

## Non-contact IR temperature measurement of plastic film

Non-contact temperature measurement of thin plastic films is in practice a difficult measurement task. Depending on the type of plastic, the measurement must be performed in different spectral ranges. In research and development of printable films, the surface temperature of heated plastic films is detected using a CTP-7 pyrometer (spectral range  $7.9\mu\text{m}$ ).

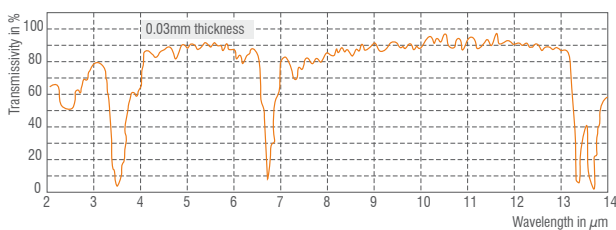
Furthermore, the thermoMETER CTP-3 thermometer with a spectral range of  $3.43\mu\text{m}$  is also suitable for non-contact temperature measurement of plastic films.

The pyrometer must be selected depending on the type of film.

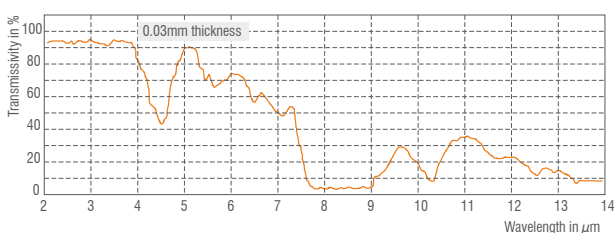
Suitable pyrometers depending on plastic type:

CTP-3: LLDPE, PE, PP, PVC

CTP-7: PET, OPA, Teslin®, vinyl, polyester, PC



Spectral permeability of polyethylene plastic film



Spectral permeability of polyester plastic film

Depending on the respective material, one of the two pyrometers can be used. The plastic film has to be measured in a spectral range where the transmissivity of the film is negligible.

### Requirements for the measurement system

- Different film materials: PET, PE, PP, PS,
- PVC, LLDPE, OPA, EVOH, polycarbonate, vinyl, structured material, alu,...
- Film is slightly wavy
- Material thickness:  $< 8 - 350\mu\text{m}$
- Measuring range:  $10^\circ\text{C} - 100^\circ\text{C}$
- Speed: individual samples, not inline

### Ambient conditions

- System in test labs (room temperature of  $20^\circ\text{C}$ )

### System design

- CTP-7SF10-C3 High-performance pyrometer
- TM-USBK-CT USB Interface Kit
- TM-AB-CT Mounting bracket, adjustable in two axes

### Advantages

- Special spectral ranges for different kinds of plastic