



Office

Others talk about recycling - we just do it!

ENVIRONMENTAL PROTECTION AGENCY

11 JUL 2006

RICHVIEW
OFFICE OF LICENSING & GUIDANCE

Mr Stuart Huskinson,
EPA Waste Licensing Section,
EPA Headquarters,
Johnstown Castle Estate,
Wexford.

June 28th 2006

EPA Ref: Waste Licence Application 205/1
GRR Ref: MOC/epa/Crag/05

Dear Mr Huskinson,

Further to Agency e-mail correspondence of June 15th 2006, Greyhound Recycling & Recovery Limited wish to submit the following information as clarification for data submitted as part of the above referenced application:

- The annual quantity of Used Vegetable Oil to be processed in the proposed Bio-Diesel production facility is 2,500,000 litres per annum. All calculations relating to the facility, including emissions, submitted as part of Article 12 submission dated April 25th are based on this size of facility.
- Quantities of water to be discharged to sewer is 6,000 litres per day as stated in our most recent response (Table E.3(i) – Art. 14(2)(b)(ii) – 25th April 06).
- The truck-wash interceptor is a Class 1 Full Retention Separator, see attachment 1.
- The storage vessels for RVO have yet to be exactly sized. As depicted by the site drawing we envisage a maximum of three such vessels each having a capacity of over 16,000 litres and under 20,000 litres. Total RVO storage capacity of 48-60,000 litres.
- The process of producing BioDiesel involves adding tri-glycerides (oils and fats) and methanol and reacting them with a base catalyst. The resulting reaction forms a Methyl Ester (BioDiesel) product and a loosely termed glycerine by-product (i.e. the by-product contains more than glycerine). The catalyst and any remaining methanol



Nationwide Collection Service:

Dublin Knockmitten Lane, sales 00 353 01 450 8865
Western Ind Est, service 00 353 01 450 9977
Dublin 12 Ireland fax 00 353 01 419 6882

Limerick: Galvone Ind Est., tel 00 353 61 403333
Limerick City, fax 00 353 61 430999
Ireland

email sales@greyhoundwaste.com www.greyhoundwaste.com

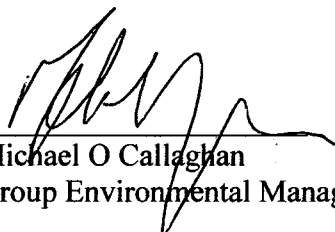
Registered in Ireland 131376

is contained in the glycerine. The methanol is then extracted by distillation. The remaining by-product has proved very popular in Germany as a substrate for anaerobic digestion plants because it increases gas yield considerably and the base catalyst controls pH. We have begun discussions with an Irish anaerobic digestion plant to trial our glycerine by-product, and we are currently looking at German plants who would be interested in taking this by-product.

- We initially aim to concentrate on producing BioDiesel, and selling the glycerine by-product. This is the extent of our current application. In future we may look at refining the glycerine by-product to extract Potassium fertiliser, glycerine and free fatty acids, if and when we decide to carry out this procedure we will seek the EPA's approval for doing so.
- In relation to predicted frequency, length of occurrence of emissions to sewers we have designed the Wash Water Settlement Vessel into the plant. This vessel will hold up to 2 days effluent emissions, the purpose of which is to allow any remaining BioDiesel to be extracted and returned to the plant. Emissions to the sewer from this vessel can be controlled to release emissions evenly over a 24 hour period, in practice we propose to release our emissions evenly over an 8 hour period from 08.30 to 19.30 on each day of plant operation. This is to ensure proper monitoring of the emissions.
- In regards to emissions caused by malfunction, the outlet pipe size from the Water Wash Settlement Vessel to sewer will be sized to limit flow to a maximum 1000 litres per hour. This will ensure a maximum malfunction load of 1000 litres per hour entering the sewer for a time duration of maximum 12 hours.
- In relation to the term Total Fatty Matter as used in Table E.3(ii) – Art. 14(2)(b)(ii) – 25th April 06. We have attached a copy of the laboratory procedure issued to us by Oldcastle Laboratories. Attachment 2

I trust that the above completes the application requirements.

Yours sincerely



Michael O Callaghan
Group Environmental Manager

CARLOW PRECAST TANKS LTD.

Manufacturers and Suppliers of Septic and Effluent Tanks for Sewage Treatment Systems, Water Reservoirs, Pumping chambers, Culverts and Special Products.
Fax Transmission

To: Noel Gavigan,
Greyhound Recycling.

From: Pat Walsh 21st January 2005

Phone No: 01-4508865

Fax No: 01-4196882

Re: **Grit Trap & Full Retention Interceptor for Truck Wash.**

Noel,

Please find details of our quotation as follows:

Normally interceptors are made of GRP or PVC, which need to be installed on a reinforced concrete slab, filled with water and then encased in concrete. This is a slow and expensive method of installation.

Our interceptors are manufactured from precast concrete, and are normally installed on a bed of cl 804 stone and backfilled with the excavated material. This will result in considerable savings on time and materials. Our service also includes delivery to site and off-loading into position.

1 no 2.4m grit trap c/w 1000mm x 500mm heavy duty grid in tank lid.
1 no. 110mm outlet ope c/w wallseal

Price: [REDACTED]

1 no CP 150 GRT 1,500 litre Class 1 Full Retention Separator c/w 600mm diameter heavy duty access cover.

Price: [REDACTED]

PAYMENT TERMS ARE STRICTLY COD.

150mm

Kilnock, Ballon, Co. Carlow, Ireland.
Tel. (+35359) 9159322
Fax (+35359) 9159202 Email: sales@carlowprecasttanks.com

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Pumping chambers, Culverts and Special Products.
Fax Transmission*

Included in this price are the following:

Delivery to site.

Precast concrete lid.

Wavin collars at inlet and outlet positions in separator.

Craneage, **assuming** our truck-mounted crane can be used.

Excluded from this price are the following:

Civil works excavation, preparation of bed, control of groundwater and backfilling.

Delivery to be confirmed from receipt of order.

If you need any further information please do not hesitate to contact us.

Regards,

Pat Walsh
Pat Walsh.

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Kilnock, Ballon, Co. Carlow, Ireland.

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Fax (+35359) 9159202 Email: sales@carlowprecasttanks.com

NOTES

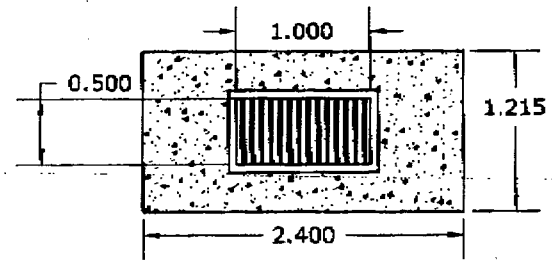
Interceptor opening 600mm diam. with heavy duty cover.

+Other sizes and configurations of opening on request.

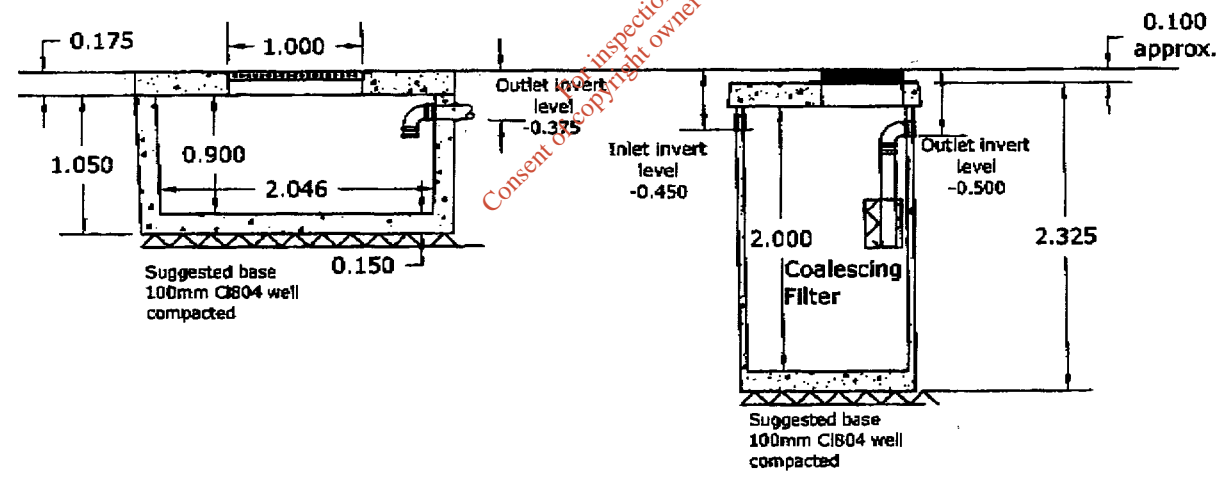
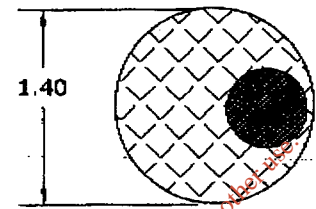
+All Pipework shown to be 100mm wavin. Collars & filter on interceptor by CPT. Grit trap fitted with elastomeric wall-seal, pipework by others. Interconnection of tanks by others.

+Please Verify the suitability of the orientation of the tanks & fittings prior to ordering

+Suggested base preparation 100mm c1804 / crushed stone well compacted & level



ROOF PLAN



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P.O. #:	
Sts:	Site Dwg.
Drn:	P.Walsh
Ckd:	J.W.
Date:	26 January 2005

Greyhound Recycling
2.4m grit trap &
CP 150 FR class 1
Interceptor

Revisions	
1	A
2	
3	

CARLOW PRECAST TANKS LTD

Manufacturers of Septic & effluent tanks, pump chambers, reservoirs, interceptors and special products
Phone +00 353 (59)91 59322 Fax +00 353 (59)91 59202 e-mail: sales@carlowprecasttanks.com

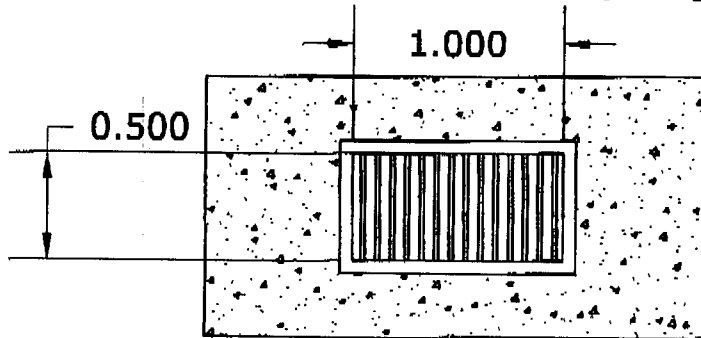


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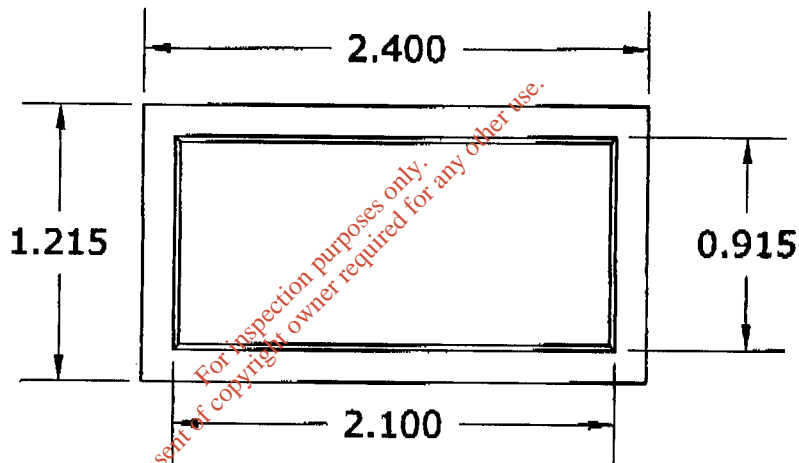
Kilnock, Ballon, Co. Carlow, Tel: 059 915 9322, Fax: 059 915 9202, e-mail: sales@carlowprecasttanks.com

Septic and Effluent Tanks, Pump Chambers, Reservoirs, Interceptors and Special Products

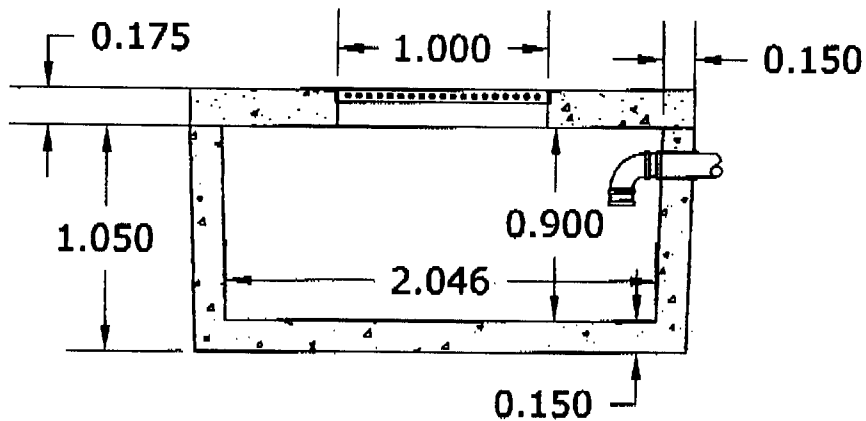
2.4m Grit-trap proposal for Greyhound Recycling.



ROOF PLAN



PLAN



SECTION



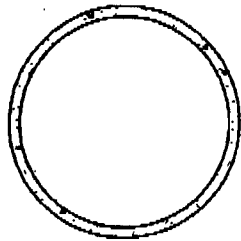
CARLOW PRECAST TANKS LTD.

Kilnock, Ballon, Co. Carlow, Tel: 059 9159322, Fax: 059 9159202, e-mail: sales@carlowprecasttanks.com

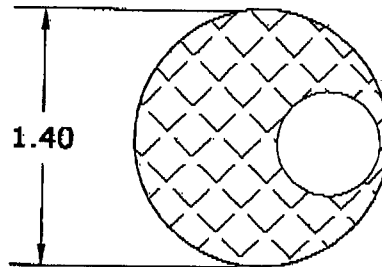
Manufacturers of Septic and Effluent Tanks, Pump Chambers Reservoirs, Interceptors and Special Products

June 2001

CP 150 FR (1,500 litre) Class 1 Separator

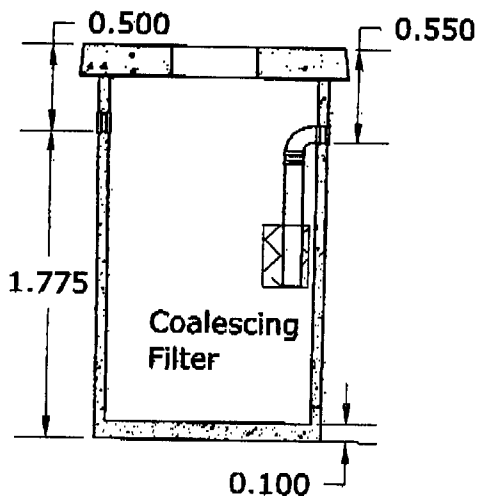


FLOOR PLAN



ROOF PLAN

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SECTION

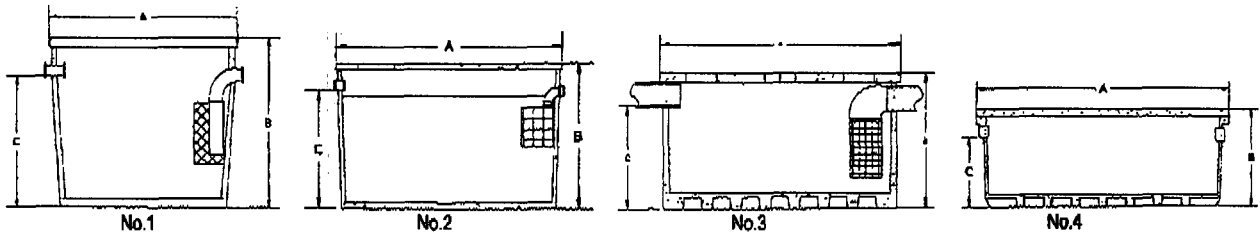
110mm Wavin fitting at outlet.

Includes automatic closure device.

Standard tank weight 2.0 tonnes.(includes lid)

Working capacity 1500 litres.

Outlet 50mm lower than inlet. These invert levels can be changed to suit site requirements.



Model	Drainage Area M ²	Working Capacity	Max Flow L/s	Oil Retention Capacity L	A Outside Dimensions	B Overall Depth	C Inlet Invert to Base	D Fall Across Unit	Inlet/Outlet O.D.	Refer to Drawing
CP 150	300	1500	3	370	1400 Ø	2325	1825	50	110 Ø	No.1
CP 380	750	3800	6	900	2760 x 1400	1800	1445	50	160 Ø	No.2
CP 560	1100	5600	15	1400	2350 Ø	2275	1800	50	225 Ø	No.1
CP 1000	1800	10000	25	2200	3000 Ø	2325	1770	50	225 Ø	No.1
CP 1300	2600	13000	36	2650	3050 Ø	3025	2400	50	250 Ø	No.1
CP 1800	3600	18000	50	4000	4720 x 3150	2609	2060	50	315 Ø	No.3
CP 2200	4400	22000	61	4500	6540 x 3180	2475	1775	100	315 Ø	No.4

Advantages

- ⇒ Ease of installation
- ⇒ Speed of installation
- ⇒ Reduced Civil Costs - no expensive concrete backfill
- ⇒ Durability and robustness

Accessories

- ⇒ **Oil level Alarms** can be fitted to indicate when the separator requires emptying. They are mounted remotely from the unit and are available with an audible or visual alarm.
- ⇒ **Access Covers** to suit all loadings are available on request.

Capacities available

From 3,800 litres up to 37,000 litres in a single chamber Full Retention Unit. Larger capacities can be achieved using a combination of tanks.

Data Available

- Detailed Installation Manual
- Maintenance Manual
- Capacity & Design Detail for each Separator

Production Selection

For assistance in selecting the required unit, please fill in the following questionnaire and return to our office at the address below, or fax to 0503-59322.

Questionnaire for Interceptor enquiry.

Name:

Company:

Phone No: Fax No:

Site Location:

Type Required: Bypass
 Full Retention
 Unknown

Class I or Class II

Type of project: Garage Forecourt
 Car Park
 Haulage Company
 Other, please specify below:

Surface area being drained by interceptor:

Where is it discharging to (council sewer, storm drain, percolation area, etc)?

Roof Loading - What type of traffic, if any, will cross unit?

For advice, please ring 059-9159322 or email us at sales@carlowprecastconcrete.com

CARLOW PRECAST TANKS LTD.

Manufacturers and Suppliers of Septic and Effluent, Tanks for Sewage, Treatment Systems, Water Reservoirs, Pumping Chambers, Culverts and Special Products.

FULL RETENTION SEPARATORS

Introduction

The use of an oil/water separator is required wherever there is the risk of hydrocarbon pollutants causing contamination at the point of discharge, i.e. an open ditch, river, stream or groundwater.

Normally the interceptors are made of GRP or PVC, which need to be installed on a reinforced concrete slab, filled with water and then encased in concrete. This is a slow and expensive method of installation.

Our interceptors are manufactured from Precast Concrete, and are normally installed on a bed of c1804 stone and backfilled with the excavated material. This will result in considerable savings on time and materials. Our service also includes delivery to site and off-loading into position.

Description of basic type - Class I & II

Class I Separator

This type of unit is required where the hydrocarbon pollutant concentration in the liquid discharging from the tank must be 5 mg/L or less, or where discharge is to sensitive waters. Class I units contain a coalescing filter which prevents passage through the system, of oil droplets found in suspension in the liquid. Class I units also contain a float controlled closure device. In the event of a major spillage, as pollutants enter the separator, the closure device will sink and shut off the outlet flow. The pollutants are contained within the separator, thus preventing contamination of the outfall.

Class II Separator

This type of unit is required where the hydrocarbon pollutant concentration allowable is 100 mg/L or less. They are used where the effluent quality requirements are less stringent, but there is still a need to protect the environment by shutting the system down in the even of a spillage. Class II separators are provided with a closure device only.

Product Selection

Full Retention Separators

Full retention separators are used in areas where there is a high risk of spillage. These areas include garage forecourts, fuel depots and vehicle workshops.

As contaminated water passes through the separator, it is retained long enough to allow pollutants to

accumulate on the surface. Carlow Precast Full Retention Separators are single chamber vessels, resulting in minimal turbulence and velocity, and maximising retention time. The pollutants are retained within the separator, allowing treated water to discharge.

Garage forecourts are particularly high-risk areas. In accordance with Environment Agency Regulations, any separator serving a refuelling area should be at least capable of retaining the spillage from one compartment of a delivery tanker, normally 7,600 litres. The capacity for parking areas etc. within the forecourt is not included in this 7,600 litres capacity.

Materials

Carlow Precast Full Retention Separators are manufactured from Grade A C50 N15 concrete, with steel fibre reinforcement at 40kg per cubic metre. Larger units contain conventional steel reinforcement as well as steel fibre.

Installation

The unit should be installed on a level bed of sand, gravel or broken stone. The base of the excavation should be level and free from projecting hard points such as rocks or boulders. The separator is lifted into position by our truck mounted crane, assuming there is suitable access for our delivery vehicle. Backfilling is commenced as soon as possible after placement of the separators.

In most installations, it is not necessary to backfill around the separator with concrete.

Design

In principle, we design to four basic classifications; Full Retention, Bypass, Class I and Class II. Classes I and II pertain to the Draft Eurocode prEN858 (Separator Systems for Light Liquids Part I)

Our designs comply with the requirements of the EPA Wastewater Treatment Manuals:-

- Preliminary Treatment: Part 5: Oils, Grease and Fats
- Primary Secondary and Tertiary Treatment: Part II

All of our products are engineered to the customers' requirements, using established design parameters. The designs are based on flow speeds, retention times, temperature and the settlement characteristics of the target materials. The tank structures are designed to BS8110, BS8007 and the Dramix Design Guidelines for Steel Fibre Reinforced Concrete Structures.

Oldcastle Laboratories / Oldcastle Biologicals Business Model		
Test Method	Date of Approval	14/09/05
	Date of Applicability	14/09/05
Approved by: <i>Paige Reilly</i>	Template Nr	4004
	Revision Nr:	000
Title:	Determination of Total Fatty Matter Content of Water / Effluent	

1. Purpose

To ensure the procedure for quantifying the total fatty matter (oil and grease) content of water / effluent follows a standard procedure and is reviewable.

2. Scope

To determine the level of Total Fatty Matter present in water and effluent.

3. Range

Unlimited

4. References

- E.D.8042 Standard Methods for Water and Wastewater
W.I. 3031 Operation of the Electromantle ME Heating Mantles.
W.I.3225 Operation of the Memmert Oven type ULM 400, F. Nr 885113.

5. Records

- TFL4134 Water / Effluent Worksheet
TFL4067 Water Certificate of Analysis
TFL4136 Effluent Certificate of Analysis

6. Reagents and Materials

- Hydrochloric acid 1 + 1.
Petroleum Ether, boiling range 40°C to 60°C.
GF/A filter paper
Extraction thimble.

7. Apparatus and Equipment

- Buchner Filtration Apparatus
Graduated Cylinder
Oven

Document Number 2125
Revision: 002

Page: 1 of 3

Soxhlet Extraction Apparatus
Dessicator
Round bottomed flask

8. Definitions

None

9. Principle

Soluble metallic soaps are hydrolysed by acidification. Any oils and solid or viscous grease present are separated from the sample by filtration. After extraction in a Soxhlet apparatus with petroleum ether, the residue remaining after solvent evaporation is weighed to determine the oil and grease content. Compounds volatilised at or below 103°C will be lost when the filter is dried.

10. Health and Safety

Care to be taken when handling chemicals, gloves and safety glasses to be worn.

11. Procedure

- 11.1 Acidify 1000ml of sample with 5ml of hydrochloric acid. Adjust sample volume as appropriate for sample
- 11.2 Assemble Buchner Filtration Apparatus.
- 11.3 Wash GF/A filter paper with 2 successive 100ml portions of distilled water. Continue suction to remove all traces of water and discard washings.
- 11.4 Filter acidified sample.
- 11.5 Carefully remove filter.
- 11.6 Roll up filter and place in a paper extraction thimble.
- 11.7 Dry thimble at 101°C to 103°C for 30 minutes.
- 11.8 Weigh a pre-dried extraction flask.
- 11.9 Fill thimble with cotton wool.
- 11.10 Assemble Soxhlet Extraction Apparatus.
- 11.11 Extract oil and grease using petroleum ether for 4 hours.
- 11.12 Distil solvent from extraction flask. Dry flask at 101°C to 103°C for 1 hour.
- 11.13 Allow to cool in a dessicator and weigh.

12. Calculation

Calculate Total Fatty Matter using the following formula:

$$\frac{(A - B) \times 1000}{\text{Sample volume in ml}}$$

where A is the weight of the flask + oil and grease in mg.
and B is the weight of flask in mg.

Result is expressed in mg/l Total Fatty Matter.

13. Quality Controls

None

14. Recording and Reporting

Record result on Water / Effluent Analysis Sheet.

Report on either Certificate for Analysis for Water or Effluent.

15. Interferences

None

16. Responsibilities

Trained Laboratory Personnel.

17. Measures of Effectiveness

None

18. Change History

Date	New Rev	Author	Summary of Change	BAR
14/09/05	002	Denise Reilly	Inserted reference to WI3225	1427
29/03/04	001	Maeve Doherty	Method number on HACH corrected in 11.1	None
23/07/03	000	Sarah Dolan	In new template rev 000 & in M/word	None