



# Identifying and Handling Hazardous Substances

ADEC Solid Waste Program





# Outcomes

**01**

**Identify Hazardous Substances**

**02**

**Identify products and materials that may contain hazardous substances**

**03**

**Locate resources to identify health risks associated with hazardous substances**

**04**

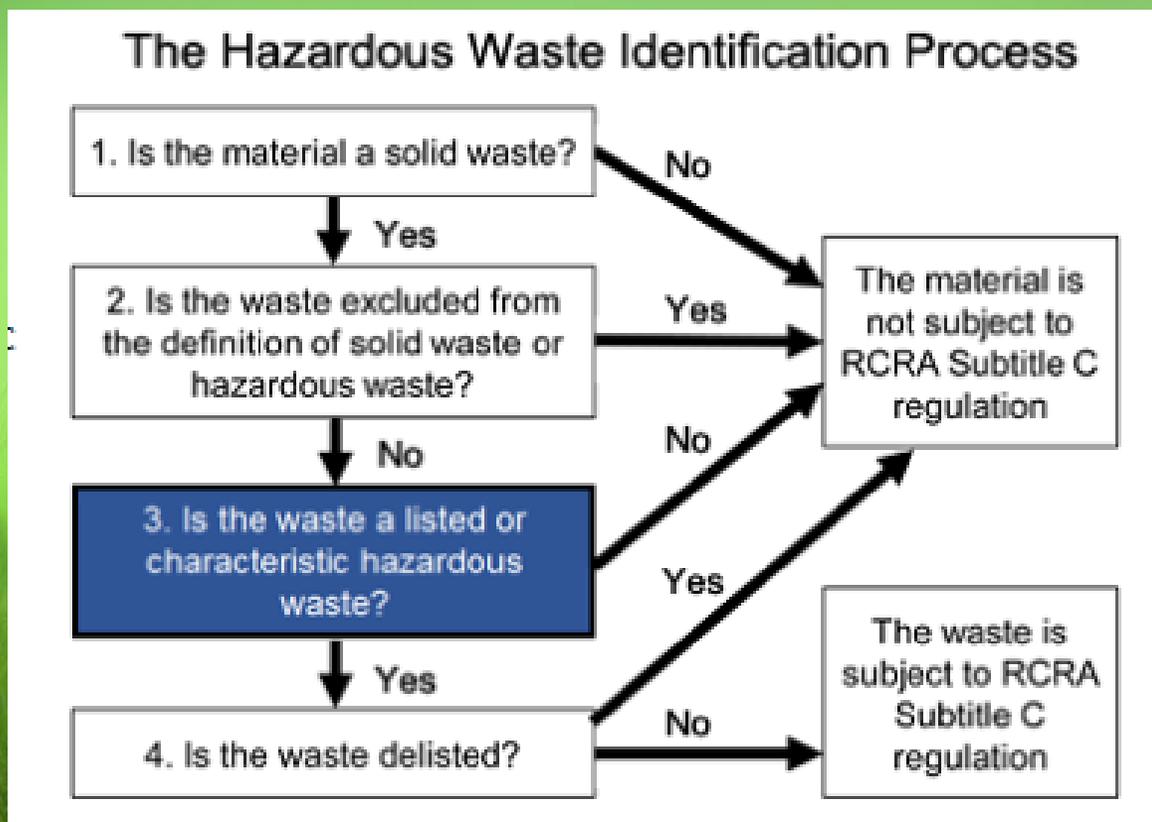
**How to handle waste streams with hazardous substances.**



# Hazardous Substances

What are they?

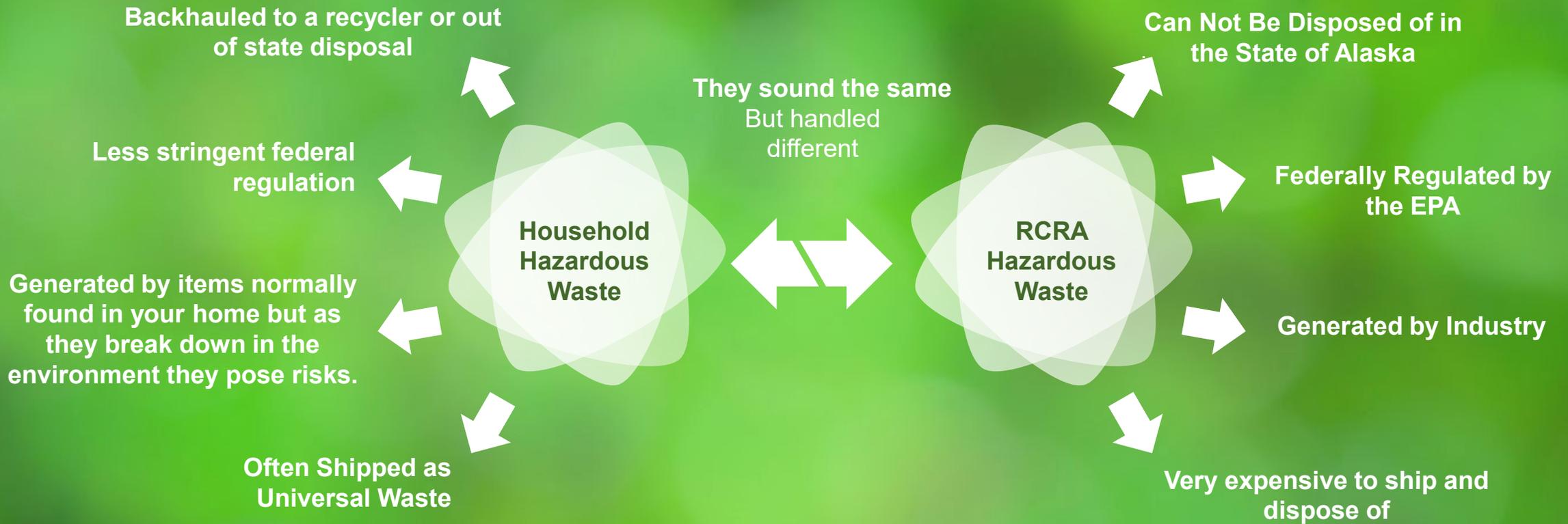
# Resource Conservation and Recovery Act (RCRA)



Interested in learning about hazardous waste?

- Take a 40 hour Hazwopper Certification Course
- Take a McCoy RCRA Hazardous Waste Training
- Read Federal Regulation 40 CFR 239-282

# Focus on Household Hazardous Waste



# Hazardous Substances

## Lead

Commonly found in lead acid batteries, electronics, old paint, and plumbing

## Cadmium

Commonly found in anything with an electronic mother board, plastics, and nickel-cadmium batteries

## Mercury

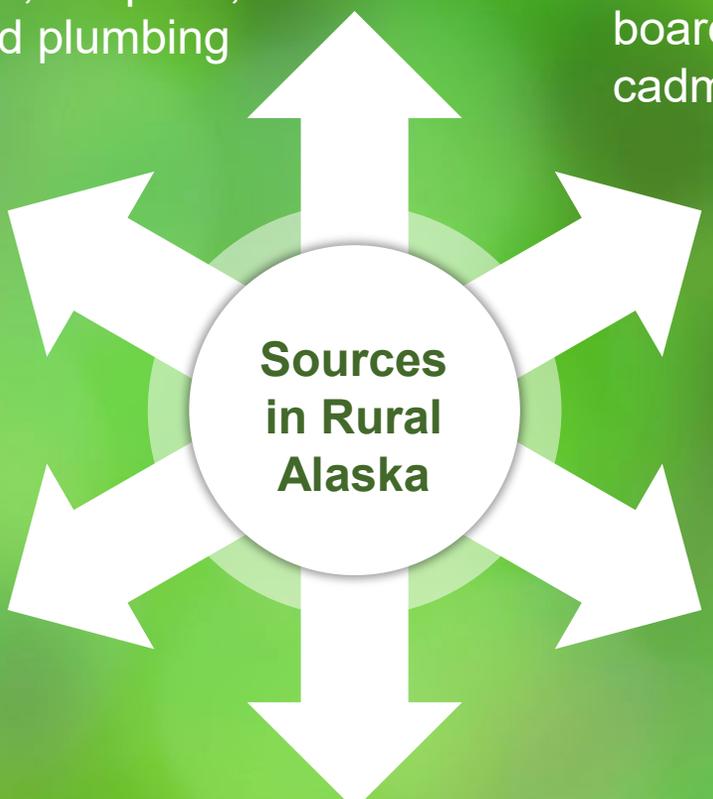
Commonly found in thermostats and fluorescent light bulbs

## Ethylene Glycol

Commonly found in engines, generators, and boiler systems

## Polychlorinated Biphenyls (PCB)

Commonly found in old electric equipment, and industrial oils



**Sources  
in Rural  
Alaska**

## Mystery Barrels of Fluids

Could be anything but most often a mix of used oil, water, glycol, honey bucket waste, and heating oil.

And Many More.....

# Dangers of Hazardous Substances for rural Alaskans



**Harm Human Health**

**Harm  
Environmental  
Health**

**Can Last Hundreds of  
Years**

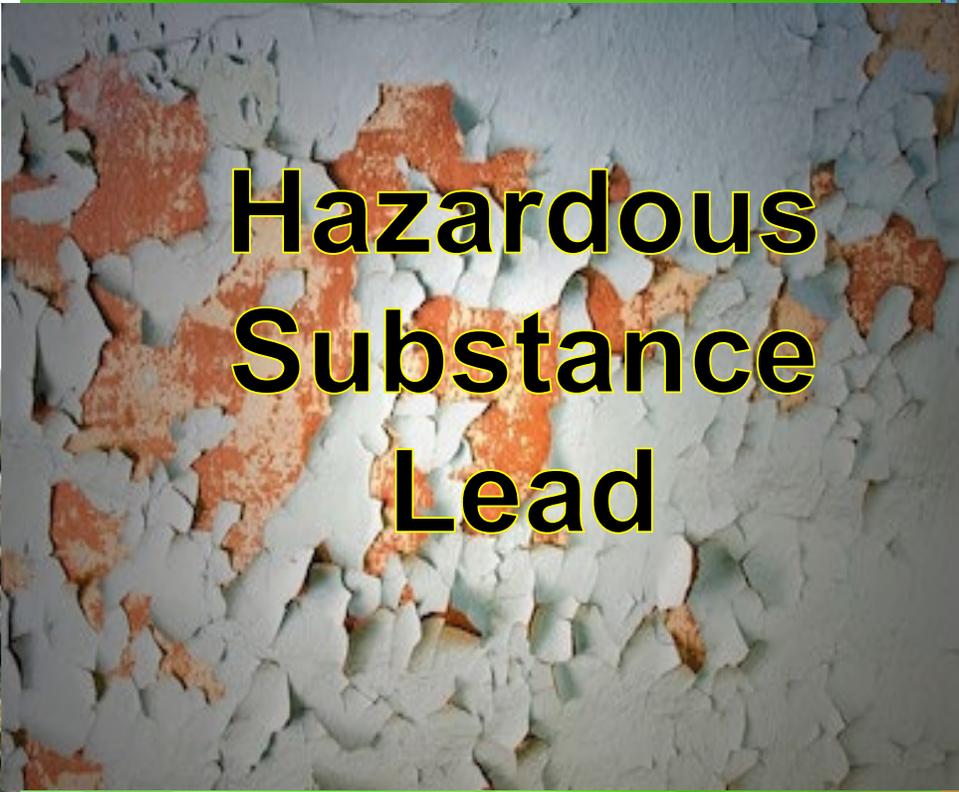


# Lead

- Lead Acid Batteries
- Old Paint
- Old Plumbing
- Ammunition
- Weights on wheels or for fishing
- Electronic Waste

## Human Health Concerns

- Half life of 30 days in blood stream then deposits into your bones for decades
- Serious negative effects on children's brain development
- Bioaccumulates in plants and animals





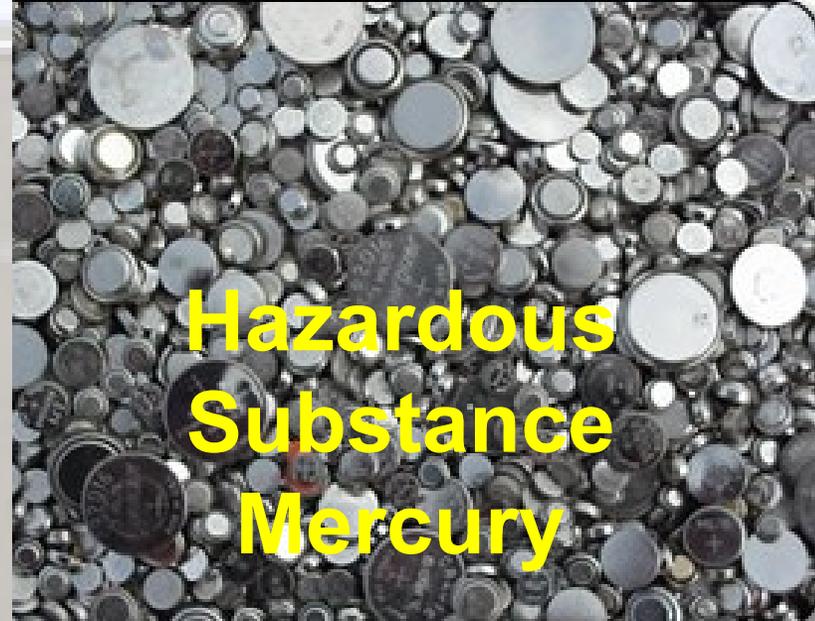
# Mercury

Batteries  
Fluorescent Lights  
Thermostat Switches  
Children's light up shoes  
Thermometers  
Barometers  
Blood Pressure Gauges  
Cell Phone Screens  
Byproduct of Mining in Alaska  
Tilt Switches  
Float Switches  
Metal Halide Lamps

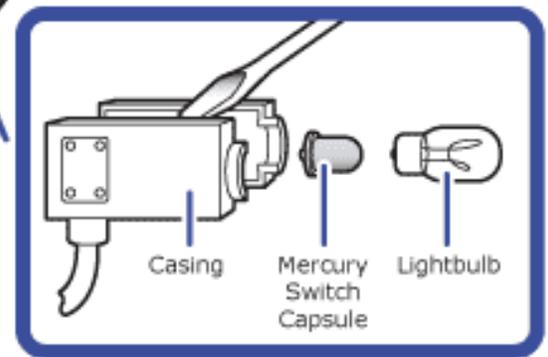
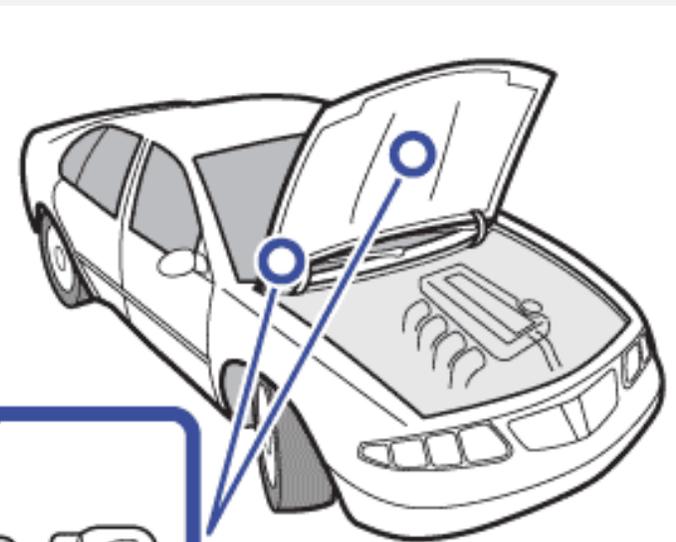
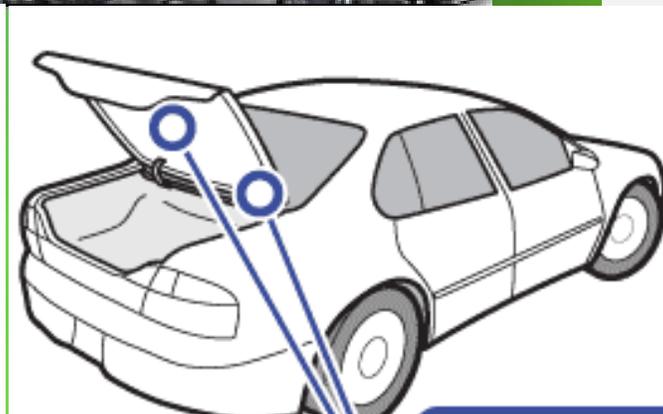


## Human Health Concerns

Transformed to highly toxic methylated mercury in bottom sediments of water bodies  
Causes chronic brain damage  
There are a few species of fish with elevated mercury in Alaska



# Hazardous Substance Mercury



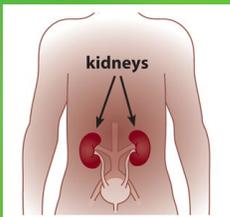
Casing

Mercury  
Switch  
Capsule

Lightbulb

# Cadmium

Builds up to toxic levels in kidneys

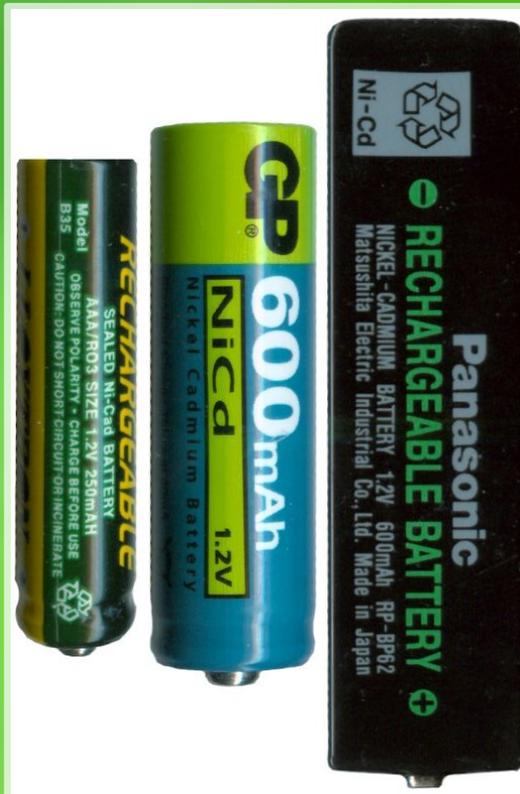


Enters body by breathing it in or ingesting water, plants, and animals that have cadmium accumulated in them.

Very important to not burn items with cadmium at the landfill.



**Electronic Boards**  
**SMD Chips and Capacitors**

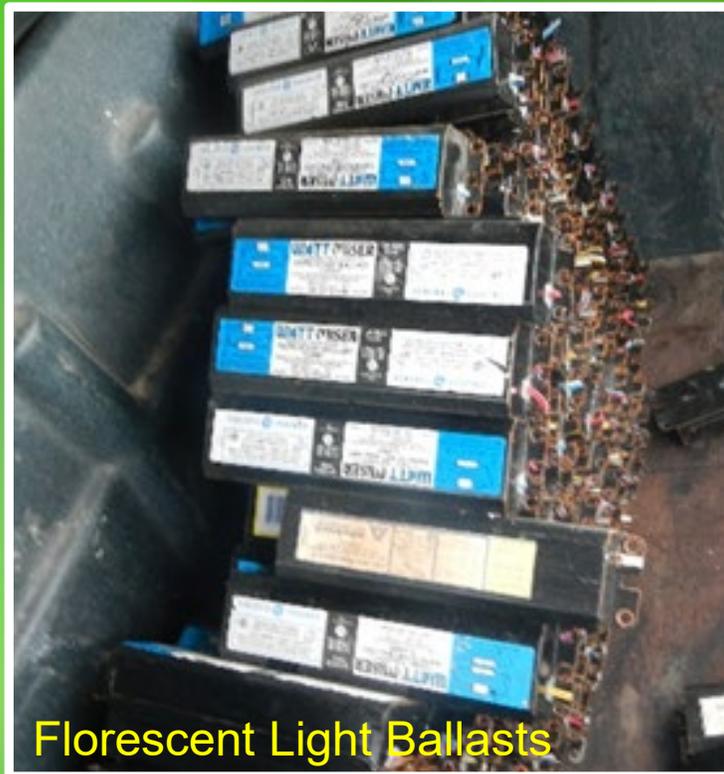


**NiCad Batteries**  
**Including rechargeable power tool batteries**



**Cigarettes**

# Polychlorinated Bisphenols (PCBs)



“

PCBs were commonly used up until 1978 as part of lubricants and non-conductive oils.

They cause cancer and don't break down when released into the environment.

Any substance containing PCBs at a level greater than 1ppm can't be disposed of in Alaska. Levels greater than 50ppm are considered a RCRA Hazardous Waste.

Got an old power plant in town? Check for PCBs before accepting any waste from it.

”

# Ethylene Glycol

Harmful  
to  
humans  
and toxic  
to pets  
when  
ingested



Often stored in 1 gallon  
jugs and 55 gallon  
drums



Besides in vehicles glycol can  
be found in;  
Boiler systems at the school  
Heat Exchanger Systems  
Hydraulic Brake Fluid  
Power Steering Fluid

Can be recycling in Alaska via  
US Ecology in Anchorage.

**Don't mix glycol** with fluids  
other than water. It makes  
them non recyclable and must  
be shipped out as a  
hazardous waste!





# Mystery Barrels

## What's in them?

- The process to test for what is inside is called a characterization.
- There are multiple companies across the state that provide this service.

## How to deter them?

- Punch a hole in empty barrels so they don't collect fluids
- Keep an HHW inventory
- Close and lock the landfill gate



# Hazardous Substances

How to handle them

# How to Handle Hazardous Substances

Hazardous Waste should not be accepted at your landfill. Be helpful by providing information on how to ship it out.

Backhaul hazardous substances out annually.

Burning hazardous substances opens up exposure to your community and local environment.

**DON'T  
BURN**

**DON'T  
ACCEPT AT  
LANDFILL**

**BACKHAUL  
TO FACILITY  
DESIGNED  
TO HANDLE  
THE WASTE**

**DON'T  
LEAVE  
EXPOSED**

**Read SDS or  
visit ATSDR  
for proper  
handling**

Buckets spill, barrels leak, and containers break when frozen. Store any hazardous items collected for backhaul in a covered area preferably on a containment pad.

Protect yourself. Learn what kinds of personal protective equipment is needed and how to handle it safely.



# Hazardous Substances

How to identify them

# How to find more information on a hazardous substance

## SDS Sheet



Great Place to Start

### Safety Data Sheet

Required for all manufactured products. Contains basic info on handling, exposure risks, and proper disposal

## Manufacturer Website



Build on the basics

### Additional Info

Many will post an SDS sheet of their products on their website.

## ATSDR Website



Agency for Toxic Substances

### Deeper Dive

Detailed information on specific ingredients of products including human and animal testing for exposure.

## ADEC Solid Waste Program



Free Technical Assistance

### Need Some Help

Contact your environmental specialist for assistance or guidance.

# Commonly Seen HHW in Rural AK

## PAINTS

OIL BASED PAINTS  
2 PART EPOXY PAINT  
LATEX PAINT  
PAINT THINNER  
PAINT STRIPPER  
STAINS



## SOLVENTS

FLOOR STRIPPER  
WAX STRIPPER  
ACETONE  
TURPENTINE  
ADHESIVE  
REMOVER  
STAIN REMOVER



## SEALENTS

2 PART SPRAY FOAM  
CAULKING  
SPRAY CAN ADHESIVE  
FLOORING GLUE



When in doubt  
check it out  
before  
accepting at  
the landfill.



Once  
accepted it  
becomes the  
landfill's  
responsibility  
to properly  
dispose of.

## OTHER

USED OIL  
ELECTRONIC WASTE  
FLOURESCENT BULBS  
BATTERIES  
LEAD ACID BATTERIES





# Thank you

This was a heavy topic but you hung in there. Good job!