Infrared Heating System Vs Microwave heating System

Radiation in the Electromagnetic Spectrum is often classified based on the wavelength (spatial period of the wave). Short wavelength radiation comprises of highest energy and which can be very harmful such as Gamma, X-rays and ultraviolet are some examples. Longer wavelength radiation carries lower energy and is typically harmless some examples include RF, Microwaves and infrared, hence these radiations find multiples application such as Communication, Heating, Data transmission and many more.

Infrared (IR) is invisible radiant energy, electromagnetic radiation with longer wavelengths than those of visible light, extending from the nominal red edge of the visible spectrum at 700 nanometers (frequency 430 THz) to 1 mm (300 GHz), where as Microwaves are a form of electromagnetic radiation with wavelengths ranging from as long as one meter to as short as one millimeter, or equivalently, with frequencies between 300 MHz (0.3 GHz) and 300 GHz. Microwave are having larger wavelength as compare to Infrared radiation.

In **Infrared heating system** the infrared radiated waves are absorbed water molecules and this absorption results in the heating of the material under the process. On other hand in Microwave heating, microwave radiated waves collides with the water molecules and results in the vibration of these molecules hence this travel of molecules produces heat.

Infrared heater heats the material under process from the outer surface to inner surface, as waves are absorbed by the material, whereas microwave heats the substance from inner to outer surface of material due to movement of molecules. Hence **Infrared heaters** are ideal replacement to the conventional hot air generators.

IR heating can be produced using either gas fired or electric powered infrared tubes. Microwave heating normally uses electricity to activate the magnetron for production of microwave radiations.

In Microwave heating system heating of material depends upon the presence of water molecules within the material, in Infrared heating system heating of material completely depends on the absorption characteristic of material.

Microwave heaters are faster process of heating as compared Infrared (IR) heaters depending on the material characteristic.

Heating/drying process that uses Microwave heater is highly controllable as compared to those has Infrared heaters. Cooling time of microwave is lesser as compared to Infrared heaters.

At **KERONE**, we manufacture both the type of heaters and help clients to choose the best heater/dryer based on the process need, in case of any information and query please contact us at info@kerone.com.