



Innovative Solutions for Material Handling

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FREQUENTLY ASKED QUESTIONS EXPLOSION PROOF LIFT TRUCKS

QUESTION 1: What is the difference between an EX-rated truck and an EE-rated truck.

ANSWER: By definition, an EX-rated truck must use construction technic's that reduce the risk of fire or explosion. In laymens terms, these construction technics typically involve rigid metal conduit or mineral insulated cable for all wiring; intrinsically safe electrical circuits; static conductive tires; brass or aluminum around the chassis and forks to protect against mechanical sparks; and explosion proof boxes for all electrical components.

QUESTION 2: What is a hazardous location?

ANSWER: Classifications of hazardous location are based on the following criteria:

1. The possible presence of an explosive atmosphere such as flammable gases, vapors, or liquids (Class I), combustible dust (Class II) or ignitable fibers & flyings (Class III)
2. The likelihood that the explosive atmosphere is present when equipment is operating.
3. The ignition-related properties of the explosive atmosphere that is present.

QUESTION 3: Can a lift truck manufacture classify a hazardous area?

ANSWER: NO. According to the NFPA 505 paragraph 1-5.1, "The Authority Having Jurisdiction shall determine the hazard classification for any specific location as defined in NFPA 70, National Electric Code. The location shall be classified prior to considering the use of industrial trucks therein.

The Authority Having Jurisdiction is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. The AHJ may be a federal, state, local or other regional department or individual such as a fire chief, fire marshal, labor department, building official, electrical inspector or others having statutory authority. In many circumstances, the property owner or his designated agent assumes the role of the authority having jurisdiction.

QUESTION 4: Can powered industrial trucks be used in Class I, Group C, Division 1 hazardous areas?

ANSWER: No. The NFPA-505 (1999 Edition) titled "Fire Safety Standard for Powered Industrial Trucks", specifically prohibits the use of any powered industrial trucks in Class I, Group C areas as detailed in paragraph 1-6.1

***1-6.1 Class I, Division 1, Groups A,B,C.** Powered-operated industrial trucks shall not be permitted to be used in such locations. For examples of chemicals whose vapors, if mixed in air, are classified as Class I, Groups A, B, or C, see Section 500–5 of NFPA 70, National Electric Code, and A-1-6.1 of this standard.*

QUESTION 5: What is a NRTL (Nationally Recognized Testing Laboratory)?

ANSWER: An NRTL is an organization that OSHA has "recognized" as meeting the legal requirements in OSHA 1910.7. A "NRTL" determines that specific equipment and materials ("products") meet consensus-based standards of safety to provide the assurance, required by OSHA, and that these products are safe for use in the U.S. workplace. As a result, OSHA can accept products "properly certified" by the NRTL. "Properly certified" generally means:

1. The product is labeled or marked with the registered certification mark of the NRTL.
2. The NRTL issues the certification for a product covered within the scope of a test standard for which OSHA has recognized it, and
3. the NRTL issues the certification from one of its locations.

QUESTION 6: Who does OSHA recognize as a NRTL for explosion proof equipment?

ANSWER: Under OSHA Subpart S of 29 CFR Part 1910, the following NRTL are the only ones OSHA recognizes as being able to approve lift trucks:

Factory Mutual Research Corporation (FMRC)
1151 Boston-Providence Turnpike
Norwood, Massachusetts 02062

Intertek Testing Services NA, Inc. (Formerly ETL)
3933 U.S. Route 11
Cortland, New York 13045

TUV Rheinland of North America, Inc.
12 Commerce Road
Newtown, Connecticut 06470

Underwriters Laboratories Inc.
333 Pfingsten Road
Northbrook, Illinois 60062

See the OSHA web pages for information on each NRTL's scope of recognition, or contact OSHA at <http://www.osha-slc.gov/dts/otpca/nrtl/index.html>.

QUESTION 7: Can standard electrical switches be used on explosion proof trucks?

ANSWER: Yes. Through the use of intrinsically safe circuits standard off the shelf electrical switches can be used in hazardous areas.

By definition, intrinsic safety is an explosion protection technique applied to electrical equipment and wiring intended for installation in hazardous locations. The technique is based upon limiting both electrical and thermal energy to levels which are incapable of igniting a hazardous mixture which is present in its' most easily ignitable concentration.

QUESTION 8: How do hazardous area standards in the United States compare with the standards in Europe?

ANSWER: World standards for the classification of hazardous areas are moving toward harmonization. The 1999 National Electric Code now recognize the use of the Zone system for classification of hazardous areas. Whereas it would appear these moves would bring a degree of "harmonization" of world standards, in fact this is just a first step toward a lengthy goal.

Much has been written and published about NEC article 505. As a stand alone article it basically has created an "Americanized" version of the IEC/CENELEC Zone system. It uses familiar Class/Division system and fits the IEC European Zones into it while maintaining NEC wiring methods and protection techniques. A distinction must be made between the US Zone system and the IEC/CENELC Zone System. They are not the same! Similar-yes, the same-no!