

Now! UL Listed International patent pending

# ERASE TUBE

## Sensor Tube

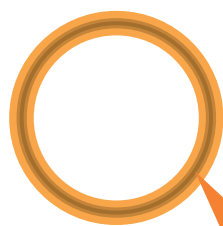
For the right tube in the right time!

### Features of the Sensor Tube

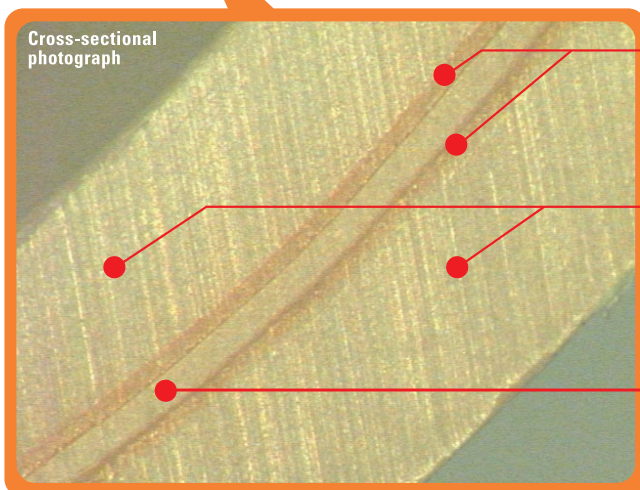
Two issues experienced with the conventional thermo-plastic tube have been solved to accomplish the following: (1) detection temperature of 100°C or lower, and (2) barrier properties prohibiting the permeation and reduction in volume of extinguishing agent or N<sub>2</sub> gas as pressurization propellant agent. This accomplishment enables earlier, safe detection of fire broken at a lithium ion secondary battery or liquid fuel having the property of high heat generation, and electrical fire of a distribution panel, etc. Apply our Sensor Tube to your thermo plastic tube automatic fire extinguishing system.



**Five-layered ERASE TUBE has improved gas barrier properties and activation temperature.**



Cross-sectional photograph



#### Adhesion layer

Adhesive resins glue inner/outer layer and barrier layer.

#### Inner/outer layer

Designed to endure with inner pressure but to melt and rupture by the fire heat.

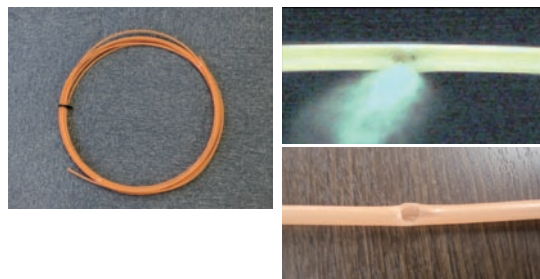
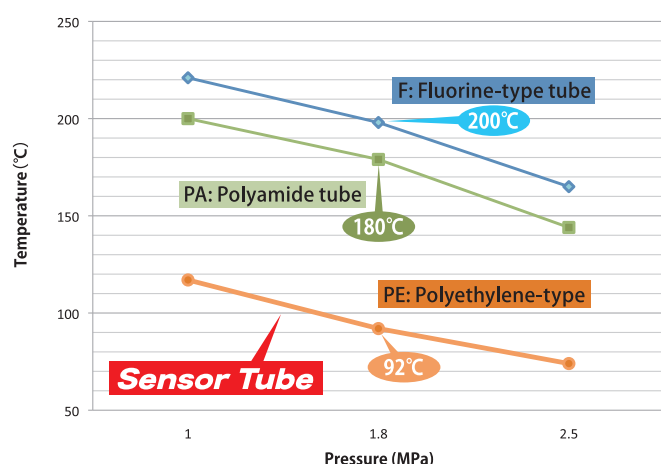
#### Gas barrier layer

The barrier resin layer is added to prevent the inner gas permeation and maintain required clean agent quantity.

### Technical data

Early detection and extinction of fire is mandatory for materials involving high heat generation, such as liquid fuel and electrolyte of lithium ion secondary battery. The activation temperature of the Sensor Tube is at 92°C approx. (when pressurized to 1.8 MPa without flame) instead at 180°C approx. (when pressurized to 1.8 MPa without flame) of conventional polyamide tube or fluorine-type tube, and thus fire is detected earlier with the Sensor Tube.

Activation temperature and pressure of the 6 × 4 mm sensor tube



● A resin layer specialized in barrier properties is provided to block the permeation and reduction in volume of N<sub>2</sub> gas.

N<sub>2</sub> gas permeation rate : 2.15E-08pa • m<sup>3</sup>/s or less  
(Dried at 25°C and pressurized to 1.8 MPa from the inside to outside)

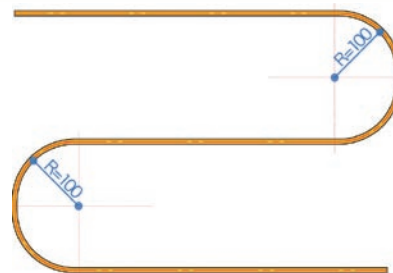
## Installation reference



Sensor tube of 6 x4 mm installed on a lithium ion battery

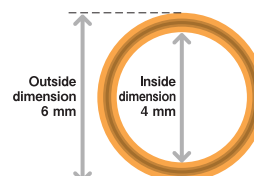
## Minimum bend radius

The minimum bend radius is 100mm.  
Never twist, bend, or crush the Sensor Tube.



## Dimensions

| Product name | Average outside diameter (mm) | Wall thickness (mm) | Average inside diameter (mm) | coil length (m) | Unit weight (g/m) | Coil weight (kg/ coil) |
|--------------|-------------------------------|---------------------|------------------------------|-----------------|-------------------|------------------------|
| Sensor Tube  | 6.00                          | 1.08                | 3.84                         | 100             | 14.8              | 1.48                   |

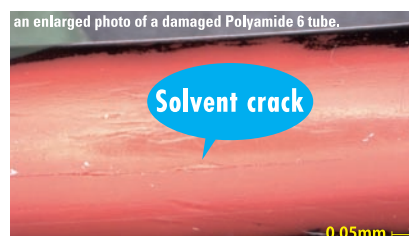


## Most suitable temperature range of -20 to +50°C and service life of 8 years

Replacing the ERASE TUBE in eight years is recommended even though the service life varies depending on the installation environment and ambient temperatures.

## Water absorption ratio (%) 3mm 24h

| Polyethylene | Polyamide 6 |
|--------------|-------------|
| < 0.01%      | 1.3~1.9%    |



## Comparison of gas permeability

|                           | Nitrogen | Oxygen | Carbon dioxide | Helium |
|---------------------------|----------|--------|----------------|--------|
|                           | 25°C     | 25°C   | 25°C           | 25°C   |
| ERASE TUBE                | 0.017    | 0.27   | 0.81           | 160    |
| Polyamide 6 (stretched)   | 12       | 38     | 205            | 2000   |
| Polypropylene (stretched) | 730      | 3400   | 9100           | —      |
| Low-density polyethylene  | 3100     | 12000  | 42000          | 28000  |

Unit: CC20μm/(m<sup>2</sup>·24hrs-atm)

## Chemical resistance

### Gas resistance

| Materials                           | Adaptability |
|-------------------------------------|--------------|
| Ammonia                             | ◎            |
| Carbon dioxide gas                  | ◎            |
| Chlorine (dry)                      | △            |
| Chlorine (wet)                      | △            |
| Hydrogen                            | ◎            |
| Natural gas                         | ◎            |
| Nitrogen                            | ◎            |
| Oxygen                              | ◎            |
| Ozone                               | △            |
| Water vapor (L) at lower than 150°C | △            |
| Water vapor (H) at 150°C or higher  | ×            |
| Sulfurous acid gas                  | ○            |

### Oil resistance

| Materials               | Adaptability |
|-------------------------|--------------|
| Liquefied petroleum gas | ○            |
| Benzene                 | △            |
| Gasoline                | ○            |
| Kerosene                | ×            |
| Petroleum               | △            |
| Lubricant               | △            |
| Grease                  | △            |
| Animal oil              | ◎            |

## Patent & Certification

- The tube was co-developed with the MITSUI KAGAKU SANSHI Company.
- International patent pending
- UL certified: COMPONENT - HEAT-AUTOMATIC FIRE DETECTORS  
Heat Detection Tubing, Model: Erase Tube Sensor, rated 88.7°C

For any request or inquiry of the ERASE TUBE as Sensor Tube, contact us here



1-9-5 Higashi-Gotanda Shinagawa-Ku, Tokyo 141-0022, JAPAN  
Tel: 03-3444-6261 Special Equipment Sec. (direct line)  
Fax: 03-3444-3116  
e-mail: info@nitibou.co.jp

[Sales fields] Consulting, development, design, installation, and maintenance of fire prevention facilities, responding to emergency around the clock