

# CLASS I, DIVISION 1 IN USA – FREQUENTLY ASKED QUESTIONS

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## APPLICATION

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### What is required to get CID1 approval?

- Application design information required for USA installations must be submitted to Pentair Industrial Heat Tracing Solutions for review and approval using the Approval for Class 1, Division 1 Hazardous Locations in USA form (H56897).
- The approved CID1 heating cable must not exceed the T-rating for the area, or the heating cable's maximum sheath temperature must not exceed 80% (as expressed in °C) of the autoignition temperature (AIT) for the hazardous materials in the area.
- Post-installation, the required CID1 Installation Record (Required Installation Record for Class I, Division 1 Hazardous Locations in USA form (H57426)) must be completed and sent to Pentair Industrial Heat Tracing Solutions Customer Service Center, where it will be kept on file.

### Why is the field information form required?

This form is required as part of the approval based on the IEEE 515 Standard. It has two purposes:

1. It identifies the company and the contact person responsible for the hazardous area heat-tracing design.
2. It identifies either the T-rating for the area or the lowest AIT of the hazardous substances in the area. This information is used by Pentair to verify that the heating cable meets the area requirements.

**Note:** The customer must identify the T-rating for the area. If this information is not available, then the lowest AIT for the area must be identified. This section must be filled out by the person designing the system and/or the person most familiar with the hazardous location. Pentair cannot fill in this section because we cannot make any assumptions about the area being designed.

### What if I don't know the AIT?

If the T-rating is not known, then identifying the lowest AIT in the area should be done by contacting the safety manager or project expert. Identifying the correct AIT is critical to ensure a safe design, and this information is required before Pentair can process the order. Pentair cannot make any assumptions about the area; therefore, this information must be obtained from the area expert.

### What is the difference between the flash point and the AIT?

The flash point of a liquid is the minimum temperature at which the liquid gives off sufficient vapor to form an ignitable mixture with air near the surface of the liquid or within the test vessel used. "Ignitable mixture" means a mixture whose composition is within the flammable range (between the upper and lower limits), and thus is capable of propagating a flame away from the source of ignition. The AIT of a substance is the minimum temperature at which it will spontaneously ignite, without an external source of ignition.

As an example of the difference between the flash point temperature and the AIT,

gasoline is listed in **NFPA 497: Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas** as having a flash point of  $-50^{\circ}\text{F}$  ( $-45.5^{\circ}\text{C}$ ) and an AIT of  $880^{\circ}\text{F}$  ( $471^{\circ}\text{C}$ ). This means that gasoline will form sufficient vapors at temperatures above  $-50^{\circ}\text{F}$  ( $-45.5^{\circ}\text{C}$ ) to burn when exposed to a flame. However, only if the temperature exceeds  $880^{\circ}\text{F}$  ( $471^{\circ}\text{C}$ ) can those vapors self-ignite (without being exposed to a flame).

### **If the heat tracing goes through a CID1 area but is terminated in a CID2 area , do you need to use CID1 area connection kits?**

If both ends of the heating cable are terminated in a CID2 area, then industrial connection kits approved for use in CID2 areas can be used with the approved CID1 heating cable.

### **What happens if the end user does not fill out the required CID1 Installation Record (Required Installation Record for Class I, Division 1 Hazardous Locations in USA Form (H57426)) after installing the product?**

The customer will not have an approved system. This form must be filled out and returned to the Pentair Customer Service Center to complete the approval process.

### **In North America, we are starting to hear about “zone” approvals. How do these approvals relate to CID1 applications?**

The NEC declares that cables certified for use in CID1 areas may be used in Zone 1 areas, and cables certified for use in CID2 areas may be used in Zone 2 areas. However, cables with Zone 1 or Zone 2 approvals are not approved for CID1 or CID2 areas, respectively.

The reason for this difference is that CID1 approvals cover hazardous areas not included in Zone 1 areas, so Zone 1-approved products may not necessarily be tested for all CID1 areas.

### **What indicator light solution is available for CID1 areas?**

The E-100-L is not approved for CID1 areas, and currently Pentair does not offer an end-of-line indicator light for these areas.

## **INSTALLATION**

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### **In the Industrial Heat-Tracing Installation and Maintenance Manual for Self-Regulating and Power-Limiting Cable Systems (H57274), there is a section describing the minimum bend radius. Why is the minimum bend radius important?**

It is important not to bend self-regulating heating cables less than one inch in the in-plane direction or less than half an inch in the out-of-plane direction to prevent bus wire damage.

### **Which products can be used on plastic pipes?**

HBTV is the product that should be used on all types of standard plastic pipes. Typically, the maximum exposure temperature for PVC pipe (schedule 40) is  $150^{\circ}\text{F}$  ( $66^{\circ}\text{C}$ ). In some cases, plastic pipes can withstand higher temperatures, which would sometimes allow HQTV to be used. TraceCalc Pro design software can be used to see if a heating cable is appropriate for use on a particular pipe.

**OPERATION AND MAINTENANCE**

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**What is the warranty?**

The standard Pentair Industrial Heat Tracing limited warranty applies to Raychem self-regulating/power limiting and Raychem MI heating cables. A complete set of warranty documents can be found on our web site, [www.pentairthermal.com](http://www.pentairthermal.com).

**LOGISTICS**

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These products can be obtained by our channel partners who will obtain the field information and ensure that the inspection records are completed and returned to the Pentair Customer Service Center. The representative stocking the product must verify the design requirements.



[WWW.PENTAIRTHERMAL.COM](http://WWW.PENTAIRTHERMAL.COM)

**NORTH AMERICA**

Tel: +1.800.545.6258  
Fax: +1.800.527.5703  
Tel: +1.650.216.1526  
Fax: +1.650.474.7711  
[thermal.info@pentair.com](mailto:thermal.info@pentair.com)

**EUROPE, MIDDLE EAST, AFRICA**

Tel: +32.16.213.511  
Fax: +32.16.213.603  
[thermal.info@pentair.com](mailto:thermal.info@pentair.com)

**ASIA PACIFIC**

Tel: +86.21.2412.1688  
Fax: +86.21.5426.2937  
[cn.thermal.info@pentair.com](mailto:cn.thermal.info@pentair.com)

**LATIN AMERICA**

Tel: +1.713.868.4800  
Fax: +1.713.868.2333  
[thermal.info@pentair.com](mailto:thermal.info@pentair.com)

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