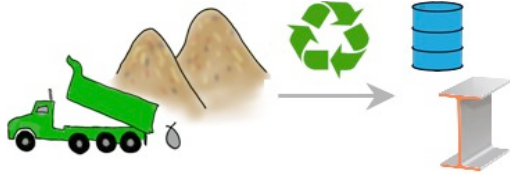


Product Need



A single improperly discarded oil filter can contaminate **62,000 gallons** of drinking water.

450 million filters are discarded every year, **80 percent** in landfills. This wastes **25.5 million gallons** of recyclable oil and **230 thousand tons** of steel.

1 gallon of used oil can produce **2.5 quarts** of lubricant.

Gravity draining takes **24 hours** to remove only **40 to 60 percent** of oil.

With the Cyclos, you can remove **80 percent** of used oil in **2 minutes**. That means you can double the amount of oil removed while decreasing the drain time by a factor of 720!

The Cyclos helps auto shops prepare oil filters for disposal quickly and easily, facilitating environmentally safe practices. Not only does it keep hazardous waste out of landfills, it allows the useful materials in the oil filters to be recovered and recycled.

Acknowledgements

Special thanks to:

2.009 Faculty and Mentors

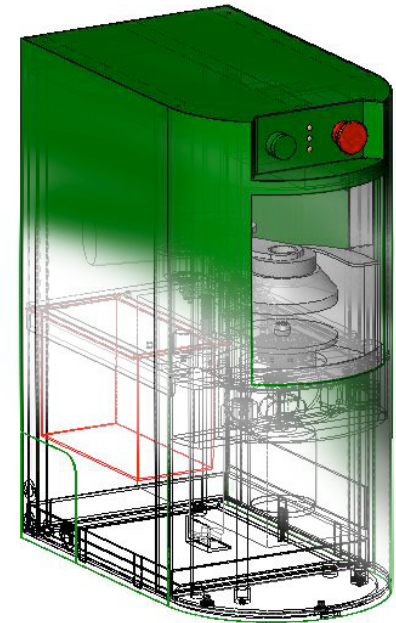
Pappalardo Labs Staff

Ray Magliozzi and Good News Garage



CYCLOS

Oil Filter Cleaner



CYCLOS

2.009 Green

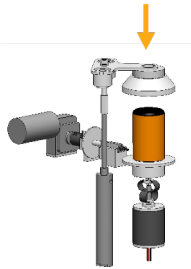
Fall 2007

How It Works

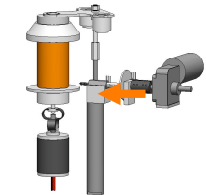
User Interaction:

- Take the dirty oil filter and place it in the machine.
- Close the door and hit the start button.
- Cyclos takes care of the rest!

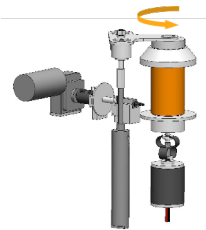
Automated Process:



The pneumatic cylinder clamps the filter between two aluminum plates.



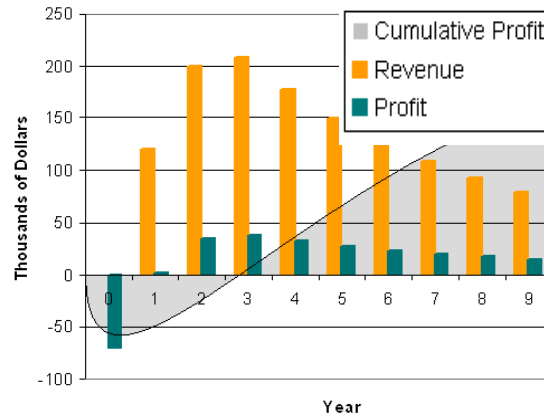
The punching mechanism drills 4 holes around the circumference of the filter.



The Cyclos spins the filter at 1000 RPM's for two minutes.

Gravity Drain	CYCLOS
50% oil removed	80% oil removed
24 hours	2 minute cycle
Hazardous waste	Recyclable

Business Model



- Market Size: 400,000 small- to medium-sized repair shops
- Product Lifetime: 10 years
- Production Volume: 1000 machines per year
- Manufacturing Cost: \$280
- Retail price: \$600
- **Return on Investment: 30%**
- **Payback Period: 3 years**

Client Feedback:

"...there is a need for this product....to capture a higher percentage of the oil and do it quicker."

-Wayne, SaveThatStuff

This product would leave our garage less vulnerable to EPA fines for improper disposal of hazardous waster.

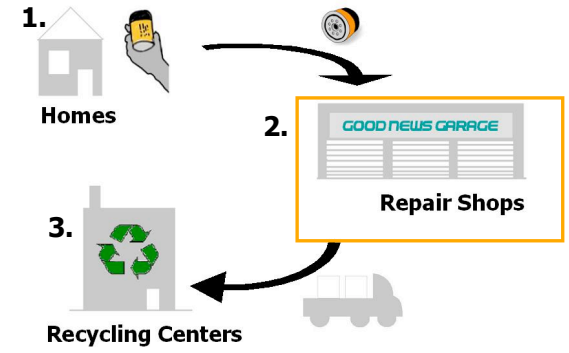
-Ray Magliozzi, Good News Garage

"Very cool machine."

- Peter Pasquier, Safety-Kleen

Market

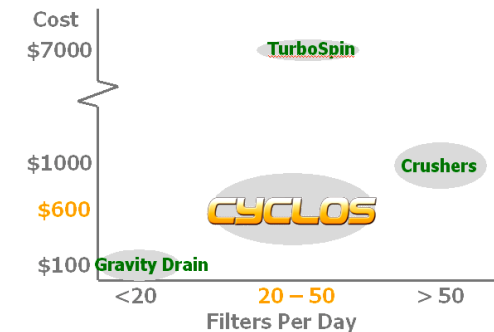
The Oil Filter Recycling Process:



1. Owners change oil every 3000 miles.
2. The oil filters are drained at repair shops.
3. Filters and used oil are picked up by recycling companies. The steel is recycled and the used oil is re-refined or used for heating systems.

Cyclos allows repair shops to efficiently drain oil from the used oil filters that they collect.

Competitors:



Current draining methods do not meet the needs of most small- to medium-sized auto repair shops. Shops that change 20 to 50 filters a day are excited to have a product that is affordable and suits their needs.