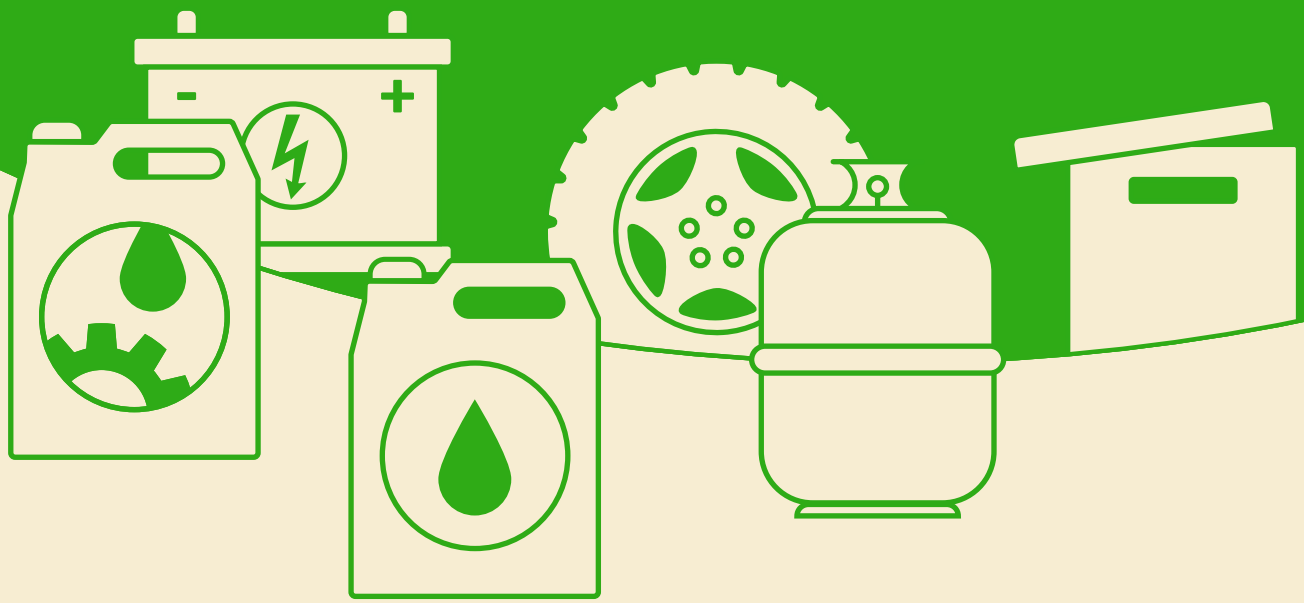
WELT HUNGER HILFE

WHH'S GARAGE WASTE MANAGEMENT GUIDELINE



WHH'S GARAGE WASTE MANAGEMENT GUIDELINE

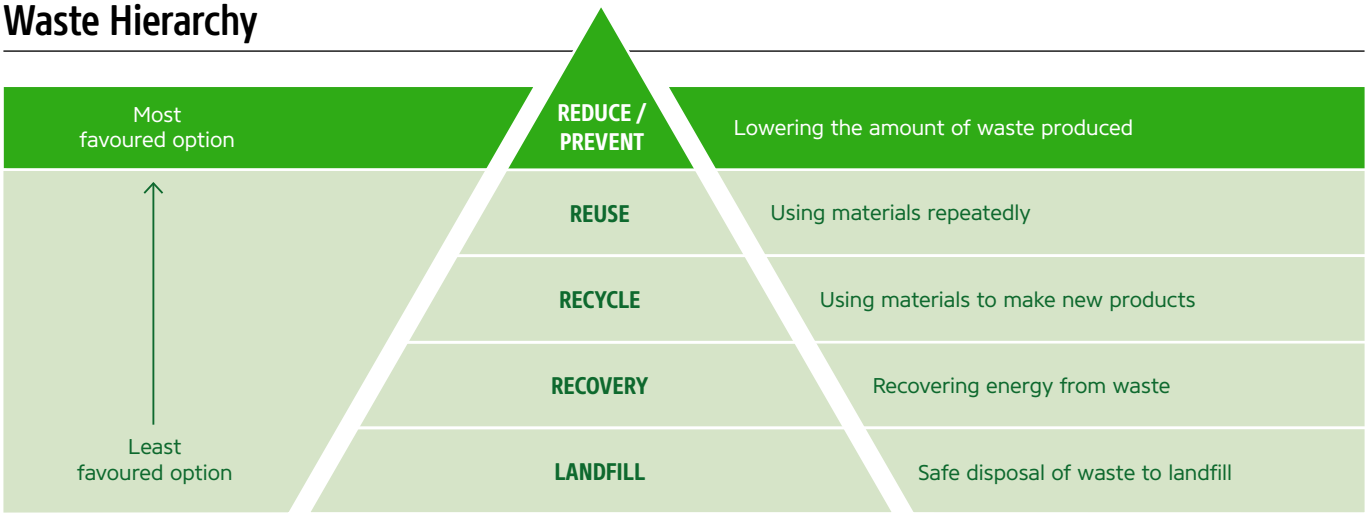
The Best Waste is No Waste!

Effective waste management starts with waste prevention. The disposal and recycling of vehicle-related waste can be costly, logistically challenging, and environmentally harmful. Therefore, the most sustainable approach is to minimize waste generation at the source. As we like to say: the best waste is no waste!

In alignment with WHH's Sustainability Strategy and Implementation Plan, this manual aims to reduce vehicle emissions, enhance waste management, and minimize environmental harm by providing a day-to-day guidance for handling vehicle-related waste safely and sustainably. It is mandatory for all WHH operations and must be followed when handling vehicle-related waste. It is effective as of March 2025 and applies to both in-house maintenance and external workshops.

Recipient: Logistics Managers, Fleet Managers, and Drivers

Waste Hierarchy



Types of Waste and Categories

CRITICAL WASTE (Hazardous, High Volume)

Used Engine Oil:
Contains carcinogens and heavy metals.

Oil Filters:
Contain traces of oil and other hazardous substances.

Lead-Acid Batteries:
Toxic and corrosive, containing heavy metals.

Tires:
Fire hazards and potential breeding grounds for vermin.

Fluids and Lubricants:
Hazardous residues that can pollute water sources.

Air Conditioning Refrigerants:
Significant contributors to climate change if released.

Empty Containers:
May contain hazardous residues.

NON-CRITICAL WASTE

Paper and cardboard

Plastics

Scrap metal

Glass

How to use this Guideline

The document is structured by waste type, each section covering key risks, handling, transport, storage, disposal, and a traffic light system outlining best practices, acceptable alternatives, and prohibited actions.

- **For WHH-managed maintenance:** The waste-specific pages can be printed and displayed in workshop areas to ensure correct handling and disposal.
- **For maintenance conducted in external workshops:** Fleet managers should discuss relevant waste management practices with service providers to ensure compliance with WHH's environmental standards.

Roles and Responsibilities:

Fleet Managers & Head of Logistics / CO level: Ensure compliance with the waste disposal regulations (from WHH and at national level), train drivers on proper waste management procedures, engage with workshops to inform them about this regulation. Maintain records of waste disposal, including receipts and documentation, address non-compliance issues and implement corrective actions, regularly check for updates to waste disposal laws and regulations in the region. Additionally, country offices and field staff should leverage other networks active in their respective countries (e.g., Fleet Forum, HULO) to strengthen waste management efforts.

Regional Supply Chain & Sustainability Managers / HQ level: Consider green alternatives when procuring new vehicles, ensure compliance with main donors, regularly check for waste recycling facilities in different regions and inform CO on changes, address non-compliance issues and implement corrective actions.

Tracking and Documentation:

All waste disposal activities must be documented properly and kept for 5 years. This includes:

- Waste logs: Maintain a log of waste disposals or storage, including date, type of waste, quantity and location of disposal or storage
- Disposal receipts: obtain receipts from licensed disposal facilities to each waste disposal

By implementing these measures, we ensure responsible waste management, regulatory compliance, and environmental sustainability within our fleet operations.

The Traffic Light System Explained

Category	Action	Guidelines
NO GO	Red options have significant negative impact on the environment.	Should be avoided at all costs.
WARNING	Amber recommendations have some negative impacts.	Should be chosen only if green recommendations are not available or not economically feasible.
IDEAL	Green recommendations have no negative impact on the environment.	Follow any garage waste management activities from green.

Used Engine Oil & Used Oil Filters

DEFINITION

Used oil, whether mineral or synthetic, is drained from engines or transmissions during maintenance, along with metallic engine filters lined with paper or fabric. These filters retain oil residues, making them hazardous liquid waste that requires proper disposal.

SOURCE

- Replaced during periodic maintenance.
- Filters retain ~20% of the oil, making proper disposal essential.

KEY RISKS

- Leakage/spillage during handling or storage.
- Inappropriate reuse (e.g., anti-termite treatment).
- Groundwater contamination.

HAZARDS

Toxic

Highly Pollutant

Highly Flammable

HANDLING, STORAGE & TRANSPORT

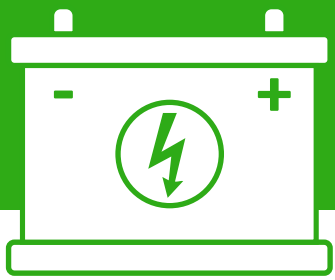
- **Handling:** Oil changes should be done in controlled environments with collection systems.
- **Storage:** Waste oil must be kept in clean, dedicated drums (previously used only for oil/fuel) and stored under shelter, away from vehicle traffic. Never mix different types of oil.
- **Transport:** Containers must be securely sealed and correctly loaded in vehicles to prevent movement and spillage. Transport vehicles should always be equipped with a spill kit and fire extinguisher. Where possible, use licensed hazardous waste transporters.

Category	Action	Guidelines
NO GO	Dumping, burning, or informal reuse	• Never discard in landfills, burn, or give to local populations for anti-termite use. If unavoidable, advise against mixing with diesel due to high environmental impact.
WARNING	Temporary storage	• Use spill-proof containers while awaiting recycling. Prevent leaks with containment kits.
IDEAL	Recycling (re-refinery)	• Use certified recycling plants with robust emissions control. Prioritize facilities with high base oil recovery and energy efficiency.
	Energy recovery by incineration	• Only in certified hazardous waste incinerators (e.g., waste-to-energy plants or cement kilns).
	Distillation	• Convert used oil into marine diesel fuel and by-products. Less common in developing countries.

Used Lead Acid Batteries

DEFINITION

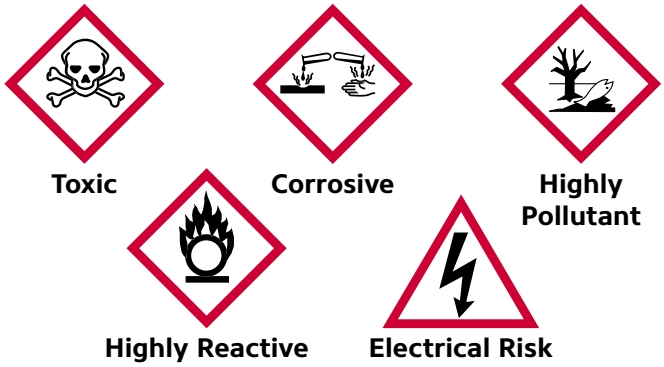
Lead-acid batteries removed from vehicles, generators, or other equipment during maintenance. This includes wet-cell batteries and valve-regulated lead-acid batteries.



KEY RISKS

- Lead exposure can cause anemia or kidney damage.
- Sulfuric acid exposure can burn skin, corrode materials, and harm wildlife.
- Improper disposal can lead to groundwater contamination.
- EV batteries require specialized handling to prevent electrical hazards.

HAZARDS



HANDLING, STORAGE & TRANSPORT

- **Handling:** Always wear PPE. Battery removal should be done in a controlled environment. Damaged or leaking batteries must be placed in acid-proof containers.
- **Storage:** Store batteries upright in a covered, dry area. Stack no more than four batteries, with cardboard between layers. Leaking batteries must be placed in sealed containers.under shelter, away from vehicle traffic. Never mix different types of oil.
- **Transport:** Secure batteries to prevent movement and leakage. Use acid-proof trays and absorbent spill kits during transport.

OPPORTUNITIES TO REDUCE BATTERY WASTE

- Use long-life, sealed batteries where possible.
- Opt for calcium maintenance-free batteries for improved durability.
- Avoid complete discharge of batteries; use trickle charging for long periods of inactivity.
- Periodically recharge stock batteries and load-test them before considering them as scrap.

Category	Action	Guidelines
NO GO	Disposal	• Never dispose of used lead-acid batteries with regular waste or send them to unregulated recyclers.
	Handling	• Avoid extreme shocks or damage to batteries during storage and transportation.
WARNING	Storage	• Store batteries upright with cardboard separators and inspect weekly for leaks or cracks.
IDEAL	Recycling	• Recycle used lead-acid batteries in certified recycling plants.
	Replacement	• Replace traditional lead-acid batteries with calcium lead-acid batteries.
	Transportation	• Transport used batteries to certified recycling plants, even if far away, using acid-proof trays and secure loading.

Tires

DEFINITION

Tires unfit for use on vehicles, typically due to wear, damage, or age. Such tires are classified as waste and should be recycled whenever possible.

SOURCE

- Vehicle tire replacement at the end of their useful life, either due to wear or damage.

KEY RISKS

- Tires pose a significant fire hazard due to their flammability.
- Tires can accumulate water, leading to mosquito breeding and health risks.

HAZARDS

Highly Pollutant

Disease

HANDLING, STORAGE & TRANSPORT

- **Handling:** Tires should be moved and stored in a way that prevents damage.
- **Storage:** Stack tires properly to prevent vermin from breeding inside them.
- **Transport:** Ensure tires are transported to recycling, incineration, or construction facilities.

OPPORTUNITIES TO REDUCE TIRE WASTE:

- Promote driver awareness on maintaining proper tire pressure to extend tire life.
- Regroove larger tires (SUVs, trucks) when possible.
- Ensure tires are not replaced prematurely when tread depth remains usable.

Category	Action	Guidelines
NO GO	Landfilling	• Never dispose of tires by landfilling.
	Open-air burning	• Never burn tires in open air.
	Uncertified recycling	• Never send tires to uncertified recyclers or local populations for unsafe recycling or oil extraction.
WARNING	Shred and store	• Shred tires and store in heavy-duty sacks until a better solution is found. Use third-party or local shredding services.
IDEAL	Retread	• Give to local or advanced retreading facilities, especially for larger vehicle tires like trucks and SUVs.
	Transport	• Transport used tires to recycling plants, retreading facilities, or to construction companies, even across borders.
	Recycle	• Recycle used tires at a certified facility with robust emissions controls.
	Re-use	• Send used tires to construction companies for use in projects like asphalt mix, playgrounds, sports grounds, etc.

Used Fluids & Lubricants

DEFINITION

Fluids such as coolant, power steering, brake, and transmission fluids are essential for vehicle operation. Lubricating grease and heavy oils reduce wear and friction between movable vehicle parts.

SOURCE

- Generated during periodic vehicle maintenance and operation.

KEY RISKS

- Fluids contaminate groundwater.
- Health risks such as skin irritation.

HAZARDS

Toxic

Highly Flammable

Highly Pollutant

HANDLING, STORAGE & TRANSPORT

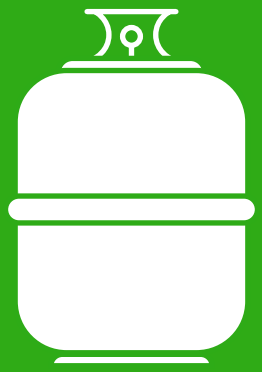
- **Handling:** Used fluids must be disposed of properly, as they contain traces of used oil.
- **Storage:** Store fluids in leak-proof, chemically compatible drums or containers. Clearly label all containers to identify contents.
- **Transport:** Containers must be properly loaded and secured to prevent shifting, damage, and leaks. Vehicles transporting fuel or hazardous liquids should carry an absorbent spill kit.

OPPORTUNITIES TO REDUCE USED FLUIDS AND LUBRICANTS:

- Use environmentally friendly, biodegradable fluids.
- Extend coolant life where possible.
- Keep lubricants clean, cool, and dry.

Category	Action	Guidelines
NO GO	Dumping or improper disposal	• Never dispose of used fluids into soil, drains, or open water. • Never mix different types of fluids without proper assessment.
NO GO	Burning or uncontrolled disposal	• Never burn used fluids or dispose of them in open areas. • Always use certified disposal or recycling services.
WARNING	Temporary storage	• Store used fluids in sealed, properly labeled containers within spill containment areas. - Keep stored fluids away from storm drains or groundwater sources.
IDEAL	Use biodegradable alternatives	• Switch to environmentally friendly, biodegradable fluids whenever possible.
IDEAL	Extend coolant life	• Use high-quality coolants with extended service life to reduce waste.
IDEAL	Collect and recycle	• Collect used fluids in designated, leak-proof containers. • Send to certified recycling facilities.

AC Refrigerants



DEFINITION

Vehicle air conditioning (AC) systems require refrigerant gases, which must be periodically refilled. The most common types include:

- R12 (used before 1994) – phased out due to ozone depletion. Never purchase an AC with this refrigerant.
- R134a (used from 1994–2017) – widely used but has high Global Warming Potential (GWP).
- R1234yf (used from 2017 onward) – a greener alternative for vehicle ACs with much lower GWP.

SOURCE

- AC re-gassing during periodic maintenance.

KEY RISKS

- Gas escaping during maintenance.
- Negative environmental impact.

HAZARDS

Ozon damage

HANDLING, STORAGE & TRANSPORT

- **Handling:** Use gas recovery cylinders to capture and return them to certified refrigeration dealers.
- **Storage:** Store waste gas in clearly labeled recovery cylinders.
- **Transport:** Use specialist gas recovery cylinders for transportation.

OPPORTUNITIES TO REDUCE AC REFRIGERANTS:

- Ensure vehicles use greener alternatives like R1234yf.

Category	Action	Guidelines
NO GO	Release refrigerant	
WARNING	Temporary storage of empty refrigerant containers	• Store in a well-ventilated area, away from direct sunlight.
IDEAL	Use greener refrigerants	• Purchase vehicles using R1234yf or other low-GWP alternatives.
	Recover and recycle refrigerants	• Use refrigerant recovery machines to capture and properly handle gases.
	Return used refrigerant cylinders to suppliers	• Choose suppliers offering take-back programs.

Empty Containers

DEFINITION

Empty metal, plastic, or other containers that previously held hazardous materials such as oils, lubricants, fluids, solvents, or paints.

SOURCE

- Use of materials during vehicle/equipment maintenance.

KEY RISKS

- Residual material leaking into the environment.

HAZARDS

Toxic residues

Corrosive properties

Polluting properties

HANDLING, STORAGE & TRANSPORT

- **Handling:** Drain all containers completely before disposal or recycling. Do not refill containers with wastewater or any other waste liquids. Always wear PPE when handling the containers, and empty them preferably outdoors or in a space with good airflow. **Do not rinse with water if the chemical is water-reactive** (e.g., acids in spray paints and automotive coating, polyurethane foams)

- **Storage:** Metal containers
  → Store with general scrap metal.

  Plastic containers
  → Store with general plastic waste.

  Paper/cardboard containers
  → Dispose of with general waste.

Category	What?	When?	How?
NO GO	Dispose of with general waste without draining	Never	• Never discard containers with residual hazardous material.
NO GO	Burn or landfill plastic/metal containers	Never	• Do not incinerate or landfill containers unless permitted by regulations.
WARNING	Temporary storage	When green options are unavailable	• Store containers in designated areas to prevent leaks and contamination.
IDEAL	Drain and recycle containers	After full use of contents	• Drain completely and send metal containers to scrap metal recycling and plastic containers to plastic recycling.
IDEAL	Reuse containers for same purpose	If safe and practical	• Only reuse if they are properly cleaned and free of hazardous residues.