

**Pre-Treatment Guidelines
for
Trade Waste Discharges**

**Provider Services
Trade Waste Section**

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Pre-Treatment Guidelines for Trade Waste Discharges

Table of Contents

| | | |
|------------|---|----|
| 1.0 | Introduction..... | 3 |
| 2.0 | Waste from Commercial and Service Industries..... | 3 |
| 3.0 | Grease Arrestor Requirements..... | 4 |
| 4.0 | Waste from Major Manufacturing/Processing Industries | 4 |
| 5.0 | Specifications for Pre-Treatment Devices | 6 |
| 5.1 | Oil Arrestors | 6 |
| 5.2 | Grease Arrestors | 6 |
| 5.3 | Silt Traps | 6 |
| 5.4 | Neutralising Tanks | 6 |
| 6.0 | Standard Drawings..... | 6 |
| Appendix 1 | | 7 |
| | General Pre-Treatment Guidelines for Minor Trade Waste Generators | 7 |
| | General Pre-Treatment Guidelines for Minor Trade Waste Generators, continued..... | 8 |
| | General Pre-Treatment Guidelines for Minor Trade Waste Generators, continued..... | 9 |
| Appendix 2 | | 10 |
| | Guidelines for Sizing Grease Arrestors | 10 |
| Appendix 3 | | 12 |
| | Sewer Admission Limits..... | 12 |
| Appendix 4 | | 15 |
| | Categories for Discharge | 15 |

Trade Waste Policy

Pre-treatment Guidelines for Trade Waste Discharges

1.0 Introduction

As part of its Trade Waste Policy Council will strictly regulate the discharge of trade waste to the sewer. All discharges must comply with the Sewer Admission Limits as set out in the Trade Waste Policy Statement.

The following information is provide as a **GUIDE ONLY** to assist waste generators. As waste quality may vary between individual generators of a given industry, pre-treatment requirements will need to be verified for each application. These guidelines centre around the use of arrestors as a minimum requirement for pre-treatment for small discharges. Their effectiveness is dependent on proper sizing and regular maintenance.

The design and sizing of pre-treatment devices must be approved by Council. There may be situations where alternative pre-treatment devices or processes are more appropriate.

2.0 Waste from Commercial and Service Industries

Both the Owner and the trade waste Generator, where the Owner is not the Generator, of a premises where commercial or service enterprises are undertaken, or likely to be undertaken, must apply to Council for approval to discharge waste to the sewer. Discharge without Council approval is illegal and subject to penalties defined in the current Standard Sewerage Law 1998.

In most cases discharges from these businesses will, after appropriate pre-treatment as indicated in Appendix 1, be suitable for discharge to the sewer as Category 1 or Category 2 waste. Depending on the size of the business and the nature of the waste there may, however, be instances when some of these businesses will discharge Category 3 waste.

Requirements for the cleaning and maintenance of all pre-treatment devices by the owner/generator will be written into Approvals and Agreements.

Commercial and service enterprises include, but are not limited to, the following:

- Restaurants, coffee shops, cafes
- Fastfood outlets/take aways
- Butchers
- Bakers/hot bread shops
- Seafood shops
- Delicatessens
- Pie/pastry outlets
- Ice-cream parlours
- Hotels
- Motels
- Hospitals
- Clubs
- Laundromats
- Hairdressers
- Nursing homes
- Medical surgeries (includes dental, veterinary, chiropractic businesses which have X-ray facilities)
- Garbage collection areas in Commercial buildings
- Service stations/ other automotive related businesses (small scale)
- Small Engineering works
- Photographic/x-ray/graphic arts/mini labs
- Air-conditioning wastes – condensates, cooling tower wastes
- Commercial Refrigeration condensates
- Swimming pool backwash water
- Supermarkets/Shopping centres

3.0 Grease Arrestor Requirements

The use of solvents, enzymes, bacterial cultures, odour control agents or pesticides in grease arrestors is prohibited unless specifically approved by Council. Conditional approval may be given to allow the discharger to demonstrate to Council that the product to be used does not adversely impact on the sewerage system.

The maximum capacity of an individual grease arrestor shall be 2000 litres. Where the capacity requirement for a premises is greater than 2000 litres, additional arrestors shall be used, with each arrestor to be a discrete installation separately treating a defined waste stream.

Appendix 2 outlines a method for estimating the size of grease arrestors. The final determination of adequate capacity will be done by the Trade Waste Officer. Cleaning and maintenance of grease arrestors will be carried out by a Council approved liquid waste disposal contractor as specified in the Approval/Agreement conditions.

4.0 Waste from Major Manufacturing/Processing Industries

Both the Owner and the trade waste Generator, where the Owner is not the Generator, of all premises where major manufacturing and industrial processing are undertaken, or likely to be undertaken, must apply to Council for approval to discharge waste to the sewer. Discharge without Council approval is illegal and subject to penalties defined in the current Standard Sewerage Law 1998.

Most of the industries in the list below will fall into Category 3, although they may be included in Category 1 or 2 if the business is small or waste has been pre-treated to the extent of meeting the classification requirements for these categories.

While Council staff can provide general advice to industry on waste management and disposal matters, dischargers in this category should seek advice from the Environmental Protection Agency or consultants on matters such as:

- appropriate treatment strategies to meet sewer admission limits;
- waste minimisation and water conservation methods; and/or
- treatment and disposal of waste generated by pre-treatment and other wastes not suitable for sewer discharge.

Advice on the disposal of non-sewerable waste may be obtained from:

- Trade Waste Officer;
- Waste Management Officer; and/or
- Environmental Protection Agency.

Major industrial, manufacturing and processing industries likely to fall into Category 3 include, but are not limited to, the following:

Food/Beverage

- Fruit/vegetable processing (canning, freezing, juicing)
- Meat Processing/small goods manufacturing
- Abattoirs – Meat/poultry
- Rendering
- Seafoods
- Dairy products
- Breweries
- Wineries/distilleries
- Soft drink/cordial manufacturing
- Confectionery
- Large scale baking (bread, biscuits, pastries etc)

- Grain milling
- Oil seed/oil extraction
- Fermentation/yeast
- Sugar
- Starch

Chemical Related

- Chemical manufacturing – general (organic and inorganic)
- Soap, detergent and associated product manufacturing/formulating
- Explosives
- Pharmaceuticals/cosmetics
- Fertilisers
- Pesticides/herbicides
- Chlor-alkali
- Plastics
- Resins, Adhesives/latex
- Paints/varnishes/lacquers
- Fibreglass
- Rubber – natural/synthetic

Apparel/Textile

- Tanneries
- Textiles (wool, cotton, synthetics; includes dye wastes)
- Wool scouring
- Industrial/commercial laundries

Materials

- Paper and Cardboard processing/manufacturing
- Printing/publications/graphic arts/photographic (large scale)
- Cement
- Asphalt/Bitumen
- Timber preservation
- Veneer/plywood
- Glass/ceramics manufacturing

Metal

- Mining/Minerals industries
- Smelting/refining
- Foundries
- Electroplaters/galvanisers
- Metal processing
- Metal finishing
- Fabrication and powder coating

Automotive/Engineering/Petroleum

- Engineering (large scale)
- Petroleum refining
- Waste oil refining

Service

- Laboratories – scientific and pathology
- Electrical manufacturing/processing
- Electronics
- Commercial swimming pools/ornamental ponds
- Repackaging activities
- Industrial/commercial storage areas/warehouses
- Recyclers
- Industrial/commercial wash areas – car, bus, truck, stables, garbage collection
- Power generation

5.0 Specifications for Pre-Treatment Devices

5.1 Oil Arrestors

For the purpose of this policy, the term oil arrestors refers to triple baffle oil interceptor, coalescing plate separator, hydrocyclone or any other device which separates oils from other liquid waste.

Oil arrestors are to be of a type and to be installed in order for the discharge to Council's sewer system that shall comply to the admissible standards set out in Appendix 2.

Only "Quick Break Detergents/Degreasers" are to be used where waste is discharged to the sewer via the oil arrestor.

Maintenance cleaning of oil arrestors shall be carried out on a regular basis in accordance with the conditions of the Trade Waste Approval or Legal Agreement by a Council approved Liquid Removal Contactor.

The minimum size of an individual arrestor shall be 550 litres.

Oil arrestors are to cause no odour nuisance.

Oil arrestors shall be installed so as not to allow stormwater to enter them. The surrounding ground shall be graded away from the arrestor.

5.2 Grease Arrestors

All grease arrestors shall be fitted with gas tight lids.

Venting arrangements for grease arrestors shall be via 2 x 100mm vents. One 100 mm vent shall be on the upstream line and shall terminate in accordance with AS3500. The other vent shall be on the grease arrestor and shall terminate approximately 1.2 metres above the finished height of the other vent. This allows for more effective cooling of the grease arrestor contents which leads to a more effective performance of the trap.

5.3 Silt Traps

Silt traps are to be regularly cleaned and the material removed after dewatering may be disposed at the land fill site.

5.4 Neutralising Tanks

Neutralising traps are to be regularly cleaned and the trap refurbished with clean media to ensure effective operation of the trap.

6.0 Standard Drawings

A complete set of standard drawings are to be submitted before any approval shall be given. The information on the drawings shall include but is not confined to:

- a site plan
- a floor plan
- the location of drains, sewers and stormwater system
- the location of the pre-treatment equipment
- details of pre-treatment equipment including stormwater diversion if applicable
- location of any bunding
- sampling points
- details of any structures associated with pre-treatment e.g. roof

Appendix 1

General Pre-Treatment Guidelines for Minor Trade Waste Generators
(Will be Satisfactory for Most Category 1 and 2 Discharges)

| Generator/Source | Characteristics of Waste | General Treatment Requirements |
|--|---|---|
| Automotive/Engineering Industries | | |
| Wreckers | oil, grease | solids oil arrestor (1) |
| Detailing | grease, oil, solids, detergents | oil arrestor (1) |
| Engine/gear box reconditioning (small operation) | lead, grease, oil, solids, detergents, kerosene | oil arrestor (1) |
| Equipment Hire Company | oil, grease, kerosene, solids, detergent | oil arrestor (1) |
| Lawn Mower Repairs | oil, grease, grass, solids, detergents | oil arrestor (1) |
| Mechanical Workshops | oil grease, kerosene, solids, detergents | oil arrestor (1) |
| Panel Beating/Spray Painting | suspended solids, oil and grease | General purpose pit, oil arrestor (1) |
| Service Stations: | | |
| - work shop only | oil and grease | oil arrestor (1) |
| - covered forecourt | oil and grease | oil arrestor (1) |
| Car Wash Areas – Residential: | | |
| - open areas | oil, grease, solids, rain | silt trap, 550 L minimum capacity |
| - roofed and bunded (to prevent storm water ingress) | oil, grease, solids | silt trap, 550 L minimum capacity |
| Car Wash Areas – Commercial: | | |
| - open areas | oil, grease, solids, rain | stormwater diversion pit, first flush collection pit “first 10mm of rain”, oil arrestor (1), rainwater controls, pumped discharge, flow measurement |
| - roofed and bunded | oil, grease, solids | oil arrestor (1) |
| Radiator Repair (small operation) | Suspended solids, pH, toxic metals | pH adjustment prior to solid settlement and pH adjustment before discharge to sewer; may require oil separation and metal precipitate removal |
| Commercial Food Outlets: | | |
| Hot Bread, Bakery | flour products, grease | dry arrestor or removal basket |
| Pies, cakes, pastries | | in-floor waste collection; grease arrestor (2) |
| Butcher, small, retail | grease (washing floors and utensils) | fixed mesh screen & basket in sink and basins, grease arrestor (2) |
| Chicken (fresh) retail | grease | fixed mesh screens & baskets in-floor waste collection, mesh sinks and basins; grease arrestor (2) |
| Meat Cutting and Preparation | | fixed mesh screen & basket in-floor waste; dry arrestor pit |
| Fish – fresh (no cooking) | scales, fish guts | fixed mesh screen & basket in-floor waste; screens in sink & basin; grease arrestor (2) |
| Fish Shop retail and cooking on site | scales, grease | grease arrestor (2) |
| Canteen/Cafeteria (with hot food preparation) | grease | grease arrestor (2) |

General Pre-Treatment Guidelines for Minor Trade Waste Generators, continued
 (Will be Satisfactory for Most Category 1 and 2 Discharges)

| Generator/Source | Characteristics of Waste | General Treatment Requirements |
|--|--|--|
| Caterer | grease | grease arrestor (2) |
| Community Halls (food preparation) | grease | grease arrestor (2) |
| Sandwich/Coffee Shop -no hot foods prepared | nil | no requirements |
| Sandwich Bar with hot food take-away | grease | grease arrestor (2) |
| Coffee Shop, hot food prepared and served | grease | grease arrestor (2) |
| Take Away food outlets | grease | grease arrestor (2) |
| Take Away food outlets -large outlets eg. McDonalds, Pizza Hut, KFC, Hungry Jacks, BBQ and Charcoal Chicken etc. | grease | grease arrestor (2) |
| Commercial Kitchen | grease | grease arrestor (2) |
| Hospital Kitchens | grease and oil, high temperatures | grease arrestor, capacity to cool hot discharge water to less than 38°C |
| Nursing Homes/kitchen | grease/solids | grease arrestor (2) |
| Restaurant | grease | grease arrestor (2) |
| Hotel with counter lunches/restaurant | grease | grease arrestor (2) |
| Motel, kitchen/restaurants | grease | grease arrestor (2) |
| Boarding Houses/kitchen | grease | grease arrestor (2) |
| Bistro | grease, oil | grease arrestor (2) |
| Ice Cream Parlour – with hot food, take-away | grease | grease arrestor (2) |
| Shopping Centres preparation | grease and solids | grease arrestor (2) |
| Supermarkets - incorporating butcher and/or bakery | grease and flour | grease arrestor (2) and basket traps; dry arrestor pit or basket in-floor waste collection |
| Other Commercial/Service Industries: | | |
| Garbage Can Cleaning units/hotels/restaurants | grease, solids | fixed screen over floor waste; if grease arrestor installed, waste to pass via arrestor |
| Hairdressing Salon | No threat | non pre-treatment; avoid discharge through grease arrestor |
| Hobby Clubs - < 200L per day - 200L – 1000L per day - > 1000L per day | suspended solids suspended solids suspended solids | no pre-treatment plaster arrestor solids settlement pit 1000L, min of 1 hour retention |
| Dental/Medical/Veterinary Surgeries - no plaster casts - plaster casts - X-rays | solids solids rinse water and spent solutions | bottle trap plaster arrestor to sewer after silver recovery (refer Photographic Industry Code of Practice) |
| Photographic waste - Fast Photo - X-rays | rinse water and spent solutions | to sewer after silver recovery (refer Photographic Industry Code of Practice) |
| School-Home Science, Tuck Shops (hot food) | grease | grease arrestor (2) |

General Pre-Treatment Guidelines for Minor Trade Waste Generators, continued
(Will be Satisfactory for Most Category 1 and 2 Discharges)

| Generator/Source | Characteristics of Waste | General Treatment Requirements |
|--|--|--|
| Laboratory Optical (<200L / day) Laundromat | acid/alkali, chemicals suspended solids | sediment & neutralising trap bottle trap under sink |
| Kennels | solids | lint screens 1mm mesh; cooling pit if temperature >38°C (washing machine internal screens acceptable) dry arrestor pit; open area controls |

NOTES:

- oil arrestors should be of the (**coalescing plate type minimum capacity 1 kL/hour for some other specification**); use only quick break detergents (detergent cleans by emulsifying oils and grease; the emulsion formed should break in less than 1 hour to allow separation of the oil from the water in the arrestor)
- See Appendix 2 for guidelines for sizing of grease arrestors

Appendix 2

Guidelines for Sizing Grease Arrestors

- I: The capacity of a grease arrestor may be calculated from the following capacity allowances for various fixtures and fittings in Commercial Premises

| Fixture/Fitting | Capacity (Litres) |
|--|-------------------|
| Commercial Kitchen Sink | 140 |
| Double Bowl or Pot Sink | 280 |
| Basin | 30 |
| Water Heated Baine Marie | 40 |
| Dishwasher | |
| - small (under bench) | 400 |
| - medium (upright) | 800 |
| - large (more than one outlet) | 1200 |
| Potato Peeler | |
| - small (bench) | 100 |
| - medium (upright) | 200 |
| - large | 400 |
| Steamer/Hydrotherm/Boiling pots/Stock pots | 100 |
| Wok Burner | 140 |
| Mixing Bowl | 140 |
| Glass Washers (not in liquor sales area) | 200 |

- II: If a restaurant, coffee shop, hotel, motel, hostel, nursing home etc does not have fixture or fittings in excess of 250 litres capacity the following criteria shall apply:

| Servicing Capacity | Minimum Size Grease Arrestor |
|--------------------|------------------------------|
| 0 – 40 persons | 550L |
| 40 – 90 persons | 1000L |

- III: **Minimum Grease Arrestor Trap Capacities**

| Business | Arrestor Size | Comment |
|--|----------------|---|
| Takeaways Delicatessens Retail Seafood outlets (no processing/cooking) Ice-cream Parlours | 250 L – 500 L | No Cooking Chicken, No Woks |
| Hot Bread Shop Pizza Shop Takeaway and Delicatessen Coffee Shop (0-40 persons) Restaurant (0-40 persons) Retail Butcher | 550 L – 1000 L | Depending on Fixtures/fittings/seating capacity |

Minimum Grease Arrestor Trap Capacities, continued

| Business | Arrestor Size | Comment |
|--|----------------------|----------------|
| Coffee Shop (40–90 persons) Restaurants (40–90 persons) | 1000 L – 2000 L | |
| Coffee Shop (91-180 persons) Restaurants (91-180 persons) Nursing Homes Hostel Hotel Hospital Retail Chicken Shopping Centres (combination shops) | 2000 L | |

Appendix 3

Sewer Admission Limits

The upper limits for the quality of trade waste discharged to the sewer for all categories are set out below. These admission limits shall apply from 1st October 1999. They are subject to periodic review.

I. General Limits

| Parameter | Concentration mg/L except* |
|---|---|
| Temperature * | <38°C |
| pH * | 6 – 10 |
| Biochemical Oxygen Demand (BOD ₅) + | 600 |
| Chemical Oxygen Demand (COD) + | 1500 |
| Total Organic Carbon (TOC) + | 1200 |
| Suspended Solids + | 600 |
| Total dissolved solids (TDS) + | 10000 |
| Total oil/grease (freon extractable) | 200 |
| Gross solids * | non faecal gross solids shall have a maximum linear dimension of less than 20mm and a quiescent settling rate of less than 3m/hr. |
| Colour * | limited such as not to give any discernible colour in treatment works discharge |
| Odour * | not detectable in 1% dilution or causing an odour problem in Council's sewerage system |
| Chlorine (as Cl ₂) | 10 |
| Sulphate (as SO ₄ ⁻)# | 2000 |
| Sulphite (as SO ₂) | 100 |
| Surfactants – Anionic (MBAS) | 500 |
| Aluminium (as Al)# | 100 |
| Iron (as Fe)# | 100 |
| Ammonia plus ammonium ion (as N)# | 100 |
| total Kjeldahl Nitrogen (as N)# | 150 |
| Phosphorus (Total P)# | 50 |
| Manganese (as Mn) | 100 |

NOTE:

- + the total mass load and the capacity of the sewerage system to accept the load shall be considered for each application.
- # council may in some circumstances accept waste containing higher concentrations of these substances. Additional charges for treatment (clause 7.6) will apply.

II. Prohibited Discharges

Flammable/explosive substances.

Radioactive substances except as allowed for under the Queensland Radioactive Substances Act.

Pathological and infectious waste and Cytotoxic waste except as allowed for under the *National Guidelines for the Management of Clinical and Related Wastes*, National Health and Medical Research Council, 1988.

Genetically engineered organisms.

Rainwater and uncontaminated water.

III. Specific Limits - Inorganic

| Parameter | Concentration mg/L |
|----------------------------|--------------------|
| Boron (B) | 100 |
| Bromine (Br ₂) | 10 |
| Flouride (F ⁻) | 30 |
| Cyanide (CN ⁻) | 5 |
| Sulphide (S ⁻) | 5 |

IV. Specific Limits - Metals

| Parameter | Maximum Concentration mg/L | Lower Daily Mass Load, g/day |
|---------------|----------------------------|------------------------------|
| Arsenic (As) | 5 | 15 |
| Cadmium (Cd) | 2 | 6 |
| Chromium (Cr) | | |
| Total | 20 | 75* |
| Hexavalent | 10 | |
| Cobalt (Co) | 10 | 30 |
| Copper (Cu) | 10 | 75 |
| Lead (Pb) | 10 | 30 |
| Mercury (Hg) | 0.05 | 0.15 |
| Nickel (Ni) | 10 | 30 |
| Selenium (Se) | 5 | 15 |
| Silver (Ag) | 5 | 15 |
| Tin (Sn) | 10 | 30 |
| Zinc (Zn) | 10 | 75 |

NOTE:

The concentration values apply to dischargers having a daily mass load between the Lower Daily Mass Load (LDML) and the Upper Daily Mass Load (UDML). For small dischargers with a daily mass load below the LDML, no concentration limits apply. Dischargers who exceed Council's UDML limits will be required to take measures to meet the UDML. This may involve treating to a lower concentration than indicated above.

- * For discharges below the Lower Daily Mass Load, hexavalent Cr must be reduced to trivalent Cr.

V. Specific Limits - Organic

Council may request specific demonstrable evidence based on degradability and toxicity concerning substances listed below:

| Parameter | Maximum Concentration mg/L |
|--|----------------------------|
| Formaldehyde (HCHO) | 50 |
| Phenolic compounds (as Phenol) | 100 |
| Pentachlorophenol | 5 |
| Petroleum hydrocarbons | 30 |
| Halogenated Aliphatic hydrocarbons | 5 |
| Halogenated Aromatic Hydrocarbons (HAHs) | 0.002 |
| Polychlorinated biphenyls (PCBs) | 0.002 |
| Polybrominated biphenyls (PBBs) | 0.002 |
| Polynuclear Aromatic Hydrocarbons (PAHs) | 5 |

Specific Limits – Organic, continued

| Parameter | Maximum Concentration mg/L |
|---|----------------------------|
| Pesticides: General (insecticides/herbicides/fungicides) + | 1.0 |
| Pesticides: Organophosphates | 0.1 |
| Azinphos-methyl | |
| Azinphos-ethyl | |
| Coumaphos | |
| Demeton | |
| Dichlorvos | |
| Dimethoate | |
| Disulfoton | |
| Fenitrothion | |
| Fenthion | |
| Malathion | |
| Methamidophos | |
| Mevinphos | |
| Omethoate | |
| Oxydemeton-methyl | |
| Parathion | |
| Triazophos | |
| Trichlorfon | |
| Aldrin | 0.001 |
| Chlordane | 0.006 |
| DDT | 0.003 |
| Dieldrin | 0.001 |
| Heptachlor | 0.003 |
| Lindane | 0.100 |

NOTE:

- + This category covers all pesticides other than those specifically listed under organophosphate and organochlorine pesticides.

VI. Any substance not listed in the above tables is a prohibited discharge and may not be discharged without prior approval of Council. Council may request specific demonstrable evidence based on degradability and toxicity for any substance when assessing acceptance to sewer.

Appendix 4

Categories for Discharge

All trade waste accepted to the sewer will be classified according to the following three categories for the purposes of approval, control and charging.

Category 1

Low strength / low volume discharges:

- BOD and Suspended Solids < 300 mg/L;
- COD < 600 mg/L; and/or
- volume < 500 kL/annum.

Approval to discharge required – Approval;
Charge – Approval fee.

Category 2

Low strength / high volume discharges:

- BOD5 and Suspended Solids < 300 mg/L;
- COD < 600 mg/L; and/or
- volume > 500 kL/annum.

Approval to discharge required – Approval;
Charge – Approval fee + Quantity charge on total annual flow; Minimum fee applies.

Category 3

High strength discharges:

- BOD and Suspended Solids > 300 mg/L;
- COD > 600 mg/L; and/or
- volume: any.

Approval to discharge required – Agreement between Council and both the Owner (or Authorised Agent) and the trade waste Generator when the Owner is not the Generator;
Charge – Agreement fee + Quantity and Quality charge on total annual load; Minimum fee applies.

Acceptance of waste under any category is conditional on the waste meeting Council's Sewer Admission Limits (Appendix 3) unless otherwise specified in the Approval or Agreement.

It is the responsibility of the generator to install, operate and maintain “best practice” pre-treatment facilities to ensure sewer admission limits are not exceeded.

In the event of a significant change in the strength or volume or a waste approved under Category 1 or Category 2, the waste will be treated as a Category 3 waste for the purposes of charging and monitoring.