

## **GREASE ARRESTER GUIDELINE**

### **INTRODUCTION**

Wastewaters from business activities such as meal preparation and dish washing contain oil/grease and suspended solids at levels that can build up in sewer pipes, restricting flows and causing blockages. For the purpose of this Guideline, a “**grease arrester**” refers to a pre-treatment device, which permits the separation by gravity of oil/grease and suspended solids from the wastewater stream. Some designs have additional features that reduce servicing frequency. The best choice of arrester type, design and size will vary depending on the nature of the application. The following are typical types of grease arresters that may be installed above or below ground:

- Conventional underflow grease arrester
- Grease arrester with biofilter
- Grease arrester with mechanical skimming device
- Vertical Gravity Separator (VGS)

### **MINIMUM PRETREATMENT REQUIREMENTS**

- Only arresters with “type approval” from SA Water shall be used.
- Upstream removal of larger solids from the waste water stream significantly assists arrester performance, plus reducing odours and servicing costs. Fitting silt traps and/or strainers (maximum 1.5mm hole size) is usual practice.
- The grease arrester is to be appropriately sized to provide effective separation of grease/oil and/or solids. Generally, the minimum retention time in a conventional underflow arrester is one hour at peak usage times.

### **DETERMINING GREASE ARRESTER SIZE**

Appropriate sizing of grease arresters is necessary to satisfy a number of needs, such as providing adequate retention time to allow separation of grease/oil and suspended solids, reducing outgoing water temperature and having adequate holding capacity for separated materials – to minimise service frequency. A range of factors influence arrester performance, making it difficult to arrive at a simple “formula” that will work in all situations. The following calculation methods are therefore offered for guidance only and apply to conventional underflow grease arrester designs. Further advice should be sought from a suitably qualified consultant or the Trade Waste Unit.

#### **Method 1 – Peak hourly flow**

Add the flow ratings for all fixtures feeding the arrester. This gives the minimum arrester size needed to satisfy the one hour retention requirement. Choose the nearest (equal to or larger) available arrester size.

<b>Fixture</b>	<b>Litres per hour</b>	<b>Fixture</b>	<b>Litres per hour</b>
Bain Marie	50	Sink - single bowl	200
Bin wash area	200	Sink - double bowl	300
Dishwasher commercial/domestic	500	Sink - pot, single	300
Dishwasher - tunnel	1000	Sink – pot, double	400
Floor waste	50	Sink – cleaner’s	50
Hand basin	50	Steamer/steam oven	100
Rinse sink	300	Wok table	100 per burner

## Method 2 – number of meals per day

For this method, average daily number of meals should be used.

Meals per day	Recommended arrester size
Up to 70	1000 Litres
71 to 200	1800 Litres
201 to 400	2400 Litres
401 to 600	5000 Litres

Where calculations are made by both methods, the larger calculated arrester size should be used.

- The minimum capacity for arresters is 1000 litres, unless otherwise authorised by the Trade Waste Unit.
- Where arrester capacity in excess of 5000 litres is indicated, advice should be sought from the Trade Waste Unit.

## FOOD WASTE DISPOSAL UNITS

In commercial applications, these units (sometimes called garbage grinders) must discharge to sewer via a grease arrester. Hourly water flow through these units should be included in the calculations for Method 1.

The additional load of material contained in this discharge typically requires an increased arrester size, to safely accommodate larger amounts of grease/oil and settled solid material between service calls by the licensed liquid waste contractor. In addition to Methods 1 and 2, arrester selection includes an estimation of the amount of material discharged from food waste disposal units, based on the envisaged usage pattern.

As an approximate indication, the following quantities of material can be safely held in regular underflow grease arresters before requiring servicing.

Arrester Size	Maximum Total Grease/Oil & Solids
1000 Litres	220 kg
1800 Litres	280 kg
2400 Litres	360 kg
5000 Litres	740 kg

## OTHER CONSIDERATIONS

- The use of biological additives is restricted to specific products and applications approved by SA Water.
- Grease arresters shall be located so as to facilitate maintenance operations and be accessible for inspection.
- Grease arrester covers must be suitable for expected weight loadings e.g. galvanised checker plate covers for pedestrian traffic and “Gatic style” covers for vehicular traffic.
- Covers shall be appropriately sized to allow for safe lifting by one person. Alternatively, portholes with minimum diameter of 225mm shall be fitted. Handles or lifting holes are required.
- Gas-tight covers are required for indoor systems and may be necessary for outdoor installations.

- An appropriate backflow prevention device must be fitted to taps/hoses used for washing an arrester. Hoses shall at no time be immersed in the arrester's contents.

#### **MAINTENANCE**

- It is the responsibility of the Permit holder to ensure the effective operation of each unit i.e. ongoing removal of grease and solids and if applicable, cleaning of biofilter.
- A maintenance schedule, which ensures correct operation of the grease arrester, shall be agreed to between the Trade Waste Officer and Site Management.
- In a conventional underflow grease arrester, the maximum build up of wastes shall not exceed
  - 100mm of grease/oil and/or solids accumulation in the last chamber or
  - 200mm of grease/oil and/or solids accumulation in the first chamber.

#### **ADDITIONAL INFORMATION**

Mains Water Protection (AS/NZS 3500 – 2003 Part 1), Trade Waste Biological Additives Guideline No.7, Trade Waste General Policy, Trade Waste Venting of Sealed Arresters Guideline No.13, [Standards of Acceptance of Liquid Waste to Sewer.](#)

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