

# Grease Collection and Logistics for Small Operations



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# Basic questions to ask:

- *How much oil do I need?*
- *What to look for in oil. (Color, smell, and look)*
- *What titration can I work with?*
- *How am I going to transport the oil?*
- *Where am I going to store the oil?*
- *What am I going to do **when** I have a spill?*
- *What am I going to do with the filtered waste / food particles?*
- *How do I test to make sure I have good oil?*

# Approaching Restaurants:

- Before you approach a place, check out the oil first.
- Have a business card or brochure, and your equipment with you if possible. Keep it short, be excited, make sure to talk about benefits of displacing imported fuel.



# Contracts:

- A handshake deal is great with your friends, BUT NOT FOR BUSINESS.
- Simple, effective and clear to understand – can help to protect yourself and the restaurant when another rendering company comes in to steal your oil. It also protects you when restaurant owners change hands; cooks / managers leave to go to another restaurant.



- **Payment is the last resort, maybe 10 cents per gallon. (Eat at the restaurant and bring all your friends.) Restaurant owners are very busy. They have a business to run, so they can feed their family.**
- **The contract protects you and the restaurant. It needs to state the basics, how often you will be collecting, what you can collect, what you can't collect, that you will keep the area clean and sanitary and where the oil container will be placed.**
- **DON'T STEAL, EVER.... EVERYTHING YOU DO AFFECTS EVERYONE IN THIS ROOM.**

# On-site Storage: Restaurant

- **55 Gallon drums with water tight lids & 250 gallon propane tank with welded on lid.**
- **Caution:**
- **250 Gallon Propane tanks can be dangerous: Death is bad**
- **Hire a professional if you can't do it.**
- **You're going to want to wash out the tank with water & soap and drain it out completely. Some welders still won't touch it, you may have to shop around.**



- You're going to want to weld on a tight lid to keep the water out and a chain with a lock to keep the *grease thieves* out.
- Keep your storage containers out of the way of large trash dumpster (they will get knocked over)
- They don't have to be pretty, but they do need your name and contact number on them. Talk directly with the owner / manager to see where they want them.
- They need to be kept clean and in good working order.
- Make sure you can get access to them with your vehicle to remove the oil.

# Transporting Oil:

- **Check with your state on transporting WVO for PERSONAL use or business. (Keep it legal)**
- **In Texas as long as you are using WVO for personal use, it's completely legal for you to transport it, if you want to resell it, you need a rendering license. (Talk to me about that later)**
- **You want to have a sealed tank with a spill response kit. If you make a mess, clean it up - your mother isn't going to do it for you.**

# High Tech Transport System



- Oil will flow to the lowest point, just like water – which means your oil could wind up in a watershed like a creek or river
- It needs to be cleaned up ASAP. Use kitty litter, “oil dry” and wood chips. WVO will contaminate drinking water, and clog drainage / sewer pipes very quickly.



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# Top View Sucker Tank



# Sucker Tank:

## *Pros:*

- Easy to use
- Effective
- Safe
- Doesn't require gas / fuel
- Sucks WVO inside storage tank, without chewing it up
- Pushes WVO out with ease
- Adaptable to your needs

## *Cons:*

- Very large in size
- \$\$\$\$\$\$\$\$\$
- Very heavy



# Trash Pumps



# Semi-trash pump

- **\$300 pep boys, home depot, lowes**
- **Do not tell them you are using it for WVO.**
  
- ***Pros:***
- **Very fast**
- **Powerful**
- **Quick Disconnects**
  
- ***Cons:***
- **Hard to return if you used it (has gas in it)**
- **VERY LOUD**
- **Heavy**
- **You're going to need to load and unload it onto your truck**
- **Chews up wvo and emulsifies with water and food particles - MILKSHAKE**



# Settling

- **It's your first line of filtering**

## **Pros:**

- **Cheap**
- **Effective**
- **Easy**

## **Cons:**

- **Time consuming**
- **Takes up a lot of space**
- **You're going to need a filtering system that you can set up and walk away as it runs.**

# Settling Your Oil



# Filtering:

- 100 different ways to filter
- How much oil do you need to filter?
- Filter bags / blue jean bags
- Filter canisters (GE Water filter housings)
- Fuel filters / Oil filters
- Don't heat the oil past 110 degrees for filtering. The hotter the oil the more particles will make it's way through the filter. You need to filter out the particles because they hold water.



- **Filter in stages: 200 micron > 100 micron > 50 > 25 > 10-15 micron > 10-5 micron**
- **For biodiesel production you don't need to filter that much because it will come out in the glycerin, but for a full reaction, it's important to remove the water.**



# De-Watering:

- **Centrifuge vs Heat**

## **Centrifuge**

- **Centrifuge [www.simplecentrifuge.com](http://www.simplecentrifuge.com)**  
**(talk to Randy Smith) \$ 700 for basic parts (\$1500 for assembled system)**
- **Turn key system (talk to randy)**



# My Baby



- **Pros:**
- **Fast processing time**
- **High run time**
- **Easy to use, once set up.**
- **Low heat**
- **Continuous flow**
- **Use very little electricity**
- **Doesn't take up a lot of space**



- **Cons:**
- **Expensive \$\$\$\$**
- **You have to clean the bowl (Remove Cake)**
- **Final product must be sent to test lab to prove it's working (what micron)**
- **LOTS of tweaking required, very application specific**



# Heater

## Pros:

- It can be reset to de-water the oil again
- If set up correctly you can dewater a large amount of oil, but it takes more energy



## Cons:

- It takes up a lot of energy to dewater oil
- You can overflow your dewatering tank if you're not careful
- Smells because of the heat
- Fire hazard
- Smoke, and oil mist can attach to the ceiling



# Testing your oil for water:

- **Electrical frying pan test.**
- **Purchase an electrical frying pan (wal-mart) & laser temperature gun (Harbor Freight)**
- **Heat the pan to 300 degrees and pour several drops of WVO - if you can see any bubbles, or hear any cracking & pops, there is still water in the oil.**
- **Some microdroplets or suspended water may not be detected.**



# Safety:

- At least two fire extinguisher on hand at all times (make sure they are for GREASE FIRES)
- Have a spill response kit ready to go
- Have three or four bags of kitty litter around to quickly stop spill from spreading ("Oil Dri" is our favorite)
- A shop vac is your best friend when you spill something



# Questions?

- Michael R Mullins
- Diesel Green Fuels
- Austin TX
- [www.dieselgreenfuels.com](http://www.dieselgreenfuels.com)

