

Far-Infrared Technology



Overview

Nikken Far-Infrared Technology is based on the ability of certain specialized materials to absorb energy and then release it in a selective manner.

All matter is capable to some degree of absorbing energy, including energy in those wavelengths where it is expressed in the form of heat. All matter will also reach a point of saturation and release the excess into the surrounding environment.

The ceramic fibers used in Far-Infrared Technology are exceptional in that energy is released only as far-infrared waves, that is, only within the far-infrared portion of the energy spectrum. Even though it is capable of accepting energy at almost every wavelength, the fibers translate the reflected product into output in the far-infrared range.

Ranges of energy

In the electromagnetic spectrum of energy waves, there exists a small extent of energy that can be seen. This is the region of visible light, from red at the bottom (the longest, slowest light waves) to violet at the top. The color spectrum is familiar to anyone who has viewed a prism or a rainbow. Visual confirmation also exists for the increase in activity when energy wavelengths grow shorter and more rapid. If a piece of metal is heated, it becomes warm to the touch. If more heat energy is applied, the wavelengths get shorter and faster, and they enter the range of visible light as the metal glows red-hot.

The infrared portion of the electromagnetic spectrum is directly below the lowest range of visible light, the color red. (“Infrared” means “below red.”) Far-infrared in turn is at the low end of this portion. Far-infrared waves are found between the shorter, faster waves of middle infrared and the longer, slower modulations of microwave energy.

Infrared wavelengths, in micrometers (microns)

Near-infrared	.75 to 1.4 μm
Short-wavelength infrared	1.4 to 3 μm
Mid-wavelength infrared	3 to 8 μm
Long-wavelength (far) infrared	8 to 15 μm
Extreme far-infrared	15 to 1,000 μm

Infrared energy is known as sensible heat, warmth that can be felt. Because far-infrared waves are at the bottom of this range, the result is very gentle warmth.

Nikken Far-Infrared Technology attains its input energy from any available source, such as ambient air temperature, body heat, or sunlight. The reflected output is in the range of 4 to 14 microns in wavelength.

All living organisms emit far-infrared energy, to a greater or lesser degree. It may be considered a basic life force.

Effects

As the reflective materials used in Far-Infrared Technology reflect only this far-infrared light, the gentle warming effect is often not detectible to the senses. A consistent, mild warmth has been shown to be efficacious in helping to relax tensed or strained muscles, tendons and joints.