



# KERONE

(An Iso 9001-2008 Company)



**Automobile Industry**



**Pharmaceutical Industry**



**Rubber & Plastic Industry**



**Chemical Industry**



**Food Industry**



**Oil & Gas Industry**

• **Aerospace Industry**

• **Steel Industry**

• **Paper Industries**

## Microwave Heating Systems

# About KERONE



KERONE is possessing experience of 40 years in engineering excellence.



KERONE is one of the most admired and valuable company for customer satisfaction.



KERONE is pioneer in application and implementation engineering.



KERONE is having immense expertise in manufacturing and implementing various types of heaters and dryers.

KERONE is possessing employee strength of more than 140 experts continuously putting efforts for happy industrial heating solutions.



ENGINEERING



EXCELLENCE

KERONE has reported annual revenue of \$8 to \$10 Million , increasing year-on-year.



## Vision

- Turn into world leader in providing specialized, top-notch quality and ecological industrial heating, cooling and drying solution across the globe.
- To attain global recognition as best of quality and environment friendly engineering solution company.

## Mission

- To enhance the value of customer operation through our customer need centric engineering solution.
- We are committed to provide our customers, unique and best in class products in Industrial heating, drying and cooling segment, with strategic tie-up for the technical know-how with renowned leader in the industry specific segment.
- We are company that believes in strong ethics and timely commitment helps to build long term relationship.



# Value Propositions



40 years of rich experience

Sound infrastructure

Adherence to standards

Timely delivery

Highly customized product

Cost effective solutions

Team of experts delivering quality

Great after sale support



## KERONE

(An Iso 9001-2008 Company)

A CRISIL-NSIC RATED COMPANY  
ISO-9001-2008 COMPANY  
AFFILIATED TO THE UNIVERSITY OF NOTTINGHAM  
MEMBER OF A.M.P.E.R.E.(EUROPE)



ASCB(E) Certification for Best practice



IRQAO Certified for quality



Member of A.M.P.E.R.E. (Europe).



ISO 9001-2008 Certified company



Recognized and Rated by CRISIL



CRISIL Verified

In Association with SVCH-Technologii,  
Moscow (Russia)

# Introduction of Microwave



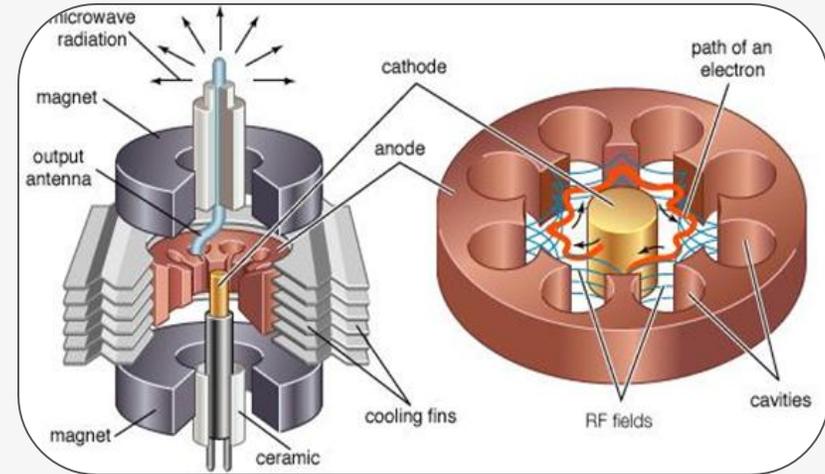
Microwave heating systems are member of Electromagnetic heating family.

Microwaves has frequency of 2.45Ghz and 950Mhz.

Microwave is generated from small device known as Magnetron.

Microwave heating system has property to heat from within.

Microwave heating systems heats volume of material hence also known as 'Volumetric Heating'.



# Microwaves Heating System Classification



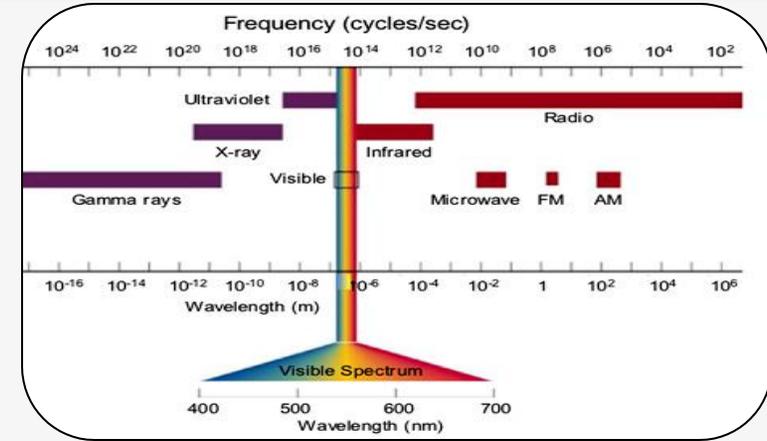
Microwave heating Systems are classified as follows :

## Based on Microwave Frequency

- 950 Mhz
- 2450 Mhz

## Based on Heater Type

- Batch
- Continuous
- Hybrid



# Microwave Heating System Vs Conventional Heating System



## Microwave Heating System

Microwave heating system is generates the heat very fast within material.

Heating of materials are due to molecule movements hence no chamber warm up time is required.

Environmental friendly and green heating solution, no carbon emission.

100% energy utilization, as heating takes place within the material.

Better floor utilization index as it doesn't require chamber area.

No Temperature loss in surrounding, ambient workplace.

## Conventional Heating System

Conventional heating system have slow hating rate, heat is transferred via means of air.

Instance heating does not takes place, it requires warm-up of surrounding.

Produces carbon or toxic gases hence not much environmental friendly heating solutions.

100% energy utilization is not possible, as material is heated by surrounding hot air.

Poor floor utilization index as it require bigger chamber area for material to rotate.

Surrounding air temperature rises with rise in heater temperature.

# Microwave Heating System Vs Infrared Heating System



## Microwave Heating System

Microwave heating systems utilizes electromagnetic system uses wavelength of about 1 centimeters.

Heats the objects from within the object.

Microwave heating systems does not require larges space hence offers better floor utilization index.

Microwave heating systems are not substitute the conventional heaters.

Depth of heat penetration is higher in Microwave heaters.

Rate of heating depends on the moisture content within the material.

## Infrared Heating System

IR heating systems utilizes electromagnetic system uses wavelength of about 0.01 centimeters.

Heats the object from surface of object.

Compact system providing better floor utilization index.

Infrared heating systems are better substitution of traditional convention heaters.

Depth of heat penetration is lower in infrared heaters as it heats from surface.

Rate of heating depends on the surface characteristics of material.

# Advantages of Microwave Heating Systems



Uniform heating occurs throughout the material  
Process speed is increased.

Process speed is increased.

Desirable chemical and physical effects are produced.

Purity in final product.

Floor space requirements are decreased.

Reduction in unwanted side reaction  
(reaction Quenching)

Better and more rapid process control is achieved.

Better and more rapid process control is achieved.

Selective heating i.e. heating selectively one reaction component.

Improve reproducibility

High efficiency of heating.

Environmental heat loss is save, Reduce wastage of heat

# Microwave heating systems in Pharmaceutical Industries



Microwave based heating systems has very significant role in various process in Pharmaceutical industrial processing, some are mentioned below

Assists Drug Extraction

Microwave Digestion

Chemistry Synthesis

Sterilization

Drying and Powder Making

Thawing

Cancer Therapy



# Microwave heating systems in Plastic and Rubber Industries



Plastic and Rubber has increased its application in various application, so the demand. Below and few important applications those require heating:

Pyrolysis Of Plastic

Plastic Welding

Plastic Thermoforming

Vulcanization Of Rubber

Preheating Of Rubber



# Microwave heating systems in Plastic and Rubber Industries



Pre Heating Of Solid Rubber Tyres

Extrusion Curing

Rubber Coating

Post Curing



# Microwave heating systems in Food Industry



The Food and Packed Food industry has multiple application that require microwave heating are as follows:

Tempering of Frozen Products

Thawing

Blanching

Baking

Drying/Dehydrating

Pasteurization and Sterilisation

Cooking



# Microwave heating systems in Ceramics



Glass and Ceramics find multiple applications those require Microwave heaters:

Plasma Processing

Liquid State Processing

Solid State Processing



# Trusted Partner of following consultants



# Our Clients



## Serving across Continents:



We are Exporting more than 50 Countries...

# THANK YOU

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