



Temperature measurement: MTEM

Fusion, manufacturing, annealing, surface treatment, transformation and glass decoration operations require a great deal of monitoring over the temperatures required by these processes.

➤ **Purpose of training**

Acquire basic knowledge in terms of the physical laws which allow to measure temperature through various devices (thermo-couple, optical pyrometer, thermal camera, platinum probe) from ambient temperature to the high temperatures (1600 °c) and the correct implementation of these techniques in the glass factory.

➤ **Relevant staff**

Anyone practicing or desiring to practice temperature measurements or responsible for the choice, installation, chain maintenance or temperature measuring devices in the world of glass (suppliers of temperature measuring equipment, glassware staff, manufacturers, decorator, user).

➤ **Program** (adapted to the needs of interns)

- General overview on heat
 - Notion of heat – Temperature scale
 - Principle of measuring temperature
- Temperature measurement via thermoelectric couples
 - Thermo-electricity: laws and application of measuring temperature
 - Thermocouples and usual compensation cables
 - Precautions for using thermocouples
- General overview on radiation
 - Fundamental laws of heat radiation- Emissivity
 - Glass and radiation
- Measuring temperature through a radiation pyrometer
 - Measuring principle
 - Different types of optical pyrometers
 - Emissivity of materials
 - Precautions for using pyrometers
- Notions of thermography
 - Technology used
 - Precautions of use
- Temperature measurement with platinum resistance probe
 - Technology used
 - Precautions of use

➤ **Duration of training**

1 to 2 days depending on the program

➤ **Place of training**

At your site or at Espacesreunion 43 rue de Dunkerque 75010 Paris (300m from Gare du Nord station)

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