



U.S. Department of Transportation  
**Pipeline and Hazardous Materials  
Safety Administration**

1200 New Jersey Ave, S.E.  
Washington, D.C. 20590

JUN 19 2009

Ms. Alecia Rice  
Logistics manager  
Murphy Industries  
5311 S. 122<sup>nd</sup> E Avenue  
Tulsa, OK 74146

Ref. No. 09-0113

Dear Ms. Rice:

This responds to your February 26, 2009 request for clarification on the applicability of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask if the temperature gauges manufactured by your company are regulated as hazardous materials under the HMR.

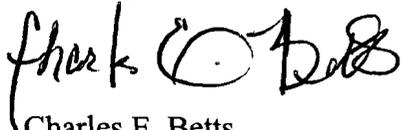
According to your letter, you manufacture temperature gauges for installation onto a customer's engine or engine-driven equipment and in control/monitoring panels. The gauges function on vapor tension. The chemical contents are housed in the bulb, capillary tubing, and pressure sensing diaphragm or bourton tube of your products. You state that your temperature gauges may contain a minimum of 0.2 mL to a maximum of 29.1 mL of one of the following hazardous materials: (1) dichloromethane; (2) 1, 1, 1, 2 -tetrafluoroethane (Suva®134); (3) xylene; (4) 1-chloro-1, 2, 2, 2, -tetrafluoroethane (Suva®124); or (4) n-propanol alcohol. You ask if the temperature gauges may be excepted from HMR requirements in accordance Special Provision 136 in § 172.101.

Among other requirements, Special Provision 136 provides that the Associate Administrator may except machinery, equipment, and apparatus containing hazardous materials from the HMR provided: (1) it is shown that the hazardous material does not pose a significant risk in transportation; (2) the quantities of hazardous materials contained in the equipment, machinery, or apparatus do not exceed those specified in § 173.4 of the HMR; and (3) the equipment, machinery, or apparatus conforms with § 173.222 of the HMR. Based on the information provided in your letter, we agree that the hazardous materials contained in your devices do not pose a significant risk in transportation. Moreover, the quantities of hazardous materials contained in the devices are below the limits specified in § 173.4 and the device conforms to the packaging requirements specified in § 173.222. Therefore, we agree that the temperature gauges meet the criteria for the exception provided in Special Provision 136.

The exception specified in Special Provision 136 requires the approval of the Associate Administrator of Hazardous Materials Safety. We understand that PHMSA's Office of Hazardous Materials Special Permits and Approvals is currently processing your application for an approval in accordance with 49 CFR Subpart H, Part 107, §107.705, "Registrations, reports, and applications for approval."

I hope this answers your inquiry.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles E. Betts". The signature is written in a cursive style with a large, stylized initial "C" and "B".

Charles E. Betts  
Chief, Standards Development  
Office of Hazardous Materials Standards



February 26, 2009  
Associate Administrator for Hazardous Materials Safety  
PHMSA  
U.S. DOT  
Attention: PHH-32  
1200 New Jersey Avenue  
SE East Building, 2nd Floor  
Washington, DC 20590

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§172.102 SP 136  
§173.222  
Dangerous Good / Applicability  
090113

I am writing to request your department to please issue an opinion and interpretation on the shipping of our temperature gauge products relative to the hazardous materials classification. I would like to determine if our products are subject to the Hazardous Material Regulations as outlined in 49 CFR Parts 171-180 and receive exception approval as possible. I have included specific information about our products to help make your determination.

#### **Company Information**

Murphy Industries is headquartered in Tulsa, Oklahoma. Our company provides equipment management, monitoring and control solutions. Murphy Industries offers hundreds of products that monitor and control compressors, pumps, generators, and more. A few of our product lines, as specified below, utilize a minimal amount of hazardous material in the product.

Our products are shipped from our Tulsa location to both domestic and international locations. We ship to a combination of customers and master distributors. Our products are shipped via multiple modes of transportation including air, ground and sea transport.

#### **Product Use**

Our control, monitoring, and protective systems for engines, engine-driven equipment, and electric motor driven equipment monitor the operating parameters of this equipment. Our gauges are typically installed onto a customer's engine or engine-driven equipment, and in control / monitoring panels.

#### **Product Contents**

Our gauges function on vapor tension. When heat is applied to the bulb, the chemical expands and this expansion is transmitted via the capillary to a diaphragm in the gauge head. The diaphragm transmits this signal after it is amplified to a mechanism which drives the pointer up the gauge scale.

The chemical contents are housed in the bulb, capillary tubing, and pressure sensing diaphragm or Bourdon tube of our products. The bulb, capillary tubing, and pressure sensing assemblies are made out of copper, brass or stainless steel. These parts are soldered together to form a capsule that will be filled with the appropriate chemical for the range of the gauge. The fill process consists of evacuating the head/capillary/bulb capsule and filling via gravity feed or by pressure. After filling, the capsule is sealed and tested to identify any leaks. Under these circumstances, leaks would be identified before the product left our facility.

- Dichloromethane is used in our temperature gauges ranging from 220°F to 320°F.
- Suva 134 is used in our temperature gauges in the 160°F range.
- Xylene is used in our temperature gauges in the 440°F range.

#### **FW Murphy**

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- Suva 124 is used in our SPL temperature gauges in the 250°F range.
- N-Propanol Alcohol is used in our SPL temperature gauges in the 450°F range.

Based on the manufacturing process, the risk of the chemicals escaping the product is minimal. These products do not pose a significant risk during transportation. The number of products received back on warranty or repair returns that have been physically damaged or abused is a very small portion on the quantity of products sold.

### **Packaging Details**

Our temperature gauges are wrapped in a strip of perforated foam which is torn off at the appropriate length to fully protect the gage. A paper bulletin is enclosed and each gage is packed in an individual box. These individual boxes are then packed into a shipping box, using shredded paper or packing peanuts as packaging material, before being shipped out of the facility. All our shipping packaging meets the requirements to be considered a strong outer packaging.

Some of our gauges are assembled into control panels before being shipped to our customer. The gauges are installed into the metal panel and the panel is packed using SmartFILM which is recyclable urethane foam that expands around the panel as the material sets up. This material provides exceptional protection in transit.

### **Drop Tests**

In 2009, we tested a sample of our products per the drop test requirements in 49 CFR 173.4. All products passed the series of drop tests specified in 49 CFR 173.4 with no breakage or leakage from any inner receptacle and did not show a significant reduction in the effectiveness of the package. These test results lead us to the conclusion that our products do not pose any significant risk during transportation.

### **Hazardous Material Quantities**

Within each product group, we have a variety of models available for sale. I have grouped below to reference the amount of chemical present in each product. The variation in the chemical content in each gauge is a function of the bulb size and capillary length for a given model.

- Dichloromethane amount in temperature gauges that range from 220°F to 320°F
  - Minimum amount per gauge - .02 mL
  - Maximum amount per gauge – 29.1 mL
  - Average amount per gauge – 4.8 mL
- Suva 134 amount in temperature gauges in the 160°F range
  - Minimum amount per gauge – 1.2 mL
  - Maximum amount per gauge – 14.8 mL
  - Average amount per gauge – 5.2 mL
- Xylene amount in temperature gauges in the 440°F range
  - Minimum amount per gauge – 1.2 mL
  - Maximum amount per gauge – 14.4 mL
  - Average amount per gauge – 4.4 mL

### **FW Murphy**

- Suva 124 amount in SPL temperature gauges in the 250°F range
  - Minimum amount per gauge – 1.5 mL
  - Maximum amount per gauge – 14.5 mL
  - Average amount per gauge – 5.4 mL
  
- N-Propanol Alcohol amount in SPL temperature gauges in the 450°F range
  - Minimum amount per gauge – 3.0 mL
  - Maximum amount per gauge – 11.6 mL
  - Average amount per gauge – 4.7 mL

**Current Classification**

Our product is currently being shipped under UN 3363 – Dangerous Goods in Apparatus which is in Hazard Class 9. Our product meets all the requirements for this category stated in 49 CFR 173.222.

**Regulatory Section**

I would like our products to be considered for an exception under 49 CFR 172.102 Special Provision 136. This section states that the Associate Administrator may except from the requirements of this subchapter, machinery or apparatus provided:

- a. It is shown that it does not pose a significant risk in transportation;
- b. The quantities of hazardous materials do not exceed those specified in §173.4a of this subchapter; and
- c. The equipment, machinery or apparatus conforms with §173.222 of this subchapter.

Our product conforms to all the requirements stated above. It is our determination that our products do not pose an unreasonable risk to health, public safety or property during transportation. We would like to propose that our products be granted an exception from the requirements of the Hazardous Materials Regulations because of the previously stated facts.

Again, it is our belief that these gauges do not pose a hazard during transportation and should not be classified as hazardous material. We will continue to ship our product under UN 3363 while we wait for your determination. I look forward to your reply.

Sincerely,

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**FW Murphy**