**BACKUP CURRENT LIMITING FUSE SPECIFICATION**

Following is a suggested current limiting fuse specification to assist users in specifying current limiting fuses as a means of improved system protection.

**Description**

This standard applies to high voltage backup current limiting fuses and accessories for use on an AC system. These current limiting fuses are to be used both in single-phase and three-phase applications.

The fuse shall be a non-expulsion type and shall comply with the relevant parts of IEEE C37.41 and IEEE C37.42, except as amended by this material specification.

This backup current limiting fuse will be used to protect distribution transformers and equipment against low impedance, high current faults.

Fuses for immersion in a transformer insulating liquid shall have a rated Maximum Application Temperature (RMAT) of at least 140 °C.

**Construction**

Housing: The fuse shall be fully sealed. The tube shall be filament wound epoxy, and coated with an ultraviolet resistant acrylic lacquer for all exposed overhead applications. Fuses intended for insulating liquid immersion shall have a resin rich surface, to prevent liquid from “wicking” along a dry fiber and into the fuse. All fuses should be void of moisture and injected with an inert dry gas prior to sealing.

Terminals: Tin-plated aluminum shall not be used.

**Production test requirements**

Fuse production must be 100% factory tested for resistance and liquid-tightness. Liquid tightness testing shall be by trapped internal helium, and a mass detecting spectrometer, or methods functionally equivalent to measure a suitably low leak rate.

Leak rate: All production samples shall be subjected to a leak rate test, consisting of introducing a known percentage of helium into the fuse before it is fully sealed. When the fuse is exposed to a vacuum, immediately after final sealing occurs, the helium/air leak rate shall not measure more than the equivalent of 1 x 10-6 ml/atmosphere/sec (for example a 5% helium content shall read less than 5 x 10-8 ml/sec).

The resistance of every fuse should be measured by a four terminal low resistance-measuring device, and shall fall within the manufacturers published resistance band (with appropriate temperature compensation).

**Data to be submitted for Qualification as a Manufacturer**

The manufacturer shall indicate any exceptions to this material specification and/or any test requirements as outlined in IEEE C37.41 and IEEE C37.42.

1. Certified test report of performance. This shall include a detailed listing of all interrupting tests and the observed performance (*I*2*t* let-through, arc voltage/peak TRV, peak let-through currents, ambient temperature, melting times, and duration of recovery voltage).
2. Minimum melting and maximum clearing Time-Current Characteristic (TCC) curves.
3. Maximum developed peak overvoltage.
4. Maximum clearing *I*2*t*.
5. Minimum melting *I*2*t*.
6. Weight and dimensions.
7. Fuse part number.

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**Electrical Specifications**

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| Voltage Rating: | Fuse maximum rated voltage. |
| Rated Current: | Fuse rated current and correction factors for fuse operation at ambient temperatures above 40 °C. |
| Interrupting Rating: | This shall be a minimum of 31,000 amperes RMS symmetrical. |
| Radio Influence: | The RIV of the complete device, when installed in the service position, fuse and connectors shall not be greater than 250 microvolts at 1MHz when energized at specified voltage (IEEE 37.42-2016 table 11) |
| Maximum clearing *I*2*t*: | The maximum clearing *I*2t at rated voltage shall be indicated by the manufacturer. |
| Minimum melting *I*2*t*: | The minimum melting *I*2*t* shall be indicated by the manufacturer. |

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| Stock Unit: Each STOCK NO. | Expulsion or Bayonet fuse Interrupting Rating | Max I2T | MAX. TCC INTERSECT | HI-TECH  CAT. NO. |
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