



# Do you dispose of used oxygen breathing apparatus canisters?

## Would you like to improve this process in the following areas?

- **Meet environmental compliance regulations.** Reduce the volume of used oxygen breathing apparatus (OBA) canisters disposed of as hazardous waste. Media areas include solid waste and hazardous waste programs.
- **Workers' safety and health impacts .** Disassembly process can expose workers to toxic, ignitable and reactive materials; personal protective equipment is required.
- **Productivity impacts.** Recycling OBA canisters requires *additional* resources to perform disassembly and material segregation tasks.
- **Save money.** Substantially reduce hazardous waste transportation, storage, and disposal costs. Revenue can be generated when metal canisters and chemicals are sold to recyclers.



Disassembled OBA Canister Materials

*Used Oxygen Breathing Apparatus (OBA) canisters may be disassembled and recycled as an alternative to disposal as hazardous waste. OBAs are used as an oxygen source by shipboard fire fighting and damage control personnel. Significant amounts of used OBA canisters are generated during training operations and must be disposed as hazardous waste by Navy shore facilities at a substantial cost. The used canisters may be disassembled for recycling using only a few hand tools and a heavy duty can opener. Materials from the disassembled canisters can be segregated into three main categories: metal cans, which can be recycled; oxygen generating chemical (potassium superoxide - KO<sub>2</sub>), which can be sold for reuse; and the starting mechanism, which contains barium and must be disposed of as hazardous waste. Each disassembled OBA canister produces about a pound and a half of scrap metal and two pounds of chemical. **OBA canister recycling is being performed at Naval Base Norfolk, Submarine Base Bangor and Naval Station Pearl Harbor.***

## How can you achieve these improvements?

Recycle scrap metal and other constituents from used oxygen breathing apparatus canisters.

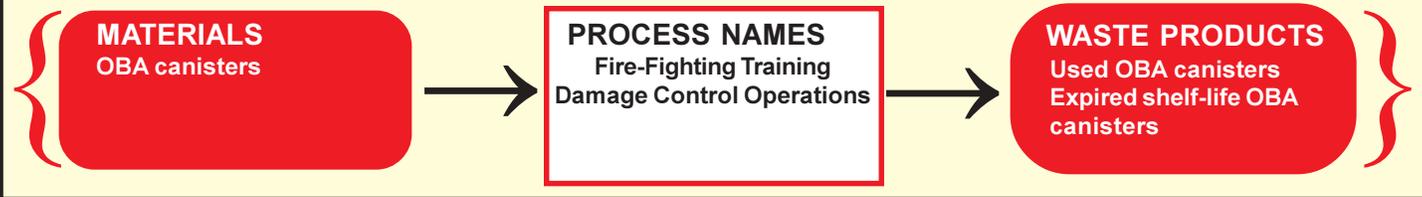
## How does this system work?

Used OBA canisters can be disassembled and broken down into their primary constituents: scrap metal cans (recyclable), oxygen generating chemical (reusable) and the starting mechanism (hazardous waste).

## How will this system save you money?

The cost to disassemble and recycle used OBA canisters is less than one-third the cost to dispose of the canisters as hazardous waste. Revenue can also be generated by the sale of recovered metal cans and chemicals.

## Typical Process Flow Diagram



How can this method eliminate or reduce pollution?

This method can eliminate the disposal of used OBA canisters as hazardous waste. Disassembling used OBA canisters and segregating the constituents will result in the following pollution reductions:

- Greatly reduce hazardous waste disposal requirements, since only the barium-containing starting mechanism must be disposed of as hazardous waste.
- Isolate the potassium superoxide reactive chemical which can be used onsite in wastewater treatment processes or sold for reuse.
- Isolate metal canisters which can be sold as scrap.

Which locations can benefit most from this method?

This method can be used in locations that process used OBA canisters from training operations. Typical locations include:

- Naval Stations
- Naval Submarine Bases
- Public Works Centers

How can this method reduce regulatory compliance concerns?

This method reduces hazardous waste volume and increases the marketability and value of recycled material. Implementation will result in the following regulatory compliance benefits:

- Reduction in hazardous waste helps facility meet the waste minimization requirement under RCRA, 40 CFR 262.41 (a) (6).
- Helps facilities comply with the waste reduction and recycling requirements of Executive Order 13101.
- May help facilities meet pertinent solid waste reduction goals including the Department of Defense Measure of Merit (MOM) goal.

**Note:** Consult with your base environmental office or local regulator before implementing this process. When the metal cans and other materials generated from the disassembly of OBA canisters can be recycled, the process may be considered recycling and exempt from RCRA regulation under 40 CFR 261.6 (c). If the materials generated are discarded, then the process is not recycling and may require a RCRA treatment permit.



### Achieving Environmental Compliance Through Pollution Prevention

Every day the Navy faces the challenge of operating and maintaining the fleet while complying with environmental regulations. This burden can be reduced by using pollution prevention technologies and methods to reduce compliance requirements. This fact sheet is one in a series designed to encourage activities to use pollution prevention technologies and methods. The overall goal of this series is to promote sustained environmental compliance at the lowest life-cycle cost.

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