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EHS-314, POWERED INDUSTRIAL TRUCK PROGRAM

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## 1.0 Introduction

### 1.1 Purpose

The purpose of this program is to protect the health and safety of all Emory employees assigned to operate powered industrial trucks as prescribed by the Occupational Safety and Health Administration's (OSHA) Powered Industrial Trucks Standard - 29 CFR 1910.178.

### 1.2 Scope

This program is inclusive of Emory employees, including healthcare, faculty, staff, and student employees who are designated by their departments to operate, repair, or maintain powered industrial trucks, which include fork trucks, tractors, platform lift trucks, motorized hand trucks, and other specialized industrial trucks powered by electric motors or internal combustion engines.

### 1.3 Definitions

**Backrest.** Supports the load when tipped back and adds stability.

**Hazardous Locations.** Locations in which flammable gases, vapors, or combustible dust are present or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.

**Mast.** The mechanism on the truck that raises and lowers the load. The mast is made up of a set of tracks that house bearings and chains.

**Motorized Hand Truck.** A type of powered industrial truck designed to move palletized materials. These trucks may be called powered pallet trucks, walkies, or walkie riders.

**Nameplates.** Contain information about the truck's design and capacity including information about the truck's engine, load capacity, serial number, weight and the truck's type designation.

**Nonhazardous Areas.** Areas that do not possess flammable or explosive atmospheres.

**Powered Industrial Trucks.** Industrial vehicles used to carry, push, pull, lift or stack material that is powered by an electric motor or an internal combustion engine. Included are vehicles that are commonly referred to as forklift trucks, rider trucks, motorized or powered hand trucks, pallet trucks and tugs. Not included are: compressed air or nonflammable compressed gas-operated industrial trucks, farm vehicles or vehicles intended primarily for earth moving or over-the-road hauling.

**Overhead Guard.** A guard over the operator's head that protects the operator from falling debris. NOTE: The overhead guard is not designed to withstand the full impact of falling objects.

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## 1.4 Responsibilities

### ***Environmental Health and Safety Office (EHSO) and applicable Emory Healthcare (EHC) Safety Management***

As the administrative departments for the Powered Industrial Trucks Program, EHSO and applicable hospital and clinic safety management groups are responsible for:

- Development, implementation, and administration of the Powered Industrial Truck Program;
- Evaluating the training program conducted by any powered industrial truck trainer based on the general principles of safe truck operation, the type of vehicle(s) being used in the workplace, and the hazards of the workplace;
- Evaluating potentially hazardous atmospheres;
- Reviewing contractors' Powered Industrial Truck Safety Programs;
- Reviewing, updating, and evaluating the overall effectiveness of the Powered Industrial Truck Program.

### ***Powered Industrial Truck Trainer***

Any powered industrial truck trainer who provides training to Emory University employees is responsible for:

- Conducting the training and evaluation of powered industrial truck operators;
- Providing the Emory department securing the training with the training certification records and performance tests of employees included in the training sessions;
- Providing certification cards to operators who successfully complete the training. Certification cards will include:
  - Name of the employee being certified;
  - Date certification is issued;
  - Date certification expires;
  - Name of the powered industrial truck trainer issuing the certification;
  - Types of powered industrial trucks the employee is permitted to operate; and
  - Any restrictions imposed on the employee.

### ***Directors, Supervisors, and Managers***

Directors, supervisors, and managers have primary responsibility for the management and enforcement of the Powered Industrial Trucks Program in their areas. They must ensure that:

- Employees who operate powered industrial trucks in their departments have received appropriate training;
- Employees who operate powered industrial trucks do so in a safe manner;
- The vehicles under their responsibility are properly inspected and maintained in a safe operating condition;
- EHSO or EHC Safety Management are contacted before the purchase of any powered industrial truck to ensure that the equipment is compatible with the atmosphere of the work area;
- Battery-charging areas are designated.

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All employees are responsible for complying with the rules set forth by this program. They must ensure that they:

- Possess a valid driver's license;
- Complete Emory's driver education course;
- Operate powered industrial trucks in a safe manner;
- Examine powered industrial trucks before the vehicle is placed into service. The Powered Industrial Truck Pre-Use Checklist may be used for documentation purposes.
- This examination must be performed before each day of use.
- When trucks are used on a round-the-clock basis, each truck will be examined before each shift;
- Report equipment defects and/or maintenance needs to their supervisors immediately;
- Attend Powered Industrial Truck Training as required;
- Complete the operator evaluation a minimum of once every three (3) years and keep the operator certification card on their person when operating a powered industrial truck.

***Contractors***

Contractors working on campus are required to comply with 29 CFR 1926.602, 29 CFR 1910.178 and all other applicable OSHA workplace safety regulations. A contractor's safety programs shall be available for review upon request by representatives of EHSO and EHC Safety Management.

## 1.5 Training Requirements

- Supervisors are responsible for ensuring that Powered Industrial Truck training is provided to employees who operate powered industrial trucks. This training is provided upon initial assignment and whenever there is reason to believe a previously trained employee does not have the understanding and skill required to operate a powered industrial truck safely;
- Only employees who have successfully completed training in accordance with 29 CFR 1910.178 are permitted to operate a powered industrial truck;
- Trainees may operate a powered industrial truck only under the direct supervision of the Powered Industrial Truck Trainer where such operations does not endanger the trainee or other employees;
- Operator training and evaluation will be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.
- Training will consist of a combination of formal instruction (e.g., video, group discussion), hands-on practical training, and evaluation of the operator's driving performance in the workplace. A Powered Industrial Truck Operator Evaluation Form can be found in Appendix B;
- The formal (classroom) training will include a review/discussion of the following topics:
  - The safe operation of powered industrial trucks;
  - Differences between powered industrial trucks and an automobile;
  - Truck controls and instrumentation;

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- Engine or motor operation;
- Steering and maneuvering;
- Visibility (including restrictions due to loading);
- Fork and attachment adaptation, operation, and use limitations;
- Vehicle capacity;
- Vehicle stability;
- Vehicle inspection and maintenance;
- Refueling and/or recharging of batteries;
- Operating limitations;
- Load manipulation, stacking and unstacking;
- Pedestrian traffic;
- Narrow aisles and other restricted places where the vehicle will be operated;
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
- Refresher training in relevant topics will be provided to the operator when:
  - The operator has been observed operating the vehicle in an unsafe manner;
  - The operator has been involved in an accident or near-miss incident;
  - The operator has received an evaluation that reveals that the operator is not operating the truck safely;
  - The operator is assigned to drive a different type of truck;
  - A condition in the workplace changes in a manner that could affect safe operation of the truck.
- An evaluation of each operator's performance will be conducted at least once every three (3) years. See Appendix B for a Powered Industrial Truck Operator Evaluation Form;
- If an operator has previously received training in a topic specified in paragraph 29 CFR 1910.178, and the training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.
- The powered industrial truck trainer and Emory division securing the training will maintain documentation of the attendance which will include the operator's name, the date of training/evaluation, and the name of the instructor.

## **1.6 Recordkeeping Requirements**

Training and recertification records are retained in the Emory Learning Management System (ELMS). Records are available in accordance with the Powered Industrial Trucks Standard for record retention.

## **1.7 Program Evaluation**

The written Powered Industrial Truck Program will be re-evaluated annually and revised if necessary.



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## 2.0 Powered Industrial Truck Safety Rules

### 2.1 General Requirements

- Ensure that all new powered industrial trucks acquired, except for vehicles intended primarily for earth moving or over-the-road hauling, meet the design and construction requirements for powered industrial trucks established in the American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969";
- Ensure that any modifications and additions to powered industrial trucks which affect capacity and safe operation are approved in writing by the manufacturer of the powered industrial truck. Changes to the the capacity, operation, and maintenance instruction plates, tags, or decals must be made accordingly;
- If the truck is equipped with front-end attachments other than factory installed attachments, request that the truck be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with load laterally centered;
- All nameplates and markings are in place and are maintained in a legible condition;
- Prior to the consideration of powered industrial trucks being used in a potentially hazardous location, the atmosphere of the location must have been classified as hazardous by EHSO or EHC Safety Management. Hazardous locations include the following:
  - Atmospheres that contain hazardous concentrations of metal dust, including aluminum, magnesium, and their commercial alloys, or other metals of similarly hazardous characteristics; NOTE: Fuses, switches, motor controllers, and circuit breakers of powered industrial trucks must have enclosures specifically approved for these locations.
  - Atmospheres that contain carbon black, coal or coke dust;
  - Atmospheres that contain acetone, acrylonitrile, alcohol, ammonia, benzine, benzol, butane, ethylene dichloride, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas, propane, propylene, styrene, vinyl acetate, vinyl chloride, or xylenes in quantities sufficient to produce explosive or ignitable mixtures;
  - Locations where volatile flammable liquids or flammable gases are handled, processed or used, but in which the hazardous liquids, vapors or gases will normally be confined within closed containers or closed systems;
  - Locations in which hazardous concentrations of gases or vapors are normally prevented by positive mechanical ventilation but which might become hazardous through failure or abnormal operation of the ventilating equipment.
- Only powered industrial trucks that are approved for use in hazardous (explosive) areas may be used in such areas. Trucks approved for use in hazardous areas (for fire safety purposes) will have the manufacturer's label or some other identifying mark indicating approval for the intended use by a recognized national testing laboratory [e.g., Underwriters Laboratories (UL) or Factory Mutual (FM)];
- Power-operated industrial trucks cannot be used in atmospheres containing



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hazardous concentration of acetylene, butadiene, ethylene oxide, hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas), propylene oxide, acetaldehyde, cyclopropane, diethyl ether, ethylene, isoprene, or unsymmetrical dimethyl hydrazine (UDMH).

**2.2 Powered Industrial Trucks Suitable in Non-Hazardous Areas**

The following types of forklifts are only suitable for use in non-hazardous areas since they include only minimum safeguards against inherent fire hazards:

TYPE OF FORKLIFT	DESCRIPTION
D	Diesel-powered units having minimum acceptable safeguards against inherent fire hazards
E	Electrically powered units having minimum acceptable safeguards against inherent fire and electrical shock hazards
G	Gasoline-powered units having minimum acceptable safeguards against inherent fire hazards
LP	Liquefied-petroleum gas-powered units having minimum acceptable safeguards against inherent fire hazards

**2.3 Powered Industrial Trucks Suitable in Hazardous Areas**

The following types of forklifts are suitable for certain hazardous areas based on their design since they are equipped with additional safeguards (i.e., special exhaust, fuel, or electrical systems) or other modifications against inherent fire hazards:

TYPE OF FORKLIFT	DESCRIPTION
DS	Diesel-powered units provided with all the requirements for the type D units and additional safeguards to the exhaust, fuel, and electrical systems
DY	Diesel-powered units that have all the safeguards of the type DS units - except they do not have any electrical equipment, including ignition; they are equipped with temperature-limitation features.
ES	Electrically powered units provided with all the requirements for the type E units and additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures
EE	Electrically powered units provided with all the requirements for the type E and ES units, and also have electric motors and all other electrical equipment completely enclosed
EX	Electrically powered units that differ from type E, ES, or EE units in that the electrical fittings and equipment are designed, constructed, and assembled so that the units

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TYPE OF FORKLIFT	DESCRIPTION
	may be used in atmospheres containing specifically named flammable vapors or dusts.
GS	Gasoline-powered units that, in addition to all the requirements for the type G units, are provided with additional safeguards to the exhaust, fuel, and electrical systems
LPS	Liquefied-petroleum gas-powered units that, in addition to the requirements for the type LP units, are provided with additional safeguards to the exhaust, fuel, and electrical systems

**NOTE:** Gasoline-powered industrial trucks that have been converted to use liquefied petroleum gas fuel may be used in the same locations as G, GS, LP, and LPS designated trucks. All equipment used to convert powered industrial trucks from gasoline-powered to liquefied petroleum gas must be approved equipment. The converted truck must embody the features specified for LP or LPS designated trucks.

## 2.4 Truck Operations

- elevated dock, platform or freight car;
- Ensure there is sufficient headroom under overhead installations, lights, pipes, sprinkler systems, etc.
- When leaving the truck unattended, fully lower the forks, place the controls in neutral, shut off the power, set the brakes and remove the key or connector plug. Block the wheels if the truck is parked on an incline; **NOTE:** A powered industrial truck is considered unattended when the operator is 25 feet or more away from the vehicle which remains in his/her view or whenever the operator leaves the vehicle and the truck is not in view.
- Do not use powered industrial trucks to open or close freight doors;
- Set the brakes of trucks, trailers and railroad cars and place wheel chocks or stops to prevent movement during loading or unloading operations. Fixed jacks may be necessary to support a semi-trailer during loading or unloading when the trailer is not coupled to a tractor. Check the flooring of trucks, trailers and railroad cars for breaks and weakness before driving these vehicles onto these surfaces;
- Use an overhead guard as protection against falling objects on High Lift Rider trucks; **NOTE:** The overhead guard is intended to offer protection from the impact of small packages, boxes or bagged materials only.
- Use a load backrest extension whenever necessary to minimize the possibility of the load or part of the load falling rearward;
- Keep fire doors, access to stairways, fire extinguishers and emergency exits clear;
- Only approved industrial trucks are allowed to be used in hazardous locations;
- Do not drive powered industrial trucks up to anyone standing in front of a bench or other fixed object;
- Do not allow a person to stand or pass under the elevated portion of any truck, whether loaded or empty;
- Unauthorized personnel are not permitted to ride on powered industrial trucks.

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Where riding of powered industrial trucks is authorized the truck must be equipped with a safe place for the passenger to ride;

- Do not place arms or legs between the uprights of the mast or outside the running lines of the truck;

## **2.5 Traveling**

- Observe all traffic regulations, including all STOP signs and authorized speed limits;
- Maintain a safe distance of approximately three truck lengths from the truck ahead;
- Yield the "Right of Way" to fire trucks, ambulances or other vehicles in emergency situations;
- Slow down and sound the horn at intersections and other locations where vision is obstructed;
- If the load being carried obstructs forward view, travel in reverse with the load trailing;
- Cross railroad tracks diagonally whenever possible; NOTE: Parking closer than 8 feet from the center of railroad tracks is prohibited.
- Ascend and descend grades slowly. When ascending or descending grades in excess of 10 percent, drive loaded trucks with the load upgrade. On all grades, tilt the load and load engaging means back and raise only as far as necessary to clear the road surface;
- Slow down on wet and slippery floors;
- Properly secure dockboards or bridge plates before they are driven over and ensure their rated capacity is never exceeded. Always drive over dockboards or bridge plates carefully and slowly;
- Approach elevators slowly and then enter squarely after the elevator car is properly leveled. Once on the elevator, place the transmission in neutral, shut the engine off, and set the brakes to prevent movement;
- If using a motorized hand truck, always enter elevators or other confined areas with the load end forward;
- When making turns, reduce the truck's speed to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate;
- Do not pass other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations;
- Do not participate in horseplay and stunt driving, including spinning of the tires;
- Avoid running over loose objects in aisles;
- Under all travel conditions, operate the truck at a speed that will permit the truck to be brought to a stop in a safe manner;
- Always look in the direction of travel and keep a clear view of the path of travel;

## **2.6 Loading/Stacking**

- Only handle stable and safely arranged loads. Use extreme caution when handling off-centered loads that cannot be centered on the forks;
- Only handle loads that are within the rated capacity of the truck;



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- Place the forks under the load as far as possible and carefully tilt the mast backward to stabilize the load;
- Use extreme caution when tilting the load forward or backward, especially when stacking or high-tiering.
  - Tilting forward with the load engaging means elevated is prohibited except to pick up a load.
  - Do not tilt an elevated load forward except when the load is in a deposit position over a rack or stack of material;
- When stacking or tiering loads, tilt the load backward only enough to stabilize the load;
- Remove unsafe containers and pallets from service;
- Trucks equipped with attachments will be operated as a partially loaded truck when not handling a load;
- Adjust long and high loads, including multiple-tiered loads that may affect the capacity of the truck;
- Ensure there is always a safe distance between the mast and overhead lights, pipes and sprinkler systems.

## **2.7 Fueling Powered Industrial Trucks**

- Spillage of excess oil will be carefully cleaned up and disposed of in accordance with state and federal regulations and EHSO requirements.
- Always wear proper personal protective equipment (PPE), including face and hand protection, when fueling or performing any other maintenance on the truck (refer to Emory University's PPE Guideline for additional guidance);
- Do not operate any powered industrial truck that has a leak in the fuel system until the leak has been repaired.
  - Document and retain all records of repair;
- Do not use open flames to check the electrolyte level in batteries or the gasoline level in the fuel tank;
- Do not smoke while changing liquefied petroleum gas (LPG) tanks or refueling gas powered trucks;
- Properly store and handle liquid fuels, such as gasoline and diesel fuel, in accordance with the National Fire Protection Association (NFPA) Flammable and Combustible Liquids Code; and
- Properly store and handle LPG fuel in accordance with NFPA Storage and Handling of Liquefied Petroleum Gases Code.

## **2.8 Changing and Charging Batteries**

- Before attempting to change or charge batteries, ensure the powered industrial truck is properly positioned and the brake is applied;
- Ensure battery charging areas are located in designated areas;
- Facilities must be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of battery off- gassing;
- Use a conveyor, overhead hoist, or equivalent material handling equipment when handling batteries;
- Provide a carboy tilter or siphon for handling electrolyte;

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- When charging batteries, pour acid into water. Do not pour water into acid;
- Ensure that vent caps are functioning. Open the battery/compartment covers to dissipate the heat;
- When checking fluid levels in batteries, wear appropriate PPE (eye, face, and hand protection);
- Smoking and other potential ignition sources are prohibited in the charging area;
- Take precautions to prevent open flames, sparks, or electric arcs in battery charging areas;
- Keep tools and other metallic objects away from the top of uncovered batteries;
- Where general lighting is less than 2 lumens per square foot, auxiliary directional lighting must be provided on the powered industrial truck; and
- Dispose of used batteries in accordance with EHSO guidelines.

## **2.9 Maintenance and Inspection of Powered Industrial Trucks**

- Before the vehicle is placed into service, ensure that the operator conducts an examination of the truck. A Powered Industrial Truck Pre-Use Checklist can be found in Appendix A of this document and on the EHSO website at [www.ehso.emory.edu](http://www.ehso.emory.edu). This examination must be made at least before each day of use and must be documented. When trucks are used on an around-the-clock basis, each truck will be examined after each shift;
- Immediately notify the supervisor if the truck is found to be in need of repair and/or unsafe;
- Remove the vehicle from service when repairs are needed that prevents its safe operation, including but not limited to the following:
  - When there are signs of overheating, such as when the temperature of any part of the truck is found to be in excess of its normal operating temperature;
  - When there are hazardous emissions from the exhaust system, such as sparks, flames, or smoke;
- Do not make repairs to powered industrial trucks in hazardous locations;
- Only authorized personnel can make powered industrial truck repairs;
- Disconnect the battery before making repairs to the electrical system of a powered industrial truck;
- Ensure the water level in water mufflers is maintained at a minimum of 75% capacity at all times;
- Ensure muffler screens/parts are not clogged;
- Keep powered industrial trucks in clean condition and free of excess lint, oil, and grease. Only use non-combustible agents to clean trucks. Cleaning trucks with low flash point solvents (below 100 degrees Fahrenheit) is not permitted;
- Follow precautions regarding toxicity, ventilation, PPE and fire hazards as stated on the warning label and/or the Safety Data Sheet (SDS) for each particular cleaning agent; and
- Ensure that replacement parts for any industrial truck are equal in safety to those parts originally provided by the manufacturer.



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### **3.0 References**

- OSHA Powered Industrial Trucks – 1910.178

### **4.0 List of Associated Documents**

- Powered Industrial Truck Operator Evaluation Form
- Powered Industrial Truck Pre-Use Checklist