ENVIRONMENTAL BEST MANAGEMENT PRACTICES

FOR MDAD OPERATED AIRPORTS

MIA green

MIAMI INTERNATIONAL AIRPORT

MIAMI-DADE COUNTY

January 2017

PREFACE

This Manual was specifically prepared to complement/supplement the current procedures and guidelines used by the Miami Dade Aviation Department (MDAD) Shops to help improve the environmental footprint of our operations throughout the County operated airports. MDAD Shops may employ this Manual to address non-compliance items identified during MDAD Internal Audits, which might not be specifically addressed by existing departmental Standard Operating Procedures (SOPs) and/or Operational Controls (OCs).

Some sections of the Manual refer to potential environmental impacts to our airports resulting from the activities of airport users and tenants, such as fixed based operators (FBOs), that are beyond the control of our shops. Consequently, we strongly recommend that MDAD Divisions dealing with those groups (Commercial Properties/Real Estate and General Aviation Airports management) take advantage of any pertinent sections that will ensure maintaining environmental compliance and striving for continual improvement in our system of airports.

Thank you for your commitment to protect the environment for future generations.

Note: During an initial phase of a transportation incident involving dangerous goods/hazardous materials, first responders, please use the Emergency Response Guidebook.
http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Hazmat/ERG2016.pdf

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INTRODUCTION

The Miami Dade Aviation Department Best Management Practices (BMPs) Manual provides an overview of the proper handling practices for hazardous and non-hazardous materials, products and wastes that are managed and produced within the airport. This document is intended to familiarize MDAD personnel about BMPs and pollution prevention actions that can be implemented at the airport's operation areas to further protect the environment and improve the efficiency of the MDAD operated airports pursuant to our Environmental Policy.

NOTE: Please visit MDAD's website for additional information/ documentation related to the environment: http://www.miami-airport.com/html/environmental.html

ANTIFREEZE/USED ANTIFREEZE

? What is Antifreeze?

Antifreeze contains chemicals that can be toxic to people, plants, and animals. The most common antifreeze solutions are mixtures of water and either ethylene glycol or propylene glycol. Both types of antifreeze must be managed and stored to prevent impacts to the environment and public health.

Management of Antifreeze/Used Antifreeze

You should ensure that used antifreeze is recycled.

Environment

⇒ Antifreeze/Used antifreeze should never be dumped in the environment.

⇒ Store used antifreeze in compatible containers that are in good condition and labeled **"Used Antifreeze Only".**

⇒ Do not mix used antifreeze with any waste or other material such as solvents, cooling system flushes, used oil, or motor fuels.

ANTIFREEZE/USED ANTIFREEZE

Management of Antifreeze/Used Antifreeze

Environment

⇒ Use antifreeze collection, storage, and transport containers solely for the transfer and storage of antifreeze to minimize the risk of cross-contamination.

⇒ Keep used antifreeze containers securely closed, except when emptying or filling, to minimize spillage potential.

⇒ Clean up spills of used antifreeze immediately.

⇒ Keep proof of recycling, such as a log, an invoice, and/or a bill of lading for off-site recycling.

Storage and Handling

⇒ Collect and store used antifreeze in a sealed, labeled container, away from heat. Containers should be labeled with the words **"Used Antifreeze Only"**.

⇒ Keep used antifreeze containers in a secure area. Proper maintenance will ensure they do not leak, rupture, or tip over.

ANTIFREEZE/USED ANTIFREEZE

Management of Antifreeze/Used Antifreeze

Storage and Handling

⇒ Used antifreeze/coolant should be collected and stored in 55-gallon drums or in tanks for future recycling; the material should be stored within secondary containment.

⇒ Inform employees and contractors about proper handling and spill response procedures.

⇒ Never store in a beverage container; original container is best.

⇒ Clean up spills with an absorbent material; bag the waste materials and discard in the trash. Flush soiled area with water.

⇒ Do not mix with oil. Do not dispose down the drain or in storm drains.

ANTIFREEZE/USED ANTIFREEZE

Management of Antifreeze/Used Antifreeze

Disposal Options/Recycling

You SHOULD ENSURE that the used antifreeze is recycled.

⇒ Waste antifreeze/coolant must be collected and shipped to a recycler via a DERM approved hazardous waste hauler.

⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by the RER.

⇒ Do not mix used antifreeze with any waste or other material such as solvents, cooling system flushes, used oil, or motor fuels.

ANTIFREEZE/USED ANTIFREEZE

Spill Response

Care should be exercised to ensure the spill does not enter any storm drain system. Typically, rags or absorbent materials are used to clean-up the spilled antifreeze/coolant. Rags used to address small spills can be containerized with other shop rags (oily rags).

Health and Safety

Antifreeze contains chemicals that can be toxic to people, plants, and animals. The most common antifreeze solutions are mixtures of water and either ethylene glycol or propylene glycol. Both types of antifreeze must be managed and stored to prevent impacts to the environment and public health.

ASBESTOS

What is Asbestos?

Asbestos is a generic term used to describe several naturally occurring minerals that can be separated into fibers and spun into cloth or added to products. It was used in many construction materials because of its excellent insulation, fire proofing, and sound proofing qualities. Asbestos is a known carcinogen and is thus a regulated substance.

Management of Asbestos

Asbestos must be removed by a licensed asbestos contractor if it is to be disturbed during renovation or demolition activities. Because asbestos has been used in more than 3,000 building products, it may be present in a wide variety of building materials, as noted below:

- Floor Tile
- Floor Tile Mastic
- Window Caulk
- Wallboard/Joint Compound

ASBESTOS

Management of Asbestos

Environment

⇒ Asbestos fibers do not evaporate into air or dissolve in water.

⇒ Asbestos fibers are not able to move through soil.

⇒ Pieces of fiber can enter the air and water from the weathering of natural deposits and the wearing down of manufactured asbestos products.

⇒ Fibers and fiber-containing particles may remain suspended in the air for a long time and be carried long distances by wind or water currents before settling.

Storage and Handling

⇒ Labels shall be affixed to all products containing asbestos and to all containers containing such products, including waste containers.

ASBESTOS

Management of Asbestos

Storage and Handling

- ⇒ Asbestos must be adequately wetted so that the fibers will not be released, and sealed in leak-tight properly labeled containers.
- ⇒ If bags are used, they should be made of thick plastic (6 mil) and double bagged.
- ⇒ The same handling is required for contaminated clothes and equipment.
- ⇒ Containers must be labeled with an OSHA approved warning label: **"DANGER, Contains Asbestos Fibers, Avoid Creating Dust, Cancer and Lung Disease Hazard"**.
- ⇒ Do not dust, sweep, or vacuum particles suspected of containing asbestos.
- ⇒ If asbestos is in good condition, and fibers are not exposed, it does not need to be removed.
- ⇒ Slightly damaged or loose asbestos can be rewrapped rather than removed.
- ⇒ Asbestos mus be handled by a certified asbestos abatement contractor.

ASBESTOS

Management of Asbestos

Disposal Options/Recycling

- ⇒ Shop personnel that inadvertently disturb identified asbestos containing material (ACM) or potential ACM should contact CEED at once.
- ⇒ Outside contractors procured by MDAD for collection and disposal are responsible for characterization and proper disposal of the ACM.
- ⇒ All asbestos materials must be disposed of in landfills permitted to receive asbestos.

Spill Response

- ⇒ Slightly damaged or loose asbestos can be rewrapped rather than removed.
- ⇒ Asbestos should be handled by a certified asbestos abatement contractor.
- ⇒ Outside contractors procured by MDAD for collection and disposal are responsible for characterization and proper disposal of the ACM.
- ⇒ All asbestos materials must be disposed of in landfills permitted to receive asbestos.

ASBESTOS

Health and Safety

⇒ Significant exposure to any type of asbestos will increase the risk of lung cancer, mesothelioma, and nonmalignant lung and pleural disorders, including asbestosis, pleural plaques, pleural thickening, and pleural effusions.

⇒ Diseases from asbestos exposure may take a long time to develop.

⇒ Asbestos poses health risks only when fibers are present in the air that people breathe.

⇒ Prolonged inhalation of asbestos may result in: shortness of breath, difficulty breathing, constant dry cough, constant pain in the chest, pulmonary hypertension, and excess phlegm.

⇒ Adequate ventilation must be maintained and respiratory protection must be worn.

CLEANING COMPOUNDS

What are Cleaning Compounds?

Cleaning compounds are defined as a substance (usually liquids, powders, sprays, or granules) used to remove dirt, dust, stains, bad smells, and clutter from surfaces.

Management of Cleaning Compounds

MDAD shops use a wide variety of chemical formulations for cleaning purposes. These materials include both water-based cleaners and organic solvent-based cleaners. The following is a list of types of cleaning compounds used by MDAD:

- Acetone
- Ammonia
- Chlorine Bleach (Sodium Hypochlorite)
- Contact Cleaner
- Drain-O (Sodium Hydroxide)
- Floor Wax
- Hydrochloric Acid
- Isopropyl Alcohol (Rubbing Alcohol)
- Metal Polish
- Phenol
- Trichloroethane
- Wood Polish

CLEANING COMPOUNDS

Management of Cleaning Compounds

Environment

⇒ Cleaners and waxes, which are organic based, may be flammable or combustible.

⇒ Good housekeeping should be practiced to minimize trip and fall hazards.

⇒ Cleaning product spills should be cleaned up promptly to avoid contamination of surrounding soil and groundwater.

Storage and Handling

⇒ Smoking is prohibited in cleaning product storage areas.

⇒ Activities including cutting, welding or the use of open flames must be discontinued.

⇒ Activities which produce sparks, including the use of electric motors, metal grinding or electrical repairs, should be discontinued.

⇒ Other sources of heat should be removed.

CLEANING COMPOUNDS

Management of Cleaning Compounds

Storage and Handling

The storage of cleaning products, that are organic, solvent-based, flammable and/or combustible, require MDAD personnel to address several concerns, including:

- Container type
- Container labeling
- Proximity to ignition sources
- Use of flammable storage cabinets
- Bulk storage of materials on pallets
- Fire protection—Fire extinguishers
- Water-based, incompatible products must not be stored together.

Secondary containers should be labeled immediately after the chemical is transferred

CLEANING COMPOUNDS

Management of Cleaning Compounds

Disposal Options/Recycling

⇒ Shop personnel are responsible for containerizing, labeling, and storing the waste pending transportation and disposal.

⇒ Following waste characterization, CEED may approve dilution of liquid solutions of acids and caustics with tap water for discharge to the municipal industrial wastewater system.

⇒ Absorbent material and soil collected from spills of acids or caustics may be disposed as solid waste or as hazardous waste, pending waste characterization by CEED.

⇒ Similar to liquid waste, if the absorbent material or soil is to be disposed as a hazardous waste, shop personnel are responsible for containerizing, labeling, and storing the waste until transportation and disposal is arranged by CEED.

⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by RER.

CLEANING COMPOUNDS

Management of Cleaning Compounds

Disposal Options/Recycling

⇒ Aerosol cans of cleaning materials may be disposed as solid waste provided that they are empty of cleaning material and propellant.

⇒ Partially-full containers of cleaning solutions should be drained prior to disposal.

⇒ Shop personnel should not discard cleaning solutions into storm sewer drains, drainage canals or surface waters.

Spill Response

⇒ Maintain good ventilation.

⇒ Remove any potential sources of ignition. If sources can not be removed, evaluate the need to evacuate the area and obtain fire protection support.

⇒ Stabilize the source of the spill.

⇒ Small spills (typically less than one gallon) should be wiped up promptly.

⇒ Rags and other absorbent materials, used for clean up, should be stored in a labeled 55-gallon drum and disposed of through a commercial facility.

CLEANING COMPOUNDS

Health and Safety

⇒ Commercial cleaning agents can contain high concentrations of reactive chemicals.

⇒ Mixing of cleaning agents can result in a release of toxic chemical vapors or result in adverse chemical reactions.

⇒ Some cleaning agents are respiratory hazards.

⇒ Concentrated cleaning agents are often skin and eye irritants.

⇒ Routinely use gloves to minimize skin contact. Eye protection is also recommended.

COMPRESSED GASES

What is a Compressed Gas?

A compressed gas is defined as a gas substance, at normal room temperature and pressure, that can be stored under pressure in a cylinder container.

Management of Compressed Gases

MDAD shops use and store a wide variety of compressed gases for welding, aircraft tires, refrigerants/ coolants and fire suppressants.

Compressed gases generally fall into two categories: **Flammable** and **Non-Flammable Gases**.

The following is a list of compressed gases used by MDAD:

- Acetylene
- Argon
- Nitrogen
- Oxygen
- Freon

COMPRESSED GASES

Management of Compressed Gases

Environment

⇒ Hazards associated with compressed gases include oxygen displacement, fires, explosions and toxic gas exposures, as well as the physical hazards associated with high pressure systems.

⇒ Special storage, use, and handling precautions are needed in order to control hazards associated with high pressure systems.

Storage and Handling

⇒ All individual compressed gas containers must be marked in accordance with DOT label requirements.

⇒ The labels applied by manufacturer's to identify compressed gas cylinders must not be altered or removed.

⇒ Gas cylinders in use or in storage must be secured to a cart, a restrained framework or a fixed object in order to prevent the cylinders from falling or being knocked over.

COMPRESSED GASES

Management of Compressed Gases

Storage and Handling

⇒ Containers must be kept capped with a threaded-valve protection cap when not in use.

⇒ Full or partially full compressed gas containers must not be exposed to temperatures exceeding 125°F or low temperatures, unless designed for use under those conditions.

Disposal Options/Recycling

⇒ All empty or partially filled, but no longer in use, compressed gas cylinders should be returned to the supplier.

⇒ Empty gas containers must be labeled with the word "**Empty**".

⇒ Gas cylinders should never be discarded into solid waste dumpsters.

COMPRESSED GASES

Spill Response

⇒ In the event of a spill of a compressed gas, that is an irritant, oxidizer, asphyxiant, or has other hazardous properties, all personnel in the area should be alerted immediately.

⇒ Remain on the scene, but at a safe distance, in order to receive and provide information to the safety personnel.

⇒ If a damaged cylinder or one exposed to elevated temperature is encountered, the person(s) must leave the area immediately and call the MDAD Fire Department.

COMPRESSED GASES

Health and Safety

⇒ Content under pressure presents mechanical and projectile hazards and may explode when exposed to heat and/or fire.

⇒ Contents may be flammable or combustible and may form explosive mixtures in the air.

⇒ Contents may be an asphyxiant, corrosive, flammable, poisonous, and/or pyrophoric.

⇒ Uncontrolled gas leaks can become an inhalation hazard. Be aware that gases can accumulate and displace oxygen in a space that is not ventilated.

CONSTRUCTION MATERIALS

What are Construction Materials?

Construction material is any material that can be used for construction purposes. Many construction materials can also be incorporated into the constructed building or structure.

Management of Construction Materials

MDAD shops and facilities use a wide variety of construction materials. The use of these materials generate hazardous waste.

The following is a list of construction materials used by MDAD:

- Glues
- Cleaners for PVC piping
- Cement
- Adhesives
- Asphalt (including blacktop and roof tar)

CONSTRUCTION MATERIALS

Management of Construction Materials

Environment

Construction materials can be flammable or combustible. The use of various glues, cleaners, adhesives and asphalt material poses a potential fire hazard.

Storage and Handling

⇒ Containers of construction materials in their original shipping package can be stored either on pallets or solid piles.

⇒ Flammable and combustible materials should not be stored with strong oxidizers such as chloride gas, chlorine bleach, fertilizers (ammonium nitrate), and cylinders of compressed oxygen gas or acids.

⇒ Flammable and combustible materials should not be stored near ignition sources (open flames, sources of heat, sources of sparks and/or electrical currents).

⇒ Containers shall be kept closed when not in use.

Management of Construction Materials

Storage and Handling

⇒ Personal protective equipment (PPE), such as respiratory protection, should be worn when handling these materials.

⇒ Use of these materials should be conducted in a well-ventilated area.

⇒ Containers of glues, adhesives and cleaners should be drained and the solvent constituents allowed to volatize before they are disposed in a solid waste dumpster for ultimate disposal in an industrial or municipal solid waste landfill or incinerator.

⇒ Shop personnel should not dispose of partially filled containers of liquid cleaners nor glues as solid waste.

Spill Response

Should a spill of semi-solid glues, adhesives or asphalt occur, the following procedures should be followed:

- Spills of glues and adhesives may be allowed to harden and then scrapped away.
- Spills of asphalt can be cleaned up with rags and/or shovels.

Health and Safety

⇒ Some construction materials such as glues, adhesives, and cleaners are irritating to the skin and eyes. Use gloves and eye protection when handling these materials.

⇒ Prolonged inhalation of vapors of these materials may result in: dizziness, nausea, headaches, difficulty in breathing and unconsciousness.

⇒ Adequate ventilation should be maintained.

⇒ PPE, such as respiratory protection, should be worn when handling these materials.

FERTILIZERS

What are Fertilizers?

Fertilizers are materials added to soil and sometimes to foliage in order to supply plants a nutrient substance for growth. Fertilizers can be a significant source of water pollution.

Management of Fertilizers

The following is a list of fertilizer types used by MDAD:

Primary: NITROGEN (N) supplied:

- Nitrate
- Ammonia
- Urea
- Other Organic Nitrogen Compound

Secondary: PHOSPHOROUS (P) supplied:

- Ammonium
- Potassium
- Organic Phosphorous

Minor: POTASSIUM (K) supplied:

- Potassium Salt or Complex

FERTILIZERS

Management of Fertilizers

Environment

⇒ Runoff of excess fertilizer into surface water can result in algal blooms and plant growth.

⇒ An excess growth in plant material can cause problems such as the reduction of oxygen, which leads to fish kills.

⇒ Nitrogen leached into the drinking groundwater can cause the development of serious diseases.

⇒ Excess of minor elements in the soil, such as copper and zinc, can cause problems in crop production.

⇒ Ammonium Nitrate can present serious fire and explosive hazards if it comes into contact with organic materials.

FERTILIZERS

Management of Fertilizers

Storage and Handling

⇒ Always store nitrogen based fertilizers separately from solvents, fuels, and pesticides since many fertilizers are oxidants and can accelerate fire.

⇒ Fertilizers should be stored on pallets in areas protected from rainfall and excessive moisture.

⇒ Pallet storage should be consistent with the structural requirements of the building.

⇒ Fertilizers should be stored away from acids, caustics, flammable/combustible materials, and pesticides.

⇒ Ammonium Nitrate storage should be accessed only by authorized personnel.

⇒ Ammonium Nitrate storage structure should not exceed one story. It should be adequately vented and free from water leaks.

⇒ Maximum storage of Ammonium Nitrate is 60 tons without specific approval.

FERTILIZERS

Management of Fertilizers

Storage and Handling

⇒ Ammonium Nitrate should not be stored in the same area as organic, flammable or combustible materials, compressed gases, pesticides, acids, or caustic materials.

⇒ Containers that exceed a temperature of 130 ^{0}F should not be accepted for storage.

⇒ Broken bags of Ammonium Nitrate should be re-packed promptly.

⇒ Maximum dimensions of storage piles are 200 feet wide by 20 feet high by 50 feet long.

⇒ Fertilizer sprays and dusts should not be applied on windy days.

⇒ Application should be limited to areas where runoff to storm water drains, swales and surface water will not occur.

⇒ Manufacturer's directions should be carefully followed concerning the application of water after fertilizer application.

FERTILIZERS

Management of Fertilizers

Disposal Options/Recycling

Fertilizer waste is limited to empty containers, rinse water used to clean containers, and the appropriate absorbent material used to address spills of liquid fertilizers.

Absorbent materials and empty rinsed containers can be disposed of in the dumpster as solid waste.

Spill Response

⇒ Solid fertilizer spills can be addressed by collecting and storing the solid material in a plastic container.

⇒ Any residual fertilizer can be cleaned up using an appropriate commercial absorbent or using sand/soil.

⇒ Spilled fertilizer near storm water drainages or surface water should be cleaned up promptly and completely.

FERTILIZERS

Health and Safety

Some fertilizers are irritating to the skin and eyes.

Personal protective equipment such as gloves and goggles should be worn when handling these materials.

FLUORESCENT LAMPS AND MERCURY CONTAINING DEVICES

What are Fluorescent Lamps and Mercury Containing Devices?

Fluorescent lamps are glass tubes that radiate light with the help of mercury.

Mercury containing devices are electrical products or other devices that contain mercury as a necessary component for their operation.

Management of Fluorescent Lamps and Mercury Containing Devices

MDAD uses and stores a variety of term lamps that include:

- Fluorescent lamps
- Mercury lamps
- Metal halide lamps
- High pressure sodium lamps

Mercury containing devices include:

- Mercury switches
- Manometers
- Thermometers
- Thermostats

FLUORESCENT LAMPS AND MERCURY CONTAINING DEVICES

Management of Fluorescent Lamps and Mercury Containing Devices

The state of Florida requires non-residential facilities to recycle mercury containing lamps (MCLs), including fluorescent lamps, and mercury containing devices (MCDs), such as ballasts.

Environment

⇒ Fluorescent lamps, including energy saving compact fluorescents, contain mercury. When a lamp breaks, it releases mercury into the air, which is toxic to the human nervous system and can poison wildlife.

⇒ Mercury can leach out of landfills and poison both the soil and drinking water.

⇒ Health hazards to workers can include exposure to dangerous fumes and lead powder whenever lights are broken.

Used Lamps

FLUORESCENT LAMPS AND MERCURY CONTAINING DEVICES

Management of Fluorescent Lamps and Mercury Containing Devices

Storage and Handling

⇒ Store lamps in a box or a case to prevent breakage.

⇒ MDAD shops have designated accumulation areas for storage of spent mercury-containing lamps and devices.

⇒ Used lamps can not be stored for longer than a year.

⇒ Label containers containing fluorescent lamps: "**Spent Mercury-containing Lamps for Recycling**", "**Waste Mercury Lamps**" or "**Used Mercury Lamps**" and "**Universal Waste**".

⇒ Personal protective equipment such as gloves and goggles should be worn when handling these materials.

FLUORESCENT LAMPS AND MERCURY CONTAINING DEVICES

Management of Fluorescent Lamps and Mercury Containing Devices

Disposal Options/Recycling

⇒ Fluorescent lamps and mercury containing devices must be collected and shipped to a recycler via a RER approved hazardous waste hauler.

⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by the RER.

Spill Response

⇒ In the event of a breakage, shop personnel should cordon off the area until the clean-up is complete.

⇒ Because of the presence of mercury in lamps and other devices, cleanup should be done promptly.

⇒ Do not use a vacuum or a broom to clean a mercury spill.

FLUORESCENT LAMPS AND MERCURY CONTAINING DEVICES

Spill Response

⇒ Ventilate the area, if possible.
⇒ Scoop up liquid mercury with index cards and seal it in a plastic bag or container.

Health and Safety

Spilled liquid mercury is a health concern. The central nervous system is probably the most sensitive target organ for mercury vapor exposure.

Personal protective equipment such as gloves and goggles should be worn when handling these materials.

FUELS AND PETROLEUM PRODUCTS

What are Fuels and Petroleum Products?

Fuels and petroleum products are those products obtained from crude oil and natural gas processing, including (among many others) asphalts, automotive gasoline, aviation fuel, fuel oils, kerosene, liquefied petroleum gas, lubricants, and waxes.

Management of Fuels and Petroleum Products

Fuels and petroleum products can be flammable and/or combustible, and can pose a treat to the environment, if not handled properly.

The following is a list of some fuel and petroleum products used by MDAD:

- Motor Oil
- Hydraulic Oils
- Lubricating Oil
- Spray Lubricants
- Greases
- Diesel Fuel
- Gasoline
- Propane Gas

FUELS AND PETROLEUM PRODUCTS

Management of Fuels and Petroleum Products

MDAD shops use a variety of petroleum products and generate a variety of waste materials. All MDAD shop personnel should be familiar with the proper disposal of waste generated from fuel and petroleum products.

MDAD personnel should consult with the SDS for detailed information about health effects from fuel and petroleum products.

Environment

⇒ Fuels and petroleum products should never be dumped in the environment.
⇒ Store fuel and petroleum products in compatible containers that are in good condition and properly labeled.
⇒ Do not mix used fuel/oil laden rags with any waste or other material such as solvents.
⇒ Keep used fuel/oil containers securely closed, except when emptying or filling, to minimize the potential for spillage.

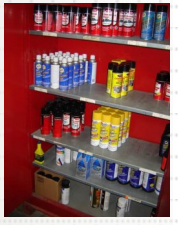
FUELS AND PETROLEUM PRODUCTS

Management of Fuels and Petroleum Products

Environment

⇒ Use of fuel/petroleum products should be done in well ventilated areas and away from fire, sparks, heat and/or other ignition sources.

Storage and Handling



⇒ Keep small fuel/oil containers stored in flammable storage cabinets.
⇒ Collect and store fuel/oil laden rags in a sealed, labeled container, away from heat.

⇒ Fuel/oil laden rags cannot be recycled. The rags should be considered a hazardous waste.
⇒ Used oil cannot be mixed with any other type of hazardous waste.
⇒ Used oil filters should be properly opened, drained, and crushed.

Management of Fuels and Petroleum Products

Disposal Options/Recycling

⇒ Fuel/oil laden rags must be collected and shipped to a recycler via a RER approved hazardous waste hauler.

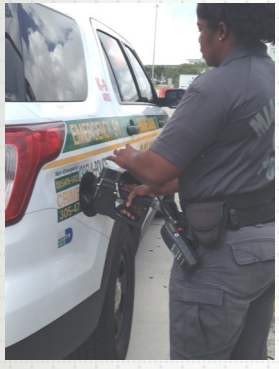
⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by the RER.

Spill Response

Care should be exercised to ensure that proper ventilation is maintained and all potential sources of ignition are removed. Do not rinse a spill of fuel or any other petroleum product into any storm drain system or bare soil. Typically, rags or absorbent materials are used to clean-up the small spills of fuel/oil. Large spills, such as failure of a tank or fill line, should be referred to the Fire Department and reported to CEED.

Health and Safety

Fuel and petroleum products contain chemicals that can be toxic to people, plants, and animals. The inhalation of vapors from fuels and petroleum products can cause dizziness, nausea, headaches, and loss of consciousness. Adequate ventilation should be maintained when using fuel and petroleum products. Respiratory protection may be necessary. Fuel and petroleum products can also cause irritation to the skin. Gloves and protective clothing should be worn.



ORGANIC CLEANING SOLVENTS/ DEGREASERS

What are Organic Cleaning Solvents/Degreasers?

Organic cleaning solvents/degreasers are used to dissolve oil stains and dirt or grease.

Management of Organic Cleaning Solvents/Degreasers

The following is a list of organic solvents/degreasers used by MDAD:

- Mineral Spirits and Varsol
- Freon (liquid and spray can)
- Xylene
- Isopropyl Alcohol
- Kerosene
- Lacquer Thinner
- Liquid Wrench
- Paint Thinner
- Ramp Cleaner
- Safety-Kleen 140 Solvent

ORGANIC CLEANING SOLVENTS/ DEGREASERS

Management of Organic Cleaning Solvents/Degreasers

Organic cleaning solvent/degreaser compounds are generally flammable and combustible, and can pose a health risk if inhaled.

Organic solvent/degreasers including solvent-laden rags, must be managed and stored to prevent impacts to the environment and public health.

Environment

⇒ Organic solvents/degreasers should never be dumped in the environment.

⇒ Store used solvents in compatible containers that are in good condition and properly labeled.

⇒ Do not mix used solvent/degreaser laden rags with any waste or other material such as antifreeze, cooling system flushes, or motor fuels.

⇒ Keep used solvent/degreaser containers securely closed, except when emptying or filling, to minimize the potential for spillage.

ORGANIC CLEANING SOLVENTS/ DEGREASERS

Management of Organic Cleaning Solvents/Degreasers

Environment

⇒ Use of organic cleaning solvents/degreasers should be done in well ventilated areas and away from fire, sparks, heat and/or other ignition sources.

⇒ Clean up spills of used organic cleaning solvents/ degreasers immediately.

Storage and Handling

⇒ Keep small solvent containers stored in flammable storage cabinets.

⇒ Collect and store solvent/degreaser laden rags in a sealed, labeled container, away from heat.

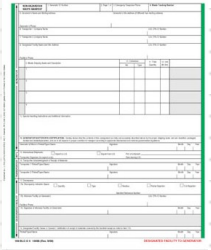
⇒ If solvent laden rags can not be recycled, the rags should be considered a hazardous waste.

⇒ Organic cleaning solvents/degreasers should not be stored near oxidizers such as chlorine gas and ignition sources.

ORGANIC CLEANING SOLVENTS/ DEGREASERS

Management of Organic Cleaning Solvents/Degreasers

Disposal Options/Recycling



⇒ Solvent laden rags must be collected and shipped to a recycler via a RER approved hazardous waste hauler.

⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by the RER.

Spill Response

Care should be exercised to ensure that proper ventilation is maintained and all potential sources of ignition are removed. Do not rinse a spill of cleaning products into any storm drain system or on bare soil. Typically, rags or absorbent materials are used to clean up the small spills of solvents/degreasers. Rags used to address small spills can be containerized with other shop rags (oily rags).

ORGANIC CLEANING SOLVENTS/DEGREASERS

Health and Safety

Organic cleaning solvents/degreasers contain chemicals that can be toxic to people, plants, and animals. The inhalation of vapors from solvents can cause dizziness, nausea, headaches, and loss of consciousness. Adequate ventilation should be maintained when using organic solvent cleaning materials. Respiratory protection may be necessary.

Organic solvent compounds can also cause irritation to the skin. Gloves and protective clothing should be worn.

PAINTS AND RELATED PRODUCTS

What are Paints and Related Products?

Paints are colored substances that can be spread over a surface; when these dry they leave a thin decorative and/or protective coating.

Management of Paints and Related Products

MDAD shops and facilities use a wide variety of paints, stains, thinners, lacquers and paint strippers/removers, which are considered hazardous wastes.
The following is a list of chemical components present in paints and related products used by MDAD:

- Acetone
- Acids
- Acrylics
- Alkalis
- Chlorinated Hydrocarbons
- Mineral Spirits
- Esters
- Petroleum Hydrocarbons
- Alcohols
- Turpentine
- Ethylene Glycol
- Metals

PAINTS AND RELATED PRODUCTS

Management of Paints and Related Products

Solvent-based mixtures of paint and related products can be flammable and combustible, and can pose health and safety risks.

Solvent-based paint and strippers are irritating to the eyes and prolonged inhalation of vapors or mist may result in difficulty breathing. Solvent-based paints and related products must be managed and stored to prevent impacts to the environment and public health.

PAINTS AND RELATED PRODUCTS

Management of Paints and Related Products

Environment

⇒ Solvent-based paint and related products should never be dumped in the environment.

⇒ Store used paints and related products in compatible containers that are in good condition and properly labeled.

⇒ Keep used paints and related product containers securely closed, except when emptying or filling, to minimize the potential for spillage.

⇒ Use of paints and related products should be done in well ventilated areas and away from fire, sparks, heat and/or other ignition sources.

⇒ Clean up spills of used paints and related products immediately.

Storage and Handling

⇒ Paints and related products used by MDAD shops are provided in different containers depending on the type of product.

PAINTS AND RELATED PRODUCTS

Management of Paints and Related Products

Storage and Handling

⇒ Keep small solvent-based paints stored in flammable storage cabinets.

⇒ Latex-based paints should not be stored with incompatible materials, such as chlorine gas and fertilizers.

⇒ Painting activities should take place in well ventilated areas.

Disposal Options/Recycling

⇒ Absorbent material used to clean up spills must be collected and shipped to a recycler via a RER approved hazardous waste hauler.

⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by RER.

PAINTS AND RELATED PRODUCTS

Spill Response

Do not rinse solvent-based paint or fluids into any storm drain system or bare soil. Typically, rags and absorbent materials are used to clean up small spills of latex-based paints and coatings. Used rags laden with paint, which do not contain metal, can be disposed of in a solid waste dumpster. Absorbent materials used to clean up solvent-based paint spills should be stored in a 55-gallon drum and disposed of properly.

Health and Safety

Solvent-based mixtures of paint and related products containing organic compounds can be flammable or combustible, and may contain chemicals that can be toxic to people, plants, and animals. The inhalation of vapors from solvents-based paints can cause dizziness, nausea, headaches and loss of consciousness. Adequate ventilation should be maintained when using solvent-based paints. Solvent-based paints can also cause irritation to the eyes. Eye protection should be worn when handling these materials.

PESTICIDES

What are Pesticides?

Pesticides are materials used for preventing, destroying, repelling or mitigating pests. Pesticide use is intended as a plant regulator, defoliant or desiccant. The materials used include solvent based, water based and solid based pesticides.

Management of Pesticides

Pesticides may be classified as herbicides, antimicrobial pesticides, rodenticides, bio-pesticides, disinfectants/sanitizers or other similar substances.

⇒ Pesticides are partially exempted from maintained SDSs.

⇒ MDAD employees who use or are potentially exposed to pesticides are required to be educated on their proper use and storage.

⇒ Bottles or containers used to hold pesticides must be labeled.

PESTICIDES

Management of Pesticides

Environment

⇒ Pesticides should never be dumped in the environment.

⇒ Store used pesticides in compatible containers that are in good condition and properly labeled.

⇒ Keep pesticides in containers securely closed, except when emptying or filling, to minimize the potential for spillage.

⇒ Clean up spills of pesticides immediately.

Storage and Handling

⇒ Pesticides used by MDAD shops are provided in different containers depending on the type of product.

⇒ Keep small pesticide containers stored in flammable storage cabinets.

⇒ Pesticide application activities should take place in well ventilated and dry areas.

PESTICIDES

Management of Pesticides

Storage and Handling

- ⇒ Pesticide products should be adequately separated from other materials in storage.
- ⇒ Rubber gloves, goggles and respirators should be worn when handling and using pesticides.
- ⇒ Do not put pesticides in the trash or pour down any drain.
- ⇒ Do not use or give away banned pesticides or pesticides that are no longer registered for use.
- ⇒ Avoid buying more pesticide product than you need, as it is likely to become a waste at a later time.

Disposal Options/Recycling

- ⇒ Absorbent material used to clean up spills must be collected and shipped to a recycler via a RER approved hazardous waste hauler.
- ⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by RER.

PESTICIDES

Spill Response

Do not pour pesticides into any storm drain system or bare soil. Typically, rags or absorbent materials are used to clean-up the small spills of pesticides. Absorbent material used to clean up pesticide spills should be stored in a 55-gallon drum and disposed of properly.

Health and Safety

Pesticides can be flammable or combustible and may contain chemicals that can be toxic to people, plants, and animals. The inhalation of vapors from pesticides can cause dizziness, nausea, headaches and loss of consciousness. Adequate ventilation should be maintained when using pesticides. Rubber gloves, goggles, and respirators should be worn when handling and using pesticides.

RECYCLABLES

What are Recyclables?

Recyclable materials are processed materials that can be recovered from a waste stream for reuse.

Management of Recyclables

MDAD has established multiple programs for the collection of recyclable materials. The following is a list of recyclable materials collected by MDAD:

- Aluminum cans
- Glass bottles
- Paper
- Cardboard
- Toner cartridges

Environment

⇒ Place all recyclable materials in their assigned containers.

⇒ Cardboard recycling is strictly regulated by Miami-Dade County.

⇒ Recycling of toner cartridges is strictly regulated by Miami-Dade County.

RECYCLABLES

Management of Recyclables

Storage and Handling

⇒ Dispose of recyclable material in its properly assigned container.

⇒ Containers are located throughout the terminals and at assigned collection points within the MDAD property.

⇒ Aluminum cans and glass bottles must be emptied before discarding into a recycling container.

⇒ It is preferential to recycle aluminum cans and glass bottles in their original shape.

⇒ Recycled paper must be free of food and must be dry.

⇒ Recycled cardboard must be kept dry.

⇒ Cardboard boxes must be emptied and flattened before being recycled.

⇒ Empty toner cartridges must be placed inside the box of the new toner cartridge.

RECYCLABLES

Management of Recyclables

Storage and Handling

⇒ Empty toner cartridges must be delivered to the recycling collection point in an equivalent toner box.

⇒ Toner cartridges without a container will not be accepted.

⇒ Boxes containing empty toner cartridges must be sealed.

⇒ The office supply area of the Warehouse accepts empty toner cartridges for recycling.

TIRES

What are Waste Tires?

Waste tires are tires that have been removed from a motor vehicle and have not been retreaded or re-grooved. Waste tires include used tires and processed tires.

Management of Tires

Environment

Tire debris contains significant quantities of zinc (Zn), which may be released by the tire's rubber. Avoid storing unused tires in open areas to prevent environmental toxicity of the leachates that can be derived from tire particles.

Storage and Handling

Tires

⇒ Tires should never be dumped in the environment.

⇒ Avoid storing any tires close to combustible or flammable materials.

⇒ No more than 1,500 used tires should be stored at any MDAD shop without a permit.

TIRES

Management of Tires

Storage and Handling

⇒ Tires stored outdoors must be covered to prevent accumulation of rain water.

⇒ While handling tires, MDAD personnel should wear the necessary protective equipment to avoid injuries.

Disposal Options/Recycling

⇒ Waste tires must be transported by waste tire collectors registered with the Florida Department of Environmental Protection.

⇒ A copy of the contractor's state registration must be obtained and kept on file for all contractors hired to dispose of waste tires.

⇒ Tires should not be stored near combustible or flammable materials.

TIRES

Management of Tires

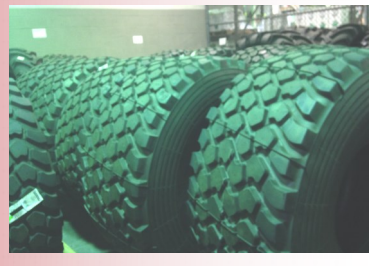
Disposal Options/Recycling

⇒ Necessary PPE should be worn when handling tires to avoid injuries.

⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by RER.

Health and Safety

While handling tires MDAD personnel should wear the necessary protective equipment to avoid injuries.



USED BATTERIES

What are Used Batteries?

Batteries are containers consisting of one or more cells, in which chemical energy is converted into electricity and used as a source of power.

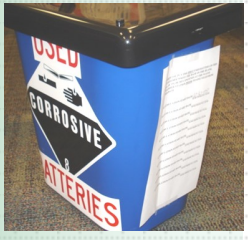
Management of Used Batteries

Batteries contain materials that can damage the environment and pose a safety hazard if handled improperly.

Environment

Batteries may produce the following hazards:

- Pollute lakes and streams as the metals vaporize into the air when burned.
- Contribute to heavy metals that may potentially leach from solid waste landfills.
- Exposes the environment and water to lead and acid.
- Contains strong corrosive acids.



USED BATTERIES

Management of Used Batteries

Storage and Handling

⇒ Used batteries require some care to ensure proper and safe storage.

⇒ Used batteries must be stored in appropriately labeled plastic containers with lids.

⇒ Used batteries must be protected against being damaged, crushed, punctured or short-circuited.

⇒ Store batteries separately from other hazardous material.

⇒ Containers used to store used batteries should be labeled "**Used Batteries**" and should have an accumulation start date log sheet.

⇒ Batteries must be stored on concrete or other impervious surfaces, and should be covered until shipment.

⇒ Lead acid batteries should be handled without draining the electrolyte.

Used Batteries

USED BATTERIES

Management of Used Batteries

Disposal Options/Recycling

⇒ MDAD shops are required to accumulate lead acid batteries and submit them for recycling.

⇒ Other batteries, may be recycled/disposed in designated PVC plastic containers labeled "**Used Batteries**".

⇒ Do not dispose of any batteries in the trash.

Health and Safety

Batteries contain chemicals that have the potential to be hazardous to health due to the content of lead and sulfuric acid. Contact with the sulfuric acid solution may lead to irritation or burns to the skin, or irritation to the mucous membranes of the eyes or the upper respiratory system.

Personal protective equipment must be worn to avoid eye and skin contact with acids from batteries.

WATER TREATMENT CHEMICALS

What are Water Treatment Chemicals?

Water treatment chemicals are chemicals used in the maintenance/operations of boilers, chillers, and cooling towers.

Management of Water Treatment Chemicals

The water treatment chemicals used by MDAD include:

- Acids
- Biocides
- Caustics
- Testing Reagents

Environment

⇒ Improper handling of water treatment chemicals can pose harm to the environment.

⇒ Boilers, chillers, and cooling towers should be maintained and filled to prevent water from dripping or sloshing from the fill and onto the ground.

⇒ All the water passing through the fill should go into the basin.

⇒ Select a feasible chemical treatment, choosing less harmful chemicals or alternative chemicals, which have a lower potential for impact on the environment.

WATER TREATMENT CHEMICALS

Management of Water Treatment Chemicals

Storage and Handling

⇒ Acids, caustics, and biocides are generally stored in 30-gallon to 55 -gallon drums.

⇒ Drums should be closed, except when material is being removed or if the drum is directly connected to the process.

⇒ Drums, whether in use or in bulk storage areas, should be placed on pallets to allow detection of leaks.

⇒ Acids, caustics, and biocides should be stored in separate areas. Exceptions for materials that have similar chemical composition are appropriated on a case by case basis.

⇒ Testing reagents should be stored inside, away from direct sunlight, and in a cool location.

⇒ Containers of testing reagents should be tightly closed during storage.

WATER TREATMENT CHEMICALS

Management of Water Treatment Chemicals

Storage and Handling

⇒ For concentrated acids and caustics, use a chemically resistant apron and splash shield.

⇒ Adequate ventilation should be provided when working with these products.

Disposal Options/Recycling

⇒ Shop personnel are responsible for containerizing, labeling, and storing the waste pending transportation and disposal.

⇒ Storage containers for acid and caustic wastes should be plastic drums rather than steel drums.

⇒ Absorbent material and soil collected from a spill of acid or caustics may be disposed of as solid waste or as hazardous waste, pending waste characterization conducted by CEED.

⇒ Receipts and/or manifests for all waste generated must be kept at the CEED office for at least three years and made available for review by RER.

Management of Water Treatment Chemicals

Disposal Options/Recycling

- ⇒ Most test tank water, boil out tank sludge and associated wash and rinse waters, may be hazardous waste due to high metal concentrations.
- ⇒ Test tank water and rinse waters must be treated, recycled or collected.
- ⇒ Test tank water, which is neither recycled nor treated, must be collected and tested to determine proper disposal.
- ⇒ If test tank water is hazardous, it must be disposed of by an approved transporter.
- ⇒ Boil out tank sludge must be properly handled as a hazardous waste.
- ⇒ Alternatively, acid, caustic, and biocide drums may be triple rinsed, and the rinse waters may be treated in the industrial water treatment system.

Spill Response

- ⇒ Ventilate the area of the spill.
- ⇒ Containerize and label any liquid collected in a pail with a top or a drum.
- ⇒ Leaking containers should be over-packed and/or the remaining product should be transferred to another container.
- ⇒ If necessary, contain the spill with absorbent material. Neutralization agents such as soda, ash or baking soda can be used to neutralize the spill.
- ⇒ Clean the bulk of the spill with rags, absorbent material or if on a hard surface, a mop and bucket.
- ⇒ Spills of acids, caustics, and biocides should be stored in plastic containers, not steel drums.
- ⇒ The remainder of the spill on floors or other hard surfaces can be rinsed with water, using a mop and bucket or can be rinsed into a floor drain connected to the industrial sewer system.
- ⇒ Do not rinse a spill of cleaning products into a storm sewer or onto bare soil.

WATER TREATMENT CHEMICALS

Spill Response

⇒ If a spill happens on bare soil, remove the visibly stained soil and replace with clean soil.

⇒ Liquids and solids generated from spills of different products should be segregated unless CEED has approved to combine the materials.

Health and Safety

Many acids, caustics, biocides and testing reagents are corrosive to the skin and are severe skin and eye irritants.

Hand and eye protection should be routinely worn when handling these materials.

Some water treatment chemicals generate vapors during storage or as a result of chemical reactions if they are spilled onto concrete or metallic surfaces. Inhalation of chemical vapors should be avoided. These vapors can cause respiratory distress.

OTHER WASTE

What are Other Wastes?

⇒ Many airport operations generate debris or articles alien from vehicles or systems that could potentially cause damage. If these materials are not handled or disposed of properly, they can become hazards to aircraft, ramp/passengers and buildings. This debris is classified as Other Waste.

⇒ Foreign Object Debris (FOD) and sumped fuel fall under the Other Waste classification.

⇒ FOD at airports includes any object found in an inappropriate location that, as a result of being in that location, can damage equipment or injure airplanes or airport personnel.

⇒ FOD includes a wide range of material, including loose hardware, plastic, pavement fragments, catering supplies, safety wires, building materials, rocks, sand, baggage pieces, and even wildlife.

⇒ Waste aircraft fuel (sumped aviation fuel) is a hazardous waste due to its flammability.

OTHER WASTE

Management of Other Waste

Disposal Options/Recycling

⇒ FOD containers are strategically placed in FOD sensitive areas.

⇒ Use FOD receptacles only to keep the Airport Operation Area free of objects and other debris.

⇒ Do not discard trash, liquid, and/or solid waste from offices, shops and/or break areas in FOD receptacles.

⇒ Florida Law prohibits dumping of sumped aviation fuel on the ground.

⇒ Proper procedures should be followed when testing sumped aviation fuel.

GLOSSARY

Best Management Practices (BMPs): Systems, activities, and structures that human beings can construct or practice to prevent nonpoint source pollution.

Carcinogen: A substance that causes cancer in living tissue from either acute or chronic exposure.

Combustible: The ability to easily catch fire and burn.

Container: Any device that is open or closed, portable, in which, a material can be stored, handled, treated, transported, recycled, or disposed of.

Disposal: The discharge, deposit, injection, dumping, spilling, leaking or placing of any hazardous waste into or on any land or water so that such hazardous waste or any constituent thereof may enter the environment or be emitted into the air, discharged into any waters, including ground water.

Environment: The air, water, minerals, organisms, and all other external factors surrounding and affecting a given organism at a any given time.

GLOSSARY

Flammability: The tendency of a material (gas, liquid, or solid) to ignite either spontaneously or ignite from exposure to high temperatures, flames, sparks, or other ignition sources.

Foreign Object Debris (FOD): A substance that is unrelated to the system such as loose objects of which could potentially cause damage to equipment, people, and the environment.

Hazardous Material: A substance or material which is capable of posing an unreasonable risk to health, safety, and property when transported in commerce.

Hazardous Waste: A discarded substance that, because of its quantity, concentration, physical, chemical or infectious characteristics, may cause or contribute to serious illness or pose a substantial or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of.

Oxidizer: A substance such as chlorate, permanganate, inorganic peroxide, or a nitrate that yields oxygen readily to stimulate the combustion of organic matter.

GLOSSARY

Personal Protective Equipment (PPE): Refers to clothing, helmets, goggles, and other garments or equipment designed to protect the person wearing it from injury or infection from hazardous environments or substances.

Pollutant: Any contaminant of air, water, land or other natural resources that will be harmful, detrimental or injurious to public health, safety or welfare, or to domestic, commercial, municipal, industrial, agricultural, recreational or other legitimate beneficial uses.

Pollution Prevention: Preventative practices that protects the air, water, land and other natural resources from harmful contamination.

Recycling: The conversion of waste into reusable material.

Respiratory Protection: Designed to protect from harmful airborne contaminants.

Safety Data Sheets (SDS): Sheets containing printed chemical safety information provided by chemical manufacturers.

GLOSSARY

Spill Response: The prevention of a spilled hazardous substance from spreading and potentially harming the surrounding environment.

Storage: The containment of hazardous wastes, either on a temporary basis or for an indefinite period in such a manner as not to constitute disposal or use of such hazardous waste.

Sump: Any pit or reservoir that serves as a tank and those troughs/trenches connected to it that serve to collect hazardous waste for transport to hazardous waste storage, treatment or disposal facilities.

FOR ENVIRONMENTAL EMERGENCIES, CALL:

Operation Control Room (OCR) @ 305-876-0385 (24 hours)

MDAD-GREEN POINT

http://mdad-enviroeng/default.aspx