

## IEEE Standards Interpretation for IEEE Std 45™-1998 IEEE Recommended Practice for Electric Installations on Shipboard

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### Interpretation Request #1

What are the reasons and rationale for IEEE's requirement in subclause 8.11 as to why cable should not be painted? Subclause 8.11 states that, "cables should not be painted except 5000V types, which may be painted yellow."

### Interpretation Response

The request for interpretation applies to IEEE Std 45-1998 which has been superseded by IEEE Std 45-2002. Specific to the 1998 standard.

Subclause 8.11 - Paint applies to cable construction only. Painting of power control and other cables rated 600 volt for use identification was not recommended. SKV cables could be identified as a 5KV circuit by using a yellow color. This could be a yellow compound or yellow paint.

As stated, this applies to cable construction only and does not apply to any cables upon or after installation. There is no prohibition of painting cables after installation.

Painting after installation should have no affect on cable operation. However, this covers up all cable identification as to number and conductor size, as well as voltage rating. This would make trouble shooting very difficult. There is also no flame propagation test data on painted cables.

### Interpretation Request #2

IEEE Recommended Practice for Electrical Installations on Shipboard. (45-1998) subclause 11.39.1, third paragraph states: "Fuses should not, and circuit breakers need not be provided for the neutral of a circuit."

Part 13.1, Distribution panels, third paragraph states: "Circuit breakers in grounded neutral distribution panels should include a pole or switch for the neutral."

We are building two high-speed catamaran aluminum car and passenger ferries. The electrical distribution system includes 208 /120 vac four wire with the neutral grounded to the hull. How subclauses 11.39.1 and 13.1 are interpreted will determine if single pole or two-pole circuit breakers are required in distribution panels and ultimately affect the weight and size of the distribution panels.

### **Interpretation Response**

Subclause 11.39.1 quoted is actually 11.39.1.15. This is covered in subclause 5.9.6.6 in the IEEE Std 45-2002 regarding system grounding. It states "fuses should not and circuit breakers need not be provided for the neutral circuit. Fuses should not be used and circuit breakers are not required."

Subclause 13.1 - Distribution panels (fifth paragraph). This is covered in subclause 17.1 of the 2002 revision of IEEE Std 45. It reads, circuit breakers in grounded neutral distribution panels "may" include a pole to simultaneously switch the neutral.

This revision (IEEE Std 45-2002) states that a circuit breaker for switching the neutral may be installed, but it is not a requirement. The addition of a two- pole breaker for neutral switching is the choice of the designer or user and this is not a requirement.