

## Flame Retardant vs. Fire Rated/ Fire Resistive – What’s the Difference?

**T**here is a vast difference between cables that are rated flame retardant and those that have earned the rating fire rated or fire resistive. Flame retardant cables resist the spread of fire into a new area, while fire rated cables maintain circuit integrity and continue to work for a specified time under defined conditions. Fire rated cables continue to operate in the presence of a fire and are commonly referred to as circuit integrity cables. The differences between the two ratings are significant for the critical circuits required for life safety or a safe and immediate plant shut down. Additionally, fire rated cables can be used to replace expensive fire rated structures, blankets or wraps and the difficult to install MI cable. Flame retardant cables are not rated to continue to operate in a fire, and in all probability will not maintain circuit integrity during a fire. The differences between flame retardant and fire rated/fire resistive cables can be seen in the test descriptions shown below.

| <b>Cable Tests</b>                           | <b>Fire Rated/Fire Resistive =</b>   | <b>Cable Tests</b>                | <b>Flame Retardant =</b>  |
|--|--|-----------------------------------|---|
| ↓  | A cable that will continue to operate in the presence of a fire, also identified as Circuit Integrity Cable  | ↓                                 | A cable that will not convey or propagate a fire as defined by the Flame Retardant or Propagation Tests indicated below |
| North American Standard UL-2196 or ULC S-139 | Large scale flame test, 10 x 10 foot wall, can use either the standard or rapid rise flame profile, cable energized at the utilization voltage, water spray used at conclusion of test to verify the cables can survive fire fighting efforts. | VW1                               | Vertical wire test to measure flame propagation, small scale, uses Bunsen burner, maximum propagation 12 inches         |
| European Standard IEC 60331                  | Small scale circuit integrity test, uses 0.6 meter ribbon burner, standard temperature is 750°C for one hour, other optional times and temperatures can be specified, cable energized at rated voltage of cable                                | FT 1                              | Similar to VW1  |
| Military Standard MIL-DTL-24643              | Small scale circuit integrity test, uses 24 inch ribbon burner, cable energized at normal utilization voltage of cable   | FT 2                              | Horizontal flame spread test, small scale, uses same burner as VW1, maximum propagation 2 inches                        |
| Other  | Additional circuit integrity tests as defined by the application and end user can be performed and evaluated for compliance  | IEC 60332-1<br>IEC 60332-2        | Small scale vertical wire test<br>Small Scale vertical cable test   |
|  |  | Vertical Tray Flame Tests         | Medium scale tests, measure flame propagation only, does not maintain circuit integrity beyond several minutes          |
|  |  | IEEE-383,<br>IEEE-1202<br>CSA FT4 | All are vertical tray propagation tests, all requirements are basically the same, propagation limited to 1.5 meters     |
|  |  | UL– 1685 UL Method                | Similar to above except higher flame propagation is allowed   |





## When it comes to critical circuit protection - NOT all cables are created equal

### FAQs

**Q** Is a flame retardant cable also fire rated?

**A** No. A flame retardant cable is not a fire rated cable. A flame retardant cable is designed to only restrict the spread of a fire by inhibiting combustion.

**Q** Are flame retardant cables intended to maintain critical circuits during a fire?

**A** NO !

**Q** Why would you need a fire rated (fire resistive) cable?

**A** When the need to maintain circuit integrity is essential, specify fire rated (fire resistive) cable for those critical circuits that need to work in order to assure life safety or a plant shut down.

**Q** How does the Lifeline Technology protect conductors during a fire?

**A** Lifeline Technology utilizes electrical grade ceramified silicone rubber. The ceramified silicone technology is the hardening of a standard rubber insulating material into an insulating glass-like structure which protects the conductors against attack by fire and water which may be present during fire fighting efforts.

**Q** How can I use Lifeline Technology for my critical applications?

**A** Lifeline Technology can be designed into the type of cable you need for your application to provide you with the survivability you require.

**Q** How do I learn more about the Lifeline Technology?

**A** Visit our website at [www.drakausa/lifeline](http://www.drakausa/lifeline), or contact us direct at 800-333-4248 x 2600

**DURING A FIRE WHEN YOU NEED CRITICAL CIRCUITS TO WORK  
FOR LIFE SAFETY AND A SECURE PLANT SHUTDOWN,  
FOR SAFETY'S SAKE ....  
CHOOSE LIFELINE TECHNOLOGY**