

BI-02A.47 Fuel and exhaust specifications are detailed for mobile equipment

(Accountable - Engineering Manager (Site) (Unassigned))

Expectations

Design requirements for fuel and exhaust on mobile equipment should be included in specifications required from suppliers of this equipment. Formal processes for confirming the provided equipment meets these requirements should support consistently meet site requirements for fuel and exhaust systems.

Specify

Design requirements for fuel and exhaust on mobile equipment:

- Diesel engines to operate using a fuel with a flash point exceeding 55 °C
- Engine exhausts are directed away from the operator and other personnel working on or around the mobile equipment
- Exhaust gases should be away from equipment to avoid overheating equipment components e.g. not directly upwards onto equipment roof
- Ceramic (or similar) lined exhaust components and other options identified to reduce the external temperature of components
- All potential fuel sources are identified and controlled
- Mechanical segregation of components/systems
- Use guards to protect exhaust system sections that can be touched during operations, access or maintenance reference ISO 3457
- Locations for fuel fill points are optimised to achieve maximum distance from hot components and be located in low potential for impact/damage zones

Design requirements for fuel tanks

- Fixed to the equipment and mechanically protected
- Non-metallic fuel tanks shall comply with ISO 21507
- Metallic fuel tanks shall comply with the pressurization and spill requirements of ISO 21507
- Protected against corrosion

Inservice use - Fuel Tanks

- Filler inlets are easily accessible and away from hot components (e.g. exhaust)
- Apertures are designed to avoid the introduction of contaminants
- Tanks are clearly marked to avoid adding an incorrect fluid e.g. fuel or water
- Fuel is prevented from overflow or escape on any gradient that the equipment operates in
- Fuel caps are secured, cannot open during equipment use, remains permanently attached when open and requires an intentional action to release it
- There is a vent system that controls pressure to atmospheric pressure during filling with a breather filter rated no greater than 125 μ
- Foreign material tank filler filter that is rated not greater than 250 μ m
- Fuel tank drains

References

- Sections 4.6 and 4.7 of ISO 19296 Mining - Mobile machines working underground - Machine Safety First edition 2018-11

Implement

Pre and post delivery inspections confirm mobile plant meets nominated specifications.

Monitor

Detailed maintenance inspections are conducted and any issues arising are tracked and reported upon to senior site engineering personnel.