

Forklift emissions—some solutions

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Forklift trucks—the brawn of industry—are at the center of a growing controversy over indoor air quality and employee health. Governmental regulatory agencies are taking a closer look at emissions from lift trucks. At the same time, forklift users are searching for ways to clean up their indoor air. The solution may be a lot simpler, and cheaper, than most mill managers and forklift operators realize.

Eighty percent of internal combustion lift trucks in use today are powered by propane gas. The problem is that few of these lift trucks are sufficiently maintained. Most forklifts are treated like iron workhorses, often neglected and abused. Such neglect and the lack of routine checks are the primary causes of harmful emissions problems today.

What most people don't realize is that a high-quality preventive maintenance program is remarkably inexpensive when compared with tossing out the existing equipment in favor of another type of lift truck. When propane lift trucks are well maintained and are operated in a properly ventilated space, they offer no threat to the indoor air quality or to the workers' health.

The problem is that too many lift truck owners are unfamiliar with basic propane lift truck maintenance procedures. Smaller operations with one to 20 lift trucks often relegate the maintenance to an outside service company and may not be getting the service their contract calls for.

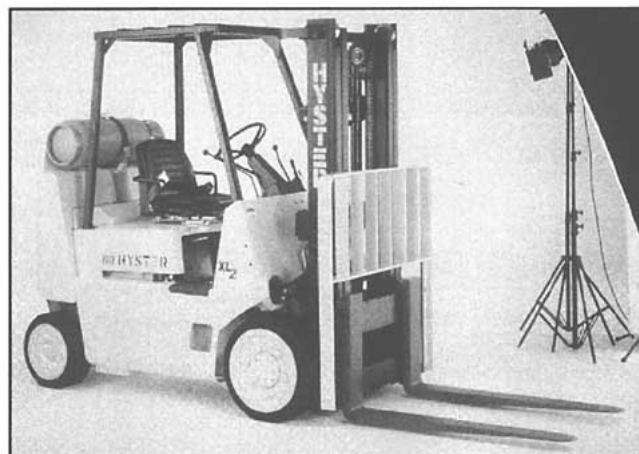
Service requires more than changing the oil and kicking the tires. Ask tough questions. Find out if the company uses an infrared carbon monoxide analyzer to test for emissions every time the equipment is serviced. Ask about the corrective steps that are taken if the emissions register too high. That's the best way to maintain clean air.

Companies that have an in-house forklift maintenance program may need to conduct a total review of their propane lift truck maintenance procedures and consider buying the latest in emissions testing and tune-up equipment.

To keep emissions down to safe levels, a forklift's engine and ignition system needs to be thoroughly checked on a routine basis. The National Propane Gas Association (NPGA) suggests the following routine maintenance procedures:

As simple as a spark plug

Frequently, things as simple as spark plugs in the forklift are improperly set or are in poor working condition. Another common mistake is installing the wrong type of plug. Buying the correct spark plugs for the specific engine type



ensures proper ignition and cuts back on harmful emissions significantly. Gapping the plugs properly to the engine specifications is equally important.

Setting the points properly

Most forklifts today are still point ignition, but the problem is that the points are not accurately set, which adversely affects timing and ignition. Using a dwell meter to set the points according to the manufacturers' specifications is the most effective method. A feeler gauge can be used, but this procedure takes more time to get the points to the proper opening.

Getting the timing right

A timing light is the simple answer for setting the proper timing of the engine. (Timing is normally advanced when using propane instead of gasoline since propane burns slower.) If the timing is not properly set, the engine operation will be entirely out of kilter, resulting in unacceptable emissions.

Keeping it all in the family

Buying similar equipment requires the stocking of fewer replacement parts. This practice ensures a proper match when parts are needed. Mismatched carburetors and converters can increase emissions.

Shop Talk

Selecting the proper carburetion systems

Every year tens of thousands of lift truck owners replace carburetion systems on their propane lift trucks with outmoded equipment that adversely affects emissions results. Shop around to be sure that the carburetion system you purchase matches the equipment

used on today's original equipment manufacturer (OEM) lift trucks. Up-to-date carburetion equipment will produce much better emissions results. Some forklift operators have their propane carburetors rebuilt, but this should be done only once. If a carburetor is continually rebuilt, the repair kit cannot effectively compensate for internal wear.

Using the best emissions testing equipment

Emissions testing is the final step necessary to ensure that the indoor air is kept clean, but few lift truck owners go that far. Tougher governmental regulations may be necessary before emissions testing becomes routine for lift trucks, as it is for on-road vehicles. On the other hand, some forward-thinking companies have already set up a regular emissions testing program using a two- or four-gas analyzer.

Each company needs to establish its own routine maintenance schedule, depending on ambient air quality conditions and the forklifts' regular work loads, but a good rule of thumb is to schedule each forklift for a maintenance check-up and emissions test every 90 days of operation.

A thorough review of your forklift preventive maintenance program is an excellent investment that will go a long way toward satisfying government regulators if they visit your plant or building. Propane suppliers that are carburetion specialists can help review your maintenance procedures and set up a training program for your maintenance personnel. Or they can refer you to a propane equipment supplier with the expertise you need. ■

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