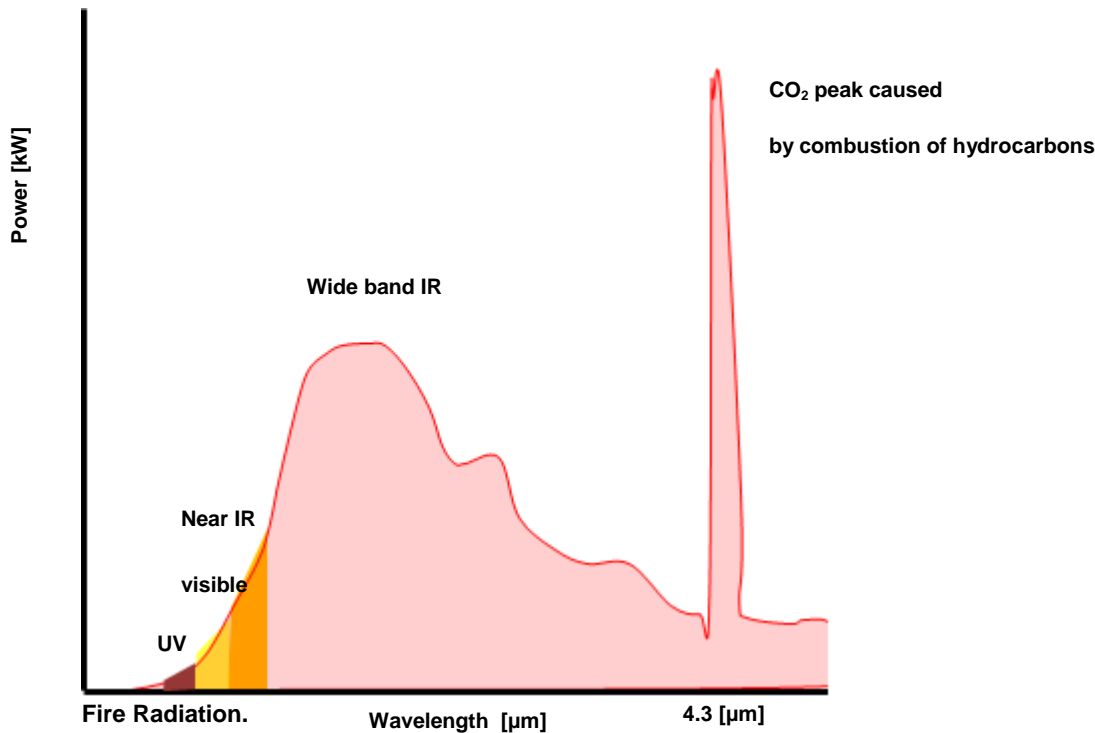


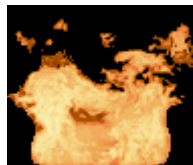


Fire radiation



A fire emits an enormous amount of energy of which only a small part is light, which is visible to the human eye. As can be seen in the picture above most of the energy is invisible. The part that can be seen is mostly red-yellow in color caused by the carbon in a fire. The invisible IR part of the fire is experienced as heat. A non-Hydrocarbon such as Hydrogen burns light blue-transparent because there is no Carbon in the flame. It also doesn't have the CO₂ peak at 4.3 μm and can therefore only be detected with a UV detector.

The CO₂ peak in the fire represents less than 2% of the total fire energy. A multi sensor Flame Detector that uses sensors such as UV, near IR, wide band IR etc. has much more sensor input and can therefore be more specific or less affected by false alarms.



It looks rather static but in reality the fire energy fluctuates rapidly. The Fuel and Oxygen in the uncontrolled fire constantly burn as in small explosions and then suck new Fuel and Oxygen to the flames. This process causes the flame to flicker. The typical frequency is between 1 and 20 Hz. Most Infrared Flame Detectors use the flicker frequency as an extra criterion in order to make the detector more reliable.