

NFPA 660 Chapter 22 Combustible Metals

22.8.4.2.2* Vacuum Cleaning_ Method.

22.8.4.2.2.1 Portable Vacuum Cleaners.

(A) The use of portable vacuum cleaners shall comply with

22.8.4.2.2.

(B)* Due to the inherent hazards associated with the use of portable electrical vacuum cleaning systems, the equipment used for cleaning shall be identified for use in a Class II, Group E atmosphere. (See also 22. 9. 4.3. 4.)

(C) Portable vacuum cleaning systems shall be effectively bonded and grounded to minimize the accumulation of static electric charge.

22.8.4.2.2.2 Vacuum cleaning systems shall be used only for the removal of dust accumulations too small, too dispersed, or too inaccessible to be thoroughly removed with hand brushing.

22.8.4.2.2.3* When being used for combustible metal powder, portable vacuum cleaners shall be used only if identified for the material being vacuumed with the following conditions:

(1) They shall be permitted only for the small amounts of residual material remaining after preliminary cleanup

(2) They shall be emptied at the end of each operational period or shift

(3) They shall not be used as primary dust collectors

22.8.4.2.2.4* Vacuum cleaning systems shall be effectively bonded and grounded during use to minimize the accumulation

of static electric charge.

(A)* If the system is moved, grounding and bonding shall be verified.

(B) For compressed air-operated systems, the air supply hose shall comply with the manufacturer's specifications.

22.8.4.2.2.5 Vacuum cleaner hose shall be conductive or static dissipative and nozzles or fittings shall be made of conductive, nonsparking material.

22.8.4.2.2.6 Assembled components shall be conductive or static dissipative and bonded where necessary.

22.8.4.2.2.7* When a vacuum cleaner is used for other-materials, the equipment shall be thoroughly cleaned prior to its use and identified accordingly. •

22.8.4.2.2.8 Combustible metal dust picked up by a centralized vacuum cleaning system shall be discharged into a container located outside the building.

22.8.4.2.2.9 Sludge from dust collectors and vacuum cleaning system precipitators shall be removed weekly, as a minimum, and when equipment is shut down after use.

22.8.4.2.2.1 O* Portable vacuum cleaners meeting any of The following test standards shall be permitted for use in housekeeping of combustible metals in hazardous (classified) locations if their listing and manual state that they are appropriate for the combustible metals being handled:

(l) UL 4040, *Outline of Investigation for Portable Wet-Type Dust Collectors for Collection of Combustible Metals*

(2) **BS EN 17348**, *Requirements for design and testing of vacuum cleaners for use in potentially explosive atmospheres*

(3) **UL/CSA 60335-2-69**, *Household and similar electrical appliances*

- *Safety - Part 2-69: Particular requirements for wet and dry vacuum cleaners, including a power brush, for commercial use*
use.

Bonding and Grounding

22.9.4.3.3.15 Bonding and Grounding.

(A)* All components of dust collection systems shall be bonded and grounded independently of the electrical grounding system to minimize the accumulation of static charge.

(B) When continuous contact is interrupted, metallic Jumpers shall be installed for effective bonding.

(C) * The owner/ operator shall verify and document the continuity of the bonding and grounding of the dust collection system on at least an annual basis.

22.9.4.3.4* Specific Requirements for Centralized Vacuum Cleaning Systems.

22.9.4.3.4.1 * The system shall be designed and maintained to ensure that the air-and-material velocity in the tubing, piping network or both meets or exceeds the minimum required to keep the interior surfaces free of accumulations under all normal operational modes.

22.9.4.3.4.2* Vacuum cleaning tools shall be constructed of metal or shall be static dissipative and provide proper grounding and bonding to the hose.

22.9.4.3.4.3 Centralized vacuum cleaning systems shall be used only for removal of dust accumulations too small, too dispersed, or too inaccessible to be thoroughly cleaned by hand brushing.

22.~.4.3.4.4* The entire centralized vacuum cleaning system shall be effectively bonded and grounded to minimize the accumulation of static electrical charge.

22.9.4.3.4.5* The tubing, piping, or both used in the system shall be metal and properly grounded and bonded.

22.9.4.3.4.6* The dry or wet AMS used in the system must comply with the requirements for dust collectors found in 22.9.4.4.2 for dry-type AMS and 22.9.4.4.3 for wet-type AMS.

22.9.4.3.j. 7* The method of ~collected material discharge e from a dry-type AMS shall be designed specifically for continuous discharge and for the characteristics of the combustible metal dust vacuumed into the system.