Insulating Mats

Frequently Asked Question

March 2011

Does the Safety Director have any guidance on insulating mats?

For the protection of the operator, where parts of more than 50 volts to ground are not guarded or isolated by elevation, suitable insulating mats providing good footing shall be so placed that the operator cannot readily touch the live parts unless standing on such mats. These mats also provide anti-fatigue for persons who must stand for long periods of time reading gauges, taking readings or operating controls.

Dielectric matting most commonly called Switchboard matting is placed on the floor to insulate personnel from electrical shock. PEOSHA states that "Dielectric matting must be used when appropriate to protect all personnel from electrical hazards" **[29 CFR1910.335 (a) (2) (ii)].** The Mine Safety Administration also recommends that, *"insulated mats or platforms, insulated for the phase-to-phase voltage of the system, shall be kept in place at all switchboards and power control switches where shock hazards exist."*

Matting used for electrical insulation should meet either of the two common standards:

- ASTM D178, Class 2 Type II including:
  A - Ozone Resistance
  B - Flame Resistance
  C - Oil Resistance
- Mil Spec 15562-F Amend. 3, Type II.

Most mats meeting the standards are made from rubber, 1/4" thick and tested to 20KV. The various surface textures available act as a safety tread while reducing the possibility of metal particles becoming imbedded. Maximum use voltage is generally 17,000 V. Class 4 maximum use voltage is 36 KV. Both mat classes are available in various widths and up to 60' continuous lengths. Electrical switchboard matting should stamped on the reverse every 40 inches with identification coding.

Non conductive floor mats come in three variants - non-conductive corrugated switchboard matting, non-conductive smooth military matting and non-conductive diamond plate military matting. The choice is based on the application and the place where the mat needs to be used.

When personnel are working with exposed, energized parts, the dielectric matting must:

- Be placed around test benches and equipment in the field during maintenance such that personnel are standing only on the matting while working.
- Be used in addition to all other PPE that is required by OSHA.
- Be inspected regularly to ensure that it is not damaged.

Some switchboard mats also provide anti fatigue support. Anti-fatigue matting is one example of how ergonomic design can increase productivity. A recent study found that workers who stand on anti-fatigue mats experience less fatigue and discomfort throughout the day, and also perform at a higher, more efficient level. Mats should be vacuumed or swept regularly and replaced if found to have metal chips imbedded.

