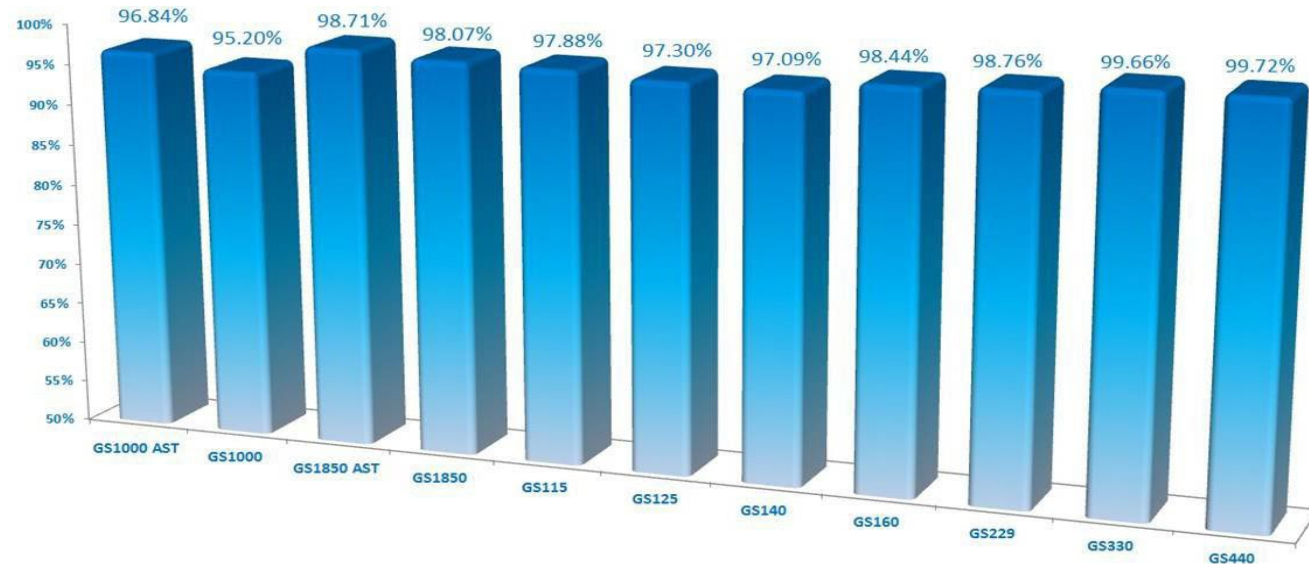
# Energy Comparison – Watts Per Hour



# Independent Testing & Results

Efficiency of FOG Retention Performance As Determined By PDI G101 and ASME Grease Retention & Efficiency Results.

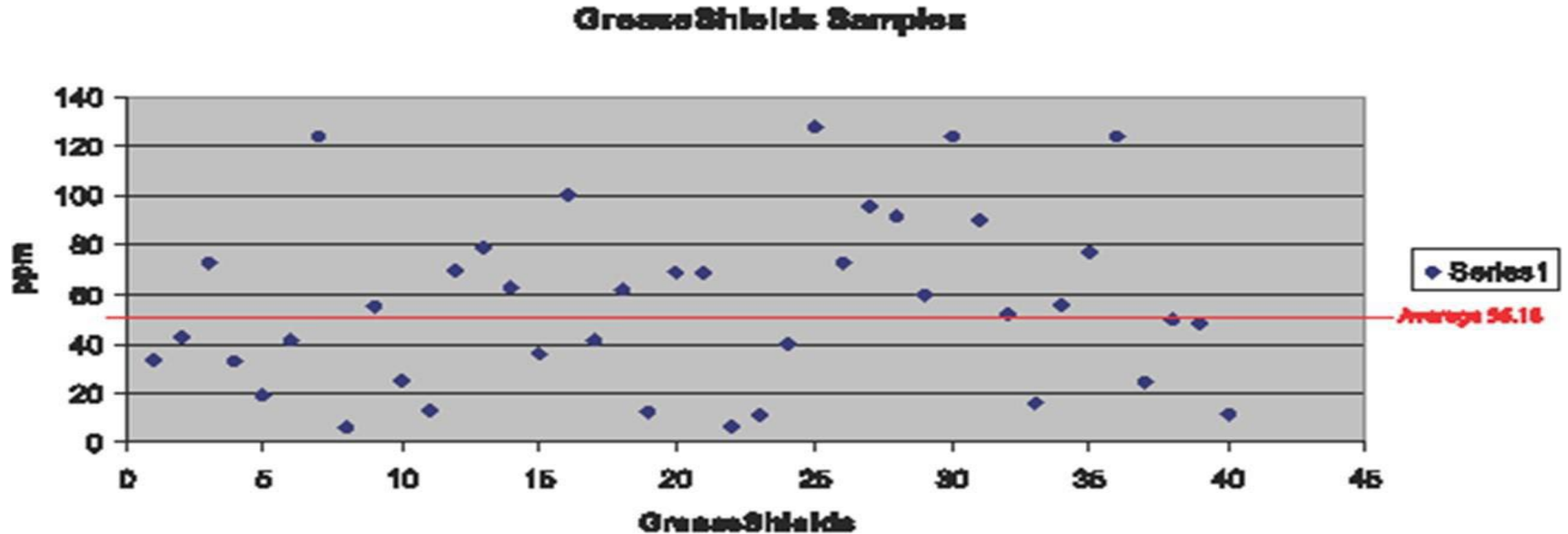
GreaseShield®1000 AST	96.84%
GreaseShield®1000	95.20%
GreaseShield®1850 AST	98.71%
GreaseShield®1850	98.07%
GreaseShield®115	97.88%
GreaseShield®125	97.30%
GreaseShield®140	97.09%
GreaseShield®160	98.44%
GreaseShield®229	98.76%
GreaseShield®330	99.66%
GreaseShield®440	99.72%



As determined in repeated testing at an effluent temperature of 65 Celsius and with known contaminant levels of melted pork lard and known effluent volumes. Test drops (as per the EPAS Test Rig Diagrams and as witnessed by CSA, an independent and authorised Certifier, varied from 13 drops to 143 drops.

# Dublin City Council Test Results

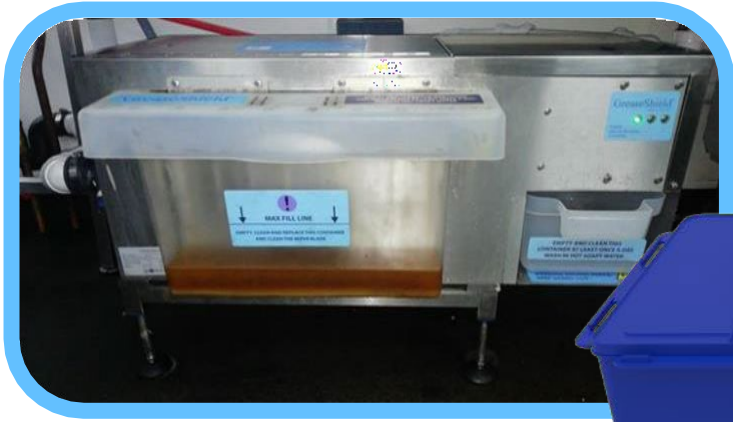
40 locations with an average of 56.16 parts per million discharge of FOG to drain.



# The Best Grease Recovery Unit In the World



# Collected FOG in GreaseShield® Container



# GreaseShield® Global Certifications

- **Global GreenTag** - LCA Rate Gold Certification
- **PDI G101** - Plumbing & Drainage Institute
- **ASME A112.14.3 & A112.14.4** - American Society of Mechanical Engineers
- **NSF International** - National Sanitation Foundation
- **CSA** - Canadian Standards Association, Grease Interceptors
- **UL** - Underwriters Laboratory
- **IAPMO** - International Association of Plumbing and Mechanical Officials - Uniform Plumbing Code Certification Mark
- **UKCA** – UK Conformity Assessed
- **CE** – Conformity with Health, Safety and Environmental Protection Standards with the European Economic Area (EEA)
- **EN1825** - European Standards for Grease Separators
- **KIWA (ETA DK, Swedac & SINTEF)** – Sweden, Norway and Finland. European Institute for Testing, Inspection and Certification
- **SHASE-S 217:2016** – Japanese Grease Management Standard for Grease Interceptors

# Operational Benefits

1. Automatic Grease Separation including emulsified animal fat.
2. Food Waste and Solids Removal
3. Self Emptying and internal self cleaning.
4. Cost Savings by eliminating frequent pumping costs, grease trap emptying and recurring drain blockages.
5. Cost Saving as no requirement to purchase enzymes or bio additives.
6. User Friendliness - No need for staff to access the internal of the machine and no more foul smelling grease traps.
7. No silt valve to allow the discharge of fats, oils and grease to the drain line.



## Environmental Benefits

1. Protects the drainage network allowing drain lines to flow free from FOG.
2. Eco friendly as the GreaseShield® uses the least amount of energy in its class.
3. Reduces Carbon Footprint.
4. No heating element so no risk of fire.
5. Protects the environment from fats, oils and grease pollution.
6. Compliance with local water company requirements preventing prosecution.

# Dishwashers

1. Dishwashers should be attached to a GreaseShield®?
2. The hot water discharge does not effect the performance of the removal of FOG.
3. The hotter the water the quicker the separation.
4. The chemicals do not effect the FOG removal.



# FilterShield™

Food & Solid Waste Removal

*Low Cost Solution for separation of Food Waste, Coffee Grinds and Starch*



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# Effective at Dealing with all sorts of Solid Waste



# Key Applications

**A solids interceptor such as a FilterShield™ should be installed with:**

- Preparations Sinks for meat, fish sandwich's etc.
- Sinks used for rice washing
- Potato Peelers and Rumblers
- Sinks used for disposal of coffee grinds
- Potwash and Pre-rinse sinks



# Why Commercial Kitchens need FilterShield™



Food Waste

Coffee Grinds

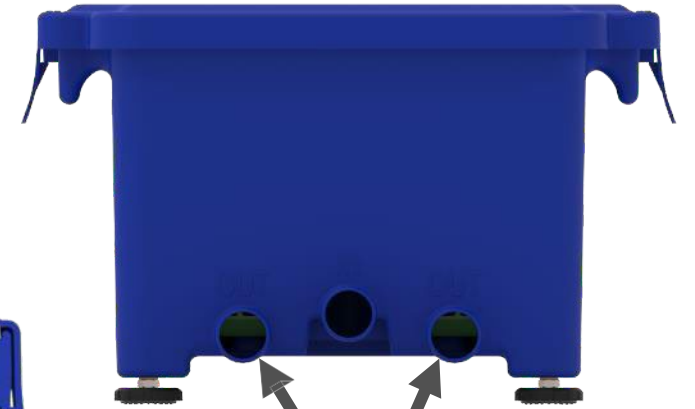
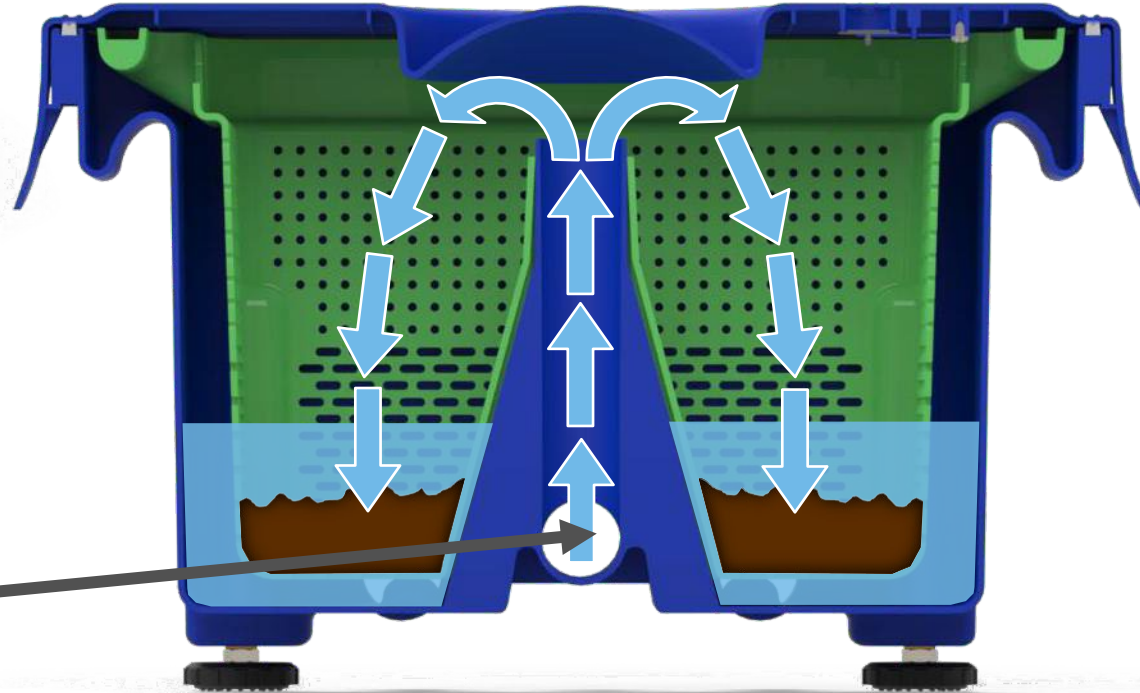


Vegetable Peelings

Potato Peelings



# FilterShield™ 2000 – Flow Path



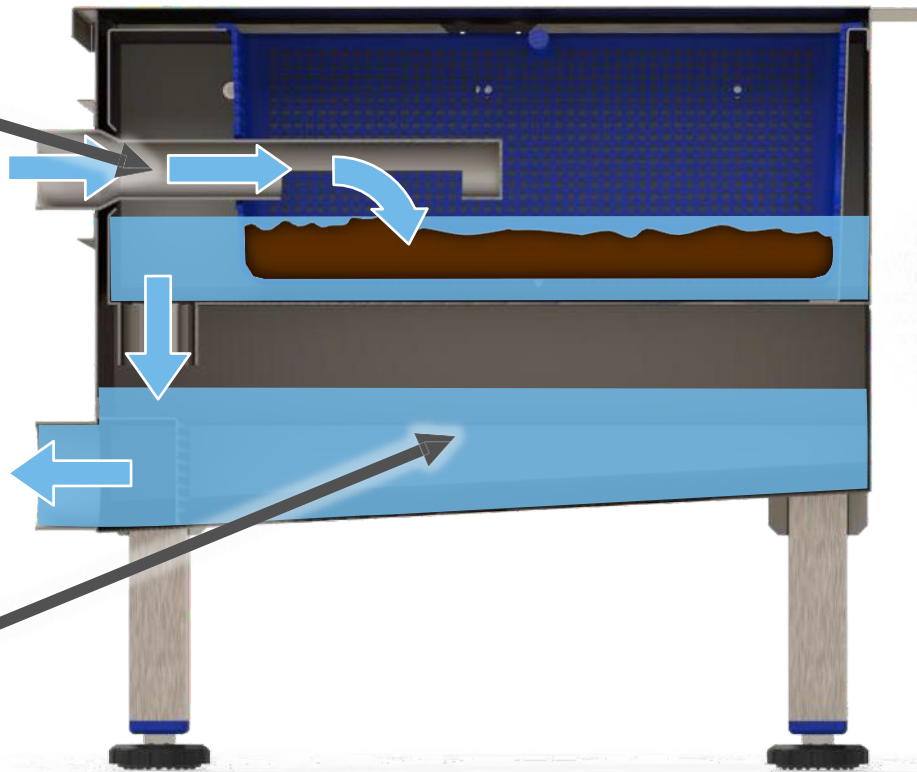
**Fountain Inlet**  
Controls the flow  
and distributes it  
within the  
Filtration Basket

**Dual Outlet**  
To cater for  
different plumbing  
orientations

# FilterShield™ 1000 – Flow Path

## Inlet Pipe

Controls the flow and distributes it within the Filtration Basket



## Balance Tank

Managing the incoming flow whilst the solid waste is filtered



## Drawer Filter

The pull forward drawer allows access to the filter basket, even when positioned under sinks or shelves



# FilterShield™ - Operational Benefits

- No Moving Parts.
- No Energy Costs.
- Up to 25 litres storage capacity.
- Saves money on plumber and call out charges.
- A low cost effective solution at dealing with all solid waste.



# Service & Customer Support

- Compliance with Local Water Requirements including the Water Industry Act 1991
- Project Design Specification – 2D AutoCAD & 3D Revit
- Sizing And Selection
- Site Survey
- Installation
- Service & Maintenance
- Staff Training

