KS-20744

TEMPERATURE SENSING LABELS

1. GENERAL

1.01 This section describes and gives characteristics and applications of the KS-20744 temperature sensing labels which are intended for use as immediate measurement and long term monitoring of component and equipment temperatures.

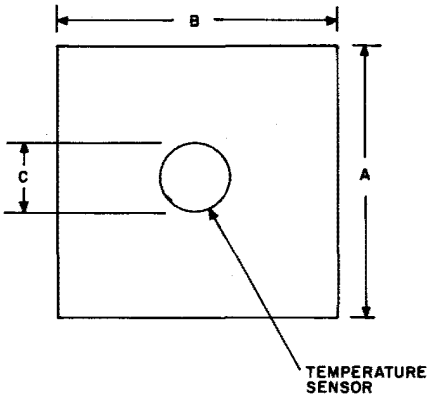
1.02 All information on KS-20744 Temperature Sensing Labels is based on laboratory tests and field experience.

2. DESCRIPTION

2.01 The hydrocarbon chemical signal type temperature sensing labels are useful primarily for long term monitoring of the temperatures of various electrical or mechanical components. The labels consist of one or more different hydrocarbons which provide for single or multiple temperature monitoring. The hydrocarbons, which are sealed under transparent plastic, become transparent when their melting temperature is reached, revealing black areas against colored backgrounds and exposing the word "OVER" or some other indication that the temperature rating has been exceeded. The change from opaque to transparency is nonreversible. The labels are nonconductive electrically and do not introduce corrosion effects. For easy application to metallic or nonmetallic and flat or curved surfaces, the labels have a pressure sensitive adhesive backing. Conformance or nonconformance of component operating temperatures to less than the label rating is readily observed from a convenient distance at relatively low illumination.

2.02 ***Sizes:*** Label sizes are as shown in Fig. 1.

2.03 ***Number of Indicators:*** Although temperature sensing labels which are commercially available contain several indicators covering a range of temperatures, the KS-20744 labels are available with single indicators only. Also, while other temperature ratings than those covered by list numbers are available, the ratings of coded labels were selected to meet most common applications.



LIST NUMBER	TEMP. RATING (F°)	DIMENSIONS (INCHES)		
		A	B	C
121	120	1/2	1/2	9/32
122		3/4	1	3/16
141	140	1/2	1/2	9/32
142		3/4	1	3/16
161	160	1/2	1/2	9/32
162		3/4	1	3/16
181	180	1/2	1/2	9/32
182		3/4	1	3/16
201	200	1/2	1/2	9/32
202		3/4	1	3/16

Fig. 1—Typical Dimensions for Single Element Sensing Labels

2.04 ***Temperature Range:*** The temperature range available for the labels vary from 120 to 200°F.

3. CHARACTERISTICS

3.01 ***Adhesion Adequacy:*** Labels may be applied to curved and flat surfaces of various metallic and nonmetallic materials. No problems are encountered when applying labels to flat surfaces. Curved surfaces should have 1/4 inch or larger radii before applying labels.

3.02 ***Temperature Accuracy:*** The accuracy of the labels is within ± 3 percent of their rated value.

3.03 Aging, humidity, moisture, or elevated temperature will have no detrimental effect on labels.

4. APPLICATION

4.01 ***Label Selection Practices:***

(a) Select labels with ratings approximately the same as the maximum temperatures permissible for, or the normal operating temperature of, the component.

(b) Single hydrocarbon indicator labels with ratings approximately the same as the maximum temperatures possible for the components should be used for noncritical, good thermal environment and for moderate duty service.

(c) Suggested temperature ratings for power components are covered in Table A.

4.02 ***Applying To Surfaces:***

(a) The label adhesive is protected by release paper which is easily removed without damage to the adhesive. After the release paper is removed, the label can be applied to the desired area using even pressure to assure good adhesion.

(b) Application area should be cleaned with standard solvent (Trichloroethane) prior to label applications.

(c) Labels should not be applied to curved surfaces having radii smaller than 1/4 inch.

(d) Care should be taken not to puncture or damage the sealing plastic film since the hydrocarbons are water soluble.

4.03 ***Equipment Applications:*** When monitoring electrical equipment, and the electrical loading is light to moderate, up to half of electrical rating, two or more labels can be used to provide an early warning of a possible trouble condition. This would be of particular value for the annual visual survey evaluation. It should be remembered that a momentary higher than normal load due to a fault or some other temporary condition will cause the label to react. See Table A for application examples.

TABLE A

APPLICATION DATA

LABEL LOCATION	MAXIMUM ALLOWABLE COMPONENT TOTAL TEMPERATURE * (F) THERMOCOUPLE METHOD	SUGGESTED TEMPERATURE LABEL RATING (F)	
		LOAD UP TO 1/2 RATING	HIGHER LOADS
1. *CONNECTIONS*			
A. Unplated	158	120 & 160	160
B. Plated	203	160 & 200	200
C. Wire or Cable Connectors	158	120 & 160	160
2. *COMPONENTS*			
A. *Coils*			
Class A	185	120 & 160	160
Class B	221	160 & 200	200
Class F	239	160 & 200	200
B. *Contacts*			
Power Relays, Circuit Breakers, and Switches	221	160 & 200	200
C. *Current Carrying Parts*			
— Unplated	203	160 & 200	200
— Plated	158	140 & 160	160
D. Electrolytic Capacitors	149	140	140
E. Power Transistors	70 percent of manufacturer's Rating **		

* The total temperature consists of the temperature rise of the component plus the maximum expected component ambient temperature.

** Junction temperature