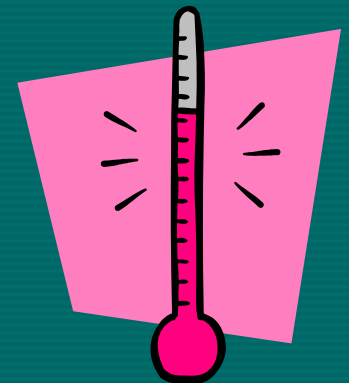


THE M-I-G THERMOMETER

Care and Use of a Mercury in Glass
thermometer



SOME HISTORY

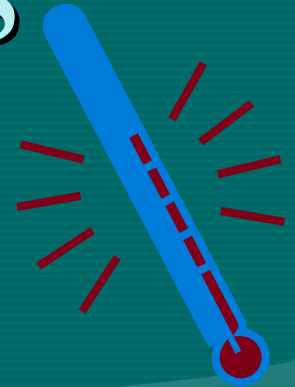
- For over a century glass blowing artisans and manufacturers have perfected creation of a narrow (0.1mm) passage through a stem of glass.
- Glass is actually a super cooled liquid.
- The coefficient of thermal expansion for most liquids exceeds that of glass by multiples.
- A thermometer stored at room temperature and measuring process temperature would be huge.

WHY MERCURY?

- As a metal in dense liquid form, mercury has a high coefficient of thermal expansion and also conducts heat well.
- In its triple distilled, gold leaf filtered and vacuum (10^{-3} Torr) filled sealed in glass state, mercury attains the stability and corrosion resistance of a noble metal.



M-I-G ADVANTAGES



- Accurate compared to:
- Stable
- Process powered requiring only ambient light to read.
- Responsive lowest time constant for liquid thermometer. $T_t = (T_2 - T_1) \times (1 - 1/e^{k/t})$
- Economic comparison.
- Rugged in steel, aluminum and brass casings.

M-I-G DIS-ADVANTAGES

- Mercury is toxic
- Mercury is corrosive
- Glass is breakable
- Mercury can separate in conduit
- Ambient temperature can affect reading

