





Document title:	Guideline for maintaining and cleaning grease traps, and transporting their waste to the grease trap waste recycling plant.			
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 GOVERNMENT OF DUBAI	<b>Organization Unit:</b>	Sewage & Recycled Water Network Department	<b>الوحدة التنظيمية:</b>	 بلدية دبي DUBAI MUNICIPALITY
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### Record of versions and modifications to the document

(Any amendment to the document must be reviewed and approved in accordance with the accredited documents and records control policies and procedures)



Version number	Date	Preparation/revision team	Summary of modifications
1	June 2020		First edition
2	November 2021		Second edition -Amendment to the requirements for the registration and operation of tanks transporting waste and grease traps
3	October 2022		Third edition -Amendments in the workflow of installing new grease trap. -A sizing formula methodology has been added to choose the suitable trap size and type for the workload. -The annual permit for companies to clean and transport fat and grease traps waste has been removed and replaced with the registration on DM-smart platform "FoodWatch" only. -The requirements for supplying and trading grease traps have been added.

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## 1- The purpose of the guideline

This guideline is considered complementary to the policy of food oil and grease treatment. Also, it is considered to be an adequate explanation of the process and a reference for all partners of it such as oil and grease waste producing food establishments and grease trap waste transporting companies and treatment plants specialized in the process of recycling this type of waste.



### General objectives:

- Assisting the city of Dubai in managing a program suitable for a sustainable environment through recycling grease trap waste produced by food preparation establishments.
- Improving and developing a control system program for managing grease traps waste resulting from the companies operating in the Emirate.
- Intensifying the environmental control process to ensure public health safety and protection.
- To Protect the sewage network from blockages.

## 2– Scope

The guideline covers all steps and standards of organizing the production, collection and transportation of food oil and grease in the Emirate of Dubai, where this guideline regulates the role of establishments producing food fat and oil, and the existing companies working in the collection of fat and grease trap waste, especially those involved in managing grease traps waste by cleaning the traps, collecting the waste and transporting it to the specified grease and oil treatment plants. The guide also covers companies planning to expand their business activities and want to engage in the management of grease traps/interceptors and containers, or the use of any available technology that contribute to controlling the blockages caused by fats, oils, grease and alike, and preventing their occurrence.



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### 3-Terms and definitions

The following terms and expressions wherever mentioned in this document shall have the meanings assigned to them below unless the context indicates otherwise:

Term	Definition and Meaning
Department/Municipality	Dubai Municipality
Government	Dubai Government
Higher Management	It is the top management of Dubai Municipality represented by the Director General, his deputy and the Executives directors of sectors in the municipality
Food establishments	All producers of food oil and grease waste, such as restaurants, coffee shops, cafeteria, labor camps and the like.
Food oil and grease trap	A device for separating food fat, oil and grease from sewage waste water
Sewage network	It is the network which drains liquid waste from residential buildings, factories and any facility to treatment plants.
Partners	All parties involved with the process of grease treatment, including recycling plants, food facilities, grease traps maintenance & transport companies which operate under the supervision of Dubai Municipality.
Grease trap waste recycling plant	It is a plant dedicated to recycle grease trap waste
local order	The decisions and laws regulating operations and services
Treatment plants	The facilities which are specialized in the process of purifying sewage water connected to the sewage network

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## 4- Plants specialized in treating and recycling food oil and grease waste.



### 4-1 Definition of the plant:

They are special factories concerned with recycling food oil and grease waste which are transported through special companies, and these factories are placed under strict environmental control by Dubai Municipality.

### 4-2 Role of the plant

Dubai Municipality, through its special program for participation of the public and private sectors (PPP), has established good relations with private sector establishments to implement sustainable environmental management programs, where one of the pioneering projects in this regard is building a grease trap waste treatment plant in cooperation with a third party specialized in this field, where waste of grease and oil resulting from food preparation establishments activities such as hotels, restaurants, malls and public coffee shops is recycled into a useful product in accordance with the indicated local order.

In the context of controlling companies working in the field of grease traps cleaning, their vehicles transporting waste are monitored to ensure their compliance with the rules of environmental protection and public health safety.

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## 5- Food oil and grease producers

### 5-1 Definition

All producers of food oil, fat and grease waste including food establishments such as restaurants, cafes, cafeterias, labor camps and the like, who are subject to Local Order No. 8 of 2002.

### 5-2 The role of producers of food oil and grease



Dubai Municipality compels all producers of food oil and grease to install traps dedicated to separating grease and oil drained into the sewage network.

The installation of a grease trap in food establishments and food oil and grease waste producers is considered to be the first protection shield for sewage networks and sewage treatment plants because of its role in preventing blockages in the network due to the accumulation of fat and the dilution of organic acids, which has a significant environmental and operational impact.

The type and size of the trap is determined by the Building Permits Department according to the type and size of the commercial activity based on the quantitative measurement methodology attached in this guideline.

The installation of the trap is monitored by the Building Control Department until the start of work in the food establishment, provided that it complies with the instructions and requirements of the Building Permits Department.

The control on cleaning and maintaining the trap after the start of work in the food establishment is monitored by the Food Safety Administration.

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### 5-3: Types of fat traps

- Grease traps differ in terms of type, size, and manufacturer, but they share the same classification, and are categorized in to several types.
- There are large grease traps used for centers, malls, hotels and big restaurants, and they are called Grease interceptors.
- Grease traps and their suppliers are being approved by Dubai Municipality where it is prohibited to install unapproved grease traps or deal with an unapproved supplier to buy or install them.

### 5-4 Cleaning of grease traps:

- The trap is cleaned regularly and at least twice a month.
- A violation is issued according to the Local Order No. 8 of 2002 for anyone who:
  - 1) Do not install a grease trap
  - 2) Purposely connecting waste water directly to the sewage network
  - 3) Failure to regularly clean the trap according to the rules and regulations
  - 4) Carrying out any interference act that would prevent the operation of these traps
  - 5) Not cooperating with grease traps inspectors and not providing the required documents.



### 5-5 Bases for choosing the size of grease traps:

The Emirate of Dubai is the first city in the Middle East to implement an integrated system for the management of food oil and grease waste separation, transport and recycling. Dubai's uniqueness on this step made it essential for the officials in the Department of Sewage & Recycled Water Network to necessarily put bases that suits the city of Dubai for choosing the grease trap based on the parameters of the amount of water flowing into the sewage network, the number of washbasins, cleaning panels, dishwashers installed, and according to the following formula:

$$GTT = (\text{criteria score}) * \text{water flow} * \text{pipe size}$$

The guideline for applying the formula must be reviewed to determine the appropriate trap size.

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## 6- Grease traps Supplying Companies:

### 6- 1 Definition

Existing companies working in the trade, supply and installation of grease traps in the Emirate of Dubai.

### 6-2 general requirements:

A-1 The companies working in grease trap trade and supply must obtain a valid license in Dubai issued by Dubai Economy & Tourism to work in grease traps trading, in which the following commercial activities are stated:

Activity Code	Activity Description	Activity Group
4752055	Grease Traps Trading	Building materials trading

*Note: Other activities not indicated are subject to special approval from the Director of Sewage & Recycled Water Network Department after audit and review.*

A - 2 All types of traps which companies operating grease traps trading and supplying want to supply must be approved by the Field Operations Section of Dubai Municipality, with designs and samples submitted for each trap.



A- 3 Traps which companies involved in grease trap trading want to approve must be inspected by officials in the Field Operations Section after reviewing their designs.

A- 4 The supplier details and the type of the grease trap must be provided on the trap.

A-4 All companies must register on Dubai Municipality smart platform “FoodWatch” and comply with the requirements for using it in everything related to grease traps trading, supply and installation.

A-5 It is strictly forbidden to supply and trade any traps not approved by Dubai Municipality.

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## 7- Grease traps waste transport companies:

### 7-1 Definition

Existing companies working in the collection of grease traps waste, especially those involved in the management of the grease trap waste by cleaning the traps and transport the waste collected to the grease trap waste treatment plants.

### 7-2 general requirements:





A-1 The companies working in grease trap cleaning and waste transport must obtain a valid license in Dubai to work in handling and transporting grease trap waste, and must also obtain a work permit approved by the Department of Economic Development, in which the following commercial activities are stated:

Activity Code	Activity Description	Activity Group
3700005	Grease traps cleaning and waste removal	Sewage and irrigation services

*Note: Other activities not indicated are subject to special approval from the Director of Sewage & Recycled Water Network Department after audit and review.*

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A - 2 All vehicles of companies operating in transporting grease trap waste must have a prior approval from Field Operations Section in the Sewage & Recycled Water Network Department.

A- 3 Cars registered/or required to be registered by companies operating in grease trap waste for obtaining a permit to transport the waste must be inspected by officers in the Field Operations Section.

A-4 All companies must register on Dubai Municipality smart platform “FoodWatch” and comply with the requirements for using it in everything related to cleaning and transporting grease traps waste.

A-5 It is strictly forbidden to bring grease trap waste of collected from other emirates to Dubai and dispose it in Dubai or vice versa, unless a special permit is obtained from the concerned authorities in both of the two Emirates.

## **B – Road safety and waste transport vehicle requirements**



B-1 Vehicles or tanker trucks transporting grease trap waste must meet all requirements of road safety and traffic validity and must be registered in Dubai Roads and Transport Authority. The vehicles must meet the conditions for safe driving and transportation of grease trap waste through roads and streets in Dubai.



B-2 Drivers of all vehicles must have valid driving licenses issued by the Roads & Transport Authority and are known for their good manners. They must be aware of Dubai streets and traffic rules and trained to respond quickly in case of load leakage or spillage.

B-3 All Vehicles must be equipped at all times with the following safety equipment: Reverse Traffic Sensors, revolving lights, Emergency Leak Handling Equipment, Safety Gloves, Safety boots, full overall uniforms, shovel or scoop, absorbent materials, rigid plastic or metal containers with lid, garbage bags, and fire extinguishers of a type containing carbon dioxide or dry chemicals.

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B-4 Revolving lights must be installed on every vehicle transporting grease traps waste and must be used during night operation, given that equipment to deal with leakage is available to safeguard the environment in emergency cases.

B-5 The tank load level gauge tube shall be installed on the left side of it with valve at its top and bottom to ensure safety in case of breakage or during suction and discharge.

B-6 Declaration banners shall be placed on the sides and at the back of each vehicle approved to transport grease trap waste. The United Nations Number Concerning Hazardous Materials shall be in a visible place, and the number and words shall be written in a clear writing readable from a distance of at least 30 meters. Please refer to Figure 1 for the vehicle's requirements.

B-7 The company's information, specifically its name, address and operator's phone number, must be clearly written on the vehicle.



B-8 There must be a specific number on the tanks of each vehicle transporting grease traps waste to ease identifying the company which owns the vehicle, given that the Field Operations Section in the Sewage & Recycled Water Network Department is responsible for determining this number.

B-9 The vehicle's body shall be painted in orange color with its maximum capacity of 1000 gallons. Vehicles which are required to exceed the permitted capacity must obtain an exception from the Director of the Sewage & Recycled Water Network Department in Dubai Municipality. The vehicle operating in waste collection and transport must be in a good working condition and completely leak and spill proof so that no leakage would occur during transportation.

B-10 The contents of all the waste collected from grease traps shall be disposed of only at Dubai Municipality approved treatment and recycling plants.

B-11 All vehicles and equipment authorized to operate must be equipped with a GPS tracking system approved by Dubai Municipality.

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B-12 In case of accident on the road, the operator or driver must immediately call and notify the Field Operations Section in the Sewage & Recycled Water Network Department in Dubai Municipality.

B-13 The company undertakes to provide evidence of the amount of waste collected and discharged at the treatment and recycling facilities approved by Dubai Municipality using the unit of US gallon where compliance will be confirmed by the concerned persons working in the facilities.

### C - Compliance with requirements data

C-1 All Grease Trap Waste Transport Companies must submit a Safe Work Method Statements in cleaning, collecting and transporting grease traps wastes to Field Operations Section to ensure high standards of safety and compliance to DM Safety Policy. to ensure proper compliance and conformity with the highest safety standards according to the Dubai Municipality Safety policy.

C - 2 All the company employees working in grease trap cleaning and waste collection must wear personal protective and safety equipment used in such works.

C - 3 The company must use a hydrogen sulfide gas detector on the grease trap is being cleaned and maintained, and make sure that all workers are aware about the dangers of H<sub>2</sub>S and confined space procedure.



C-4 Barriers must be placed around the grease trap cleaning area at all times and contact the manager in-charge of the client or any of his in-charge employees before starting the work so that they do not enter the work area.

C-5 It is strictly forbidden to use acid, caustics, solvents, enzymes or emulsifying agent when cleaning grease traps.

### D - Technical procedures for cleaning grease traps:

The following procedures must be followed and implemented by all the staff working with grease trap waste:

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- 1- Carefully scrape the grease trap cover to not harm or damage the gasket (this is by using a pry bar or wrench or a drill rod with a special tooth for this)
- 2- Skim foam and waste from over the oil trap and from the oil filter housing, and possibly you only need to shake and move the filter a little to facilitate the movement of removing the trap cover.
- 3- Lay out the flexible hoses of the tanker to the grease trap and suck the waste/ residues using the Vacuum.
- 4- Remove the buckets and place the vacuum tube all the way into the trap/interceptor to suck remaining solids from the bottom.
- 5- Vacuum water out of the grease trap. Detach and flush the screen / filter with running water to prevent back down (choking).
- 6 - Clean the sides and the bottom of the trap. This can be accomplished by flushing water back from the vehicle pump or using a hot water source and push the hose down the trap. Make sure the trap has been completely cleaned.

#### **E - Requirements for disposal of grease traps waste at the treatment facility**

- 1 - Only registered and approved vehicles with sticker and permits granted by the Field Operations Section at the Sewage & Recycled Water Network Department will be permitted to transport and discharge grease traps waste at Dubai Municipality approved treatment plants.
- 2 - All grease traps waste must be discharged at the treatment plant facilities which are dedicated to recycle it only.
- 3 - The staff working at Dubai Municipality approved treatment and recycling plant will issue copies of invoices to determine the origin and source of the waste to be disposed of and the amount of waste collected in the vehicle by US gallon.
- 4 - Waste collected from its source must be disposed of immediately, so that it will not lead to the formation of unpleasant odors and public nuisance, and discharge it immediately at Dubai Municipality approved treatment plant only.
- 5 - It is forbidden to transfer waste from one vehicle tank to another.

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6 - It is strictly forbidden to load mobile cleaning devices/machines on vehicles which are unpermitted to transport grease trap waste.

7 - Mobile cleaning devices are carried on tankers that are permitted to transport grease trap waste, given that these devices are placed on the hydraulic carrier located in the tanker while adhering to the safety requirements.

8 - All staff involved in cleaning operations must be trained in all areas of operational activities, General Safety Awareness, Confined Space Safety & Emergency Response in Handling Oil leakage or Spills and how to deal with it.

9 - Vehicles, equipment and pumps used in the collection and transportation of waste should be cleaned and maintained on a regular basis, and it is mandatory, especially for vehicles that deal with parties working in the processing and preservation of foodstuffs and the production of food waste.

10 - All vehicles involved in waste removal are required to keep the coupons book before entering the recycling plant.



#### 1. Prohibitions, Violations and Penalties:

In the event of breaching any of the conditions contained in the Guidelines, the violating company shall pay a fine of not less than five thousand UAE dirhams (5,000) and not more than five hundred thousand UAE dirhams (500,000).

The value of the fine shall be doubled when the violation is repeated within one year from the date of committing the previous violation provided that the penalty amount does not exceed the maximum fine amount.

The Concerned Department may enforce the infringement rules under Article 41 of Local Order No. (8) of 2002 Regarding Sewage, Irrigation, & Water Drainage in the Emirate of Dubai to determine the appropriate action and penalties not mentioned in this guideline.

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## 7-References

- \* Local Order No. 8 of 2002 regarding sewage, irrigation and water drainage in the Emirate of Dubai
- \* Administrative Order No. (181) for the year 2007 regarding fat, oil and grease waste
- \* General Notice Issued by Dubai Municipality Regarding Grease Traps
- \* General Notice issued by Dubai Municipality regarding the disposal of Fats, Oils and Grease
- \* Safety guidelines and circulars issued by Dubai Municipality
- \* Department of Economic Development in Dubai - Department of Activities and Trade Names
- \* Jocelyn Ontario - Oil Trap Recovery Device  
<http://www.greasetrap.ca/contact.htm>

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## 8- Guide for applying the formula

### Grease Trap Sizing Methodology

#### Introduction:

Since Dubai is the first city in the Middle East to have a complete Kitchen waste Fat, Oil and Grease management, and Dubai Municipality being the first authority to manage and control this practice having various multinational kinds of foods and kitchens, Dubai Municipality made a new formula for Grease trap sizing and choosing for Dubai Food facilities.

#### Abstract:

A grease trap (also known as grease interceptor, Separator, collector) is a Tank which is designed to intercept fat, oil, grease and solids before they enter a wastewater disposal systems and Network.



It is used to sustain and preserve the city environment, infrastructure and to cut the cost effect of clogging in the sewage network.

#### Dubai Sizing Strategy:

Dubai Municipality started the study by researching different formulas and doing trials on different food establishments in Dubai to extract the important factors and create a simple but valid formula which can give a proper sizing to choose a grease trap capacity and model for any new or existing food establishment.

#### Execution:

New Facilities: On or after the effective date hereof, food service facilities which are newly proposed or constructed or existing facilities which will be expanded or renovated to include a food service facility, where such facility did not previously exist, shall be required to install, operate and maintain a grease trap according to the requirements contained herein. Grease traps shall be installed and permitted prior to the issuance of a certificate of occupancy.

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Existing Facilities: For the purpose of sizing and installation of grease traps, all food service facilities existing within the city prior to the effective date hereof shall be permitted to operate and maintain existing grease traps provided that their grease traps are in efficient operating condition.

On or after the effective date hereof, the city may require an existing food service facility to install, operate and maintain a new grease trap that complies with requirements hereof or to modify or repair any existing noncompliant plumbing or trap within thirty (30) days of written notification by the city where any one or more of following conditions exist:

- The facility is found to be contributing oils and grease in quantities sufficient to cause line stoppages or necessitates increased maintenance on the wastewater collection system.
- The facility does not have grease traps.
- The facility has an undersized, irreparable or defective grease trap.
- Remodeling of the food preparation or kitchen waste plumbing system is performed which requires a permit to be issued by the city of Dubai.
- The existing facility is sold or undergoes a change of ownership.
- The existing facility does not have plumbing connections to a grease trap in compliance with the requirements hereof.

### Grease Trap Sizing Formula

The formula of sizing will give a score based on equipment criteria, water flow rate and pipe size:



$$GTT = (\text{criteria score}) * \text{flow} * \text{pipe size score}$$

#### 1. Criteria Score

The criteria score is based on the amount of wastewater that is entering the sewage network through sinks and dishwashing machines, type of kitchen and number of hours of operation in a day. To calculate the Criteria Score, we multiply the scores we get for the sinks & fixtures, type of kitchen, hours of operation and number of meals factor.

$$\text{Criteria Score} = \text{Sinks Score} * \text{Type of Kitchen Score} * \text{Hours of Operation Score} * \text{Meals Factor}$$

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### 1.1 Number of sinks/fixtures

The number of sinks and washing equipment in a kitchen will highly affect the amount of waste water entering the grease trap which is measured by the score as per the following table (Table 1.1):

**Table 1.1 (Sinks & fixtures score)**

Sinks & Fixtures	Score
1 Sink	2
2-4 sinks	3
5-6 sinks	4
More than 6	5
Dishwashing machine	1 for each
Mop sinks	0.5 for each
Hand wash	0.5 for each
Indirect sink	1 for each
Floor drain	0.5 for each
Kettles & Pans	1.5 for each



The overall score is calculated by adding the scores of all sinks and fixtures available including fish, meat and chicken washing sinks. Sinks and fixtures must be connected to grease traps. Kettles and pans are counted and included as per their drain point where they are cleaned.

### 1.2 Type of kitchen factor

The type of kitchen defines the type of food preparation activities an establishment is practicing which affect the amount of fat, oil and grease it's generating accounted for as per the following table (Table 1.2):

**Table 1.2 (Type of kitchen factor)**

Kitchen Type	Score	Kitchen Type	Score
Restaurant (Standard)	1.1	Cafeteria	0.7
Restaurant (Fast Food)	1.3	Coffee Shop	0.5
Restaurant (Fine cuisine)	1.2	Public Kitchen/Catering	1.4
Hotel / Mall	1.4	Accommodation	1.6
Hospital	1.4	Bakery /Confectionary	1
Supermarket	0.7	Butchery	0.7

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### 1.3 Hours of Operation

The number of hours a kitchen is operating in a day affect the amount of waste a trap can hold efficiently as per its capacity determined by the score in the following table (Table 1.3):

**Table 1.3 (Hours of operation score)**

Hours of Operation	Score
≤ 8	0.7
9-12	1
13-16	1.5
17-24	2

### 1.4 Number of Meals Factor



The number of meals per day a kitchen is preparing in a day affect the amount of waste generated and entering the trap as per the score in the following table (Table 1.4):

**Table 1.4 (Number of meals factor)**

Meals/Day	Score
< 200	1
200-500	1.2
501-1000	1.4
1001-2000	1.6
>2000	1.8

## 2. Flow rate of the Wastewater

The flow rate of the wastewater is important to determine the capacity of trap needed to have enough retention time for the water entering into it. Standard flow of water as per number and size of faucets available in the kitchen in the rate of liters/minute is taken to represent the wastewater from the same sink attached to each of them (Kindly refer to table 2.1 to calculate the flow for each faucet size):

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**Table 2.1: (Wastewater flow Qs(A) in liters / minute) from kitchen faucets**

Total number of faucets (No.)	Outlet size (inches)		
	DN 15 R 1/2	DN 20 R 3/4	DN 25 R 1
1	13.8	27	46.2
2	18.6	37.2	63
3	22.8	45	76.8
4	25.2	50.4	85.8
5	30	60	102
6	36	72	122.4
7	42	84	142.8
8	48	96	163.2
9	54	108	183.6
10	60	120	204
n > 10	n x 6	n x 12	n x 20.4
Total	.....	.....	.....

The Total Flow is calculated by finding the flow of all faucets from the table above. If multiple faucet sizes were used, the flow of total faucets from each size should be added.

Flow = Total water flow from all faucets



= ..... + ..... + ..... + ..... Etc.

### 3. Pipe connection score

The pipe score is based on the size of pipe connected to the drainage network which is limiting the amount of wastewater running through it affecting its flow rate and the retention time of the waste in the grease trap. It is determined as per below table (Table 3.1):

**Table 3.1 (Pipe size score)**

Pipe size (inch)	Score
≤ 2	2
2 – 4	2.5
5 – 6	3
≥ 7	3.5

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#### 4. Formula Implementation:

$$GTT = (\text{criteria score}) * \text{flow} * \text{pipe size score}$$

After calculating the Criteria Score, Flow Rate and Pipe Size score, we multiply them by each other

$$= \dots * \dots * \dots$$



Formula Score =

Depending on the result of the formula score, the required grease trap is specified in the table below (table 4.1) based on a minimum but not limited to twice cleanings per month. Additional cleanings of the trap might be required depending on other factors like busy seasons, events, location, type and quantity of kitchen equipment, which will be determined by inspection visits:

**Table 4.1: (GTT Score & Required Grease Trap Capacity)**

GTT score	Minimum Recommended GT capacity (Liter)
< 30	60
31-50	110
51 – 100	200
101 – 250	430
251 – 400	600
400 - 650	800
651-850	1300
851-1100	1800
1101-1350	2500
1351-1500	3000
1501-1800	3500
1801-2100	4000
2101-2500	5500
> 2500	6000

Minimum Required Capacity of Grease Trap (liter) =

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In case no space was available to install the recommended type of grease trap as per the formula, the kitchen owner must propose to install a smaller grease trap with an undertaking letter to install a flow control device and increase the frequency of cleaning to equal the formula recommended minimum capacity of the trap (this is to ensure that the flow will not exceed the standard of the installed grease trap).

A sample of the undertaking letter is available upon request.

When the fixtures values are not known, the minimum Grease Trap capacity can be determined based on the kitchen wastewater drain pipe size as follows:

**Table 4.2: (GT capacity as per pipe size)**

Pipe Size (Inch)	Minimum GT capacity (Liter)
3	800
4	2000
> 4	4000 - 9000



For Accommodations, if layout of kitchen is not available, the minimum Grease Trap capacity can be determined based on the number of meals. Number of meals is calculated by number of labors multiplied by number of meals per labor/day. The trap must be approved by the supervisory authority, while the minimum capacity is chosen as per below table:

**Table 4.3: (GT capacity as per number of meals)**

No. of meals/day	Minimum GT capacity (Liter)
< 100	400
101-300	600
301-600	1200
601-1000	1800
1000-2000	3500
> 2000	> 4000

**Example (Labor Camp/Accommodation):**

A labor camp has 4 sinks with 4 faucets outlet size of 1/2r, and connected to drainage through a 4-inch pipe. It has 40 rooms with 4 labors in each room serving each labor 1 meal per day. Labors stay 10 hours at the camp.

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(Camp Kitchen layout is available):

**Criteria Score = Sinks Score \* Type of Kitchen Score \* Hours of Operation Score \* Meals Factor**

Sinks Score: The labor camp has 4 sinks (score 3). So, overall sinks score is 3= 3

Type of Kitchen Score: it is an accommodation, so the score for it is 1.6 as given in the table.

Hours of Operation: Labors stay for 10 hours which falls under the score of 1

Meals per day is 160 which falls under the score factor of 1

So, the Criteria Score =  $3 * 1.6 * 1 * 1 = 4.8$

Second, we calculate the flow rate of the waste water:

The labor camp kitchen has 4 faucets with ½-inch which result in a flow of 25.2 as per the table 2.1

Third we get the pipe size score which is connected to the grease trap.

The camp has a 4-inch pipe which falls under the score of 2

Finally, we implement the formula

**GTT Score = (criteria score) \* flow \* pipe size score**

After calculating the Criteria Score, Flow Rate and Pipe Size score, we multiply them by each other

**= 4.8 \* 25.2 \* 2.5 = 302.4**

Formula Score = 302.4



As per the GTT Score table, the grease trap required is: **600 Liter** (e.g. type “C”)

(Camp Kitchen layout is not available):

Number of meals per day =  $40 * 4 * 1 = 160$

Minimum GT capacity as per table 4.3 for 160 meals/day is **600 liters** (e.g. type “C”)

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### Example (Restaurant):

A restaurant has 2 sinks and 1 mob sink with 3 faucets outlet size of 1/2r, and connected to drainage through a 2-inch pipe. It is preparing 100 meals/day and operating for 12 hours.

First, we calculate the criteria score

**Criteria Score = Sinks Score \* Type of Kitchen Score \* Hours of Operation Score \* Meals Factor**

Sinks Score: The restaurant has 2 sinks (score 3) and 1 mob sink (Score 0.5). So, overall sinks score is  $3+0.5= 3.5$

Type of Kitchen Score: it is a restaurant, so the score for it is 1 as given in the table.

Hours of Operation: it's working for 16 hours which falls under the score of 1.5

Meals per day is 120 which falls under the score factor of 1

So, the Criteria Score =  $3.5*1*1.5*1 = 5.25$

Second, we calculate the flow rate of the waste water:

The restaurant has 3 faucets with 1/2-inch which result in a flow of 22.8 as per the table 2.1

Third we get the pipe size score which is connected to the grease trap.

The restaurant has a 2 inch pipe which falls under the score of 2

Finally, we implement the formula

**GTT Score = (criteria score) \* flow \* pipe size score**

After calculating the Criteria Score, Flow Rate and Pipe Size score, we multiply them by each other

$$= 5.25 * 22.8 * 2 = 239.4$$



Formula Score = 239.4

As per the GTT Score table, the grease trap required is: **430 Liter** (e.g. type "B")

For a simple way of implementing the formula, you may access the following link:

<https://envirol.ae/grease-trap-size-calculator/>

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## 1. Collecting Project/Facility details

Kindly provide below information of the facility to calculate the size of grease trap required:

### 1.1 Project General Information

Name:	Consultant:
Location:	Contractor:
Phone:	Contact Person:
Email:	Mobile No.:

### 1.2 Facility type

<input type="checkbox"/> Restaurant (Standard)	<input type="checkbox"/> Restaurant (Fast Food)	<input type="checkbox"/> Restaurant (Fine cuisine)
<input type="checkbox"/> Catering/ Public Kitchen	<input type="checkbox"/> Cafeteria	<input type="checkbox"/> Coffee Shop
<input type="checkbox"/> Bakery/Confectionary	<input type="checkbox"/> Public Kitchen	<input type="checkbox"/> Butchery
<input type="checkbox"/> Supermarket	<input type="checkbox"/> Mall	<input type="checkbox"/> Hospital
<input type="checkbox"/> Hotel	<input type="checkbox"/> Accommodation	

### 1.3 Time of operation

Daily operation: ..... hours/day	Weekly Operation: ..... Days/week
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### 1.4 Sinks & Fixtures

No. of sinks: .....	No. of Dishwashing Machines: .....
No. of indirect sinks: .....	No. of hand wash sinks: .....
No. of Mop sinks: .....	No. of Floor Drain: .....
No. of Kettles & Pans: .....	

### 1.5 Faucet quantity & size:

No. of Faucets: ..... Size: .....	No. of Faucets: ..... Size: .....
No. of Faucets: ..... Size: .....	No. of Faucets: ..... Size: .....
No. of Faucets: ..... Size: .....	No. of Faucets: ..... Size: .....

### 1.6 Drain Pipe size:

Size of inlet pipe Grease Trap: ..... inch
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