

MANAGEMENT OF PROPANE CYLINDERS

Household Hazardous Waste Summit
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PROPANE CYLINDERS

- Contain 1–2 pounds of propane when full
- Typically used for camp stoves, barbeques and hand torches
- Almost all post consumer cylinders still contain propane



REGIONAL PROGRAM

- ▶ Valley Waste (pop. 83,000) receives approximately 4,000 cylinders annually.
- ▶ Cylinders are not regulated provincially.
- ▶ Valley Waste does not accept them in residual waste stream due to health and safety concerns.
- ▶ Residents and businesses are required to deliver cylinders to transfer stations separate from other materials.
- ▶ Cylinders are accepted free of charge.



STORAGE



PROCEDURE

- ▶ Propane cylinders are treated with great caution and processed in areas away from the general public and other site staff.
- ▶ The following procedures are conducted by employees who have been **designated as competent** to perform this task by the Site Supervisor.

Step 1 – Sorting Propane Cylinders

Step 2 - Flaring Propane

Step 3 - Removing Valve Stems

Step 4 – Compressing Empty Cylinders

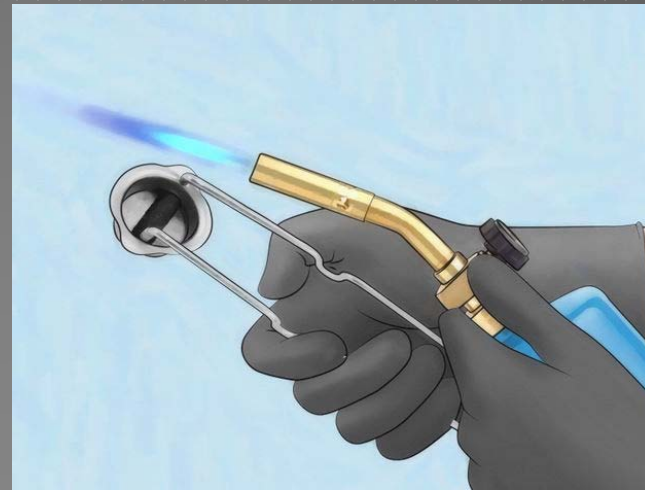
Step 1 – Sorting Propane Cylinders



- ▶ Performed in a barricaded area.
- ▶ One full barrel of cylinders along with 2 empty barrels are brought to work area.
- ▶ The threaded area of each cylinder is cleaned off with a brass brush.
- ▶ A torch head is placed on each cylinder and the valve is opened.
- ▶ A striker is used to see if the torch head will light.

SORTING CONTINUED...

- ▶ If the torch head lights, the valve is turned off and the torch head is removed. The cylinder is placed in a barrel with cylinders requiring flaring.
- ▶ If the torch head does not light and gas is not heard coming from the torch then the cylinders are placed in a barrel with cylinders needing the valves removed.



Step 2 - Flaring Propane Cylinders



- ▶ A flaring device with 36 heads is placed on a level and secure area.
- ▶ A large torch head on a hose is connected to the valve and extended as far as it goes away from flaring tool/device.
- ▶ Cylinders are threaded onto each head. Valves are opened enough to light the torch and then opened fully once lit.
- ▶ When tanks burn for a while, a wet line appears on the side of the tank. When the wet line is gone, the tank is empty.



- ▶ The valve is turned off on the empty tank and replaced with another.
- ▶ The empty propane tanks are placed in a vented barrel and left to sit for ~ 1 week.

Step 3 - Removing Valve Stems



- ▶ Barrels containing the empty cylinders are placed in a low lying, secure work area.
- ▶ Valve stems are removed using a **pneumatic** air drill with a specially designed valve removal bit (brass).
- ▶ Removal bit is placed into the opening of the valve stem and twisted until the bit locks in.



- ▶ The stem opening is pointed towards the ground and away from the operator to prevent left over gases from releasing towards the operator.
- ▶ Trigger of pneumatic drill is pressed to remove stem.
- ▶ The now empty cylinder is placed into a vented barrel to sit for ~ 1 week to allow gases to dissipate.

Step 4 - Compressing Empty Cylinders

- A specially designed compressing unit was created to compress the empty cylinders.
- The compacted cylinders take up less space and also indicates that they have been processed preventing any confusion with unprocessed cylinders that may have been disposed of inadvertently in the metal pile.





- ▶ Cylinders are placed vertically in press – maximum 6 cylinders.
- ▶ Door is closed and secured using tapered pins.
- ▶ Operator moves to the hydraulic control valves and away from the front of the door.
- ▶ Controls are engaged until the ram is completely stopped and then engaged to full up position.
- ▶ Pins from door are removed and door is opened to remove the crushed cylinders.

CRUSHED CYLINDERS ARE PLACED IN A CONTAINER AND SOLD AS SCRAP METAL



THANK YOU

