INDUSTRIAL SCALE MICROWAVE-ASSISTED CHEMICAL PROCESSING

DESCRIPTION

Sairem presents its portfolio of industrial equipment specially designed for microwave assisted processing in a wide range of industrial applications as organic synthesis, vegetal extraction and environmental digestion, etc...

ADVANTAGES

- **Flexibility**: possibility to perform reactions in continuous flow or in batch mode, working with heterogeneous or homogenous reactions
- **Economic**: minimum footprint and reduced cost of ownership. Only electricity is required. Lower cost and shorter time of installation
- **User friendly**: commands can be made and set-points can be entered directly through a touch-screen digital display, allowing continuous control and monitoring of the process variables
- **Microwave heating efficiency**: better yields of reaction can be provided by selective heating; the reactive mixture can be uniformly heated in a very short time, depending on its nature
- **High power densities**: power levels up to 300 kW
- **Safety**: numerous standard safety features, alarms and interlocks that automatically monitor and control the operation to ensure safe and reliable functionality at all times.

APPLICATIONS

Exemples of general applications of microwave enhanced chemistry:

- Pharmaceutical applications
- Chemical synthesis and extraction
- Synthesis of nanoparticles
- Vegetal extraction and biochemistry applications
- Environmental applications
- Drying applications, etc

- 120 kW RF dryer & generator low density, Atex (10 μm powder)
- 915 MHz, 18 kW, 120 l/h, 20 °C to 120°C, residence time 5 s
- 915 MHz, 75 kW, 600 l/h, 30 °C to 90 °C
- Batch 144 kW 915 MHz dryer 280 kg/h of ethanol (Atex)
MICROWAVE & RADIO FREQUENCY ASSISTED EQUIPMENT

**EXTRACTION BATCH REACTOR**

- **Microwave frequency**: 915 MHz + 10 MHz or 2450 MHz + 25 MHz
- **Microwave Power**: Up to 100 kW
- **Reactor capacity**: Up to 500 L
- **Total footprint**: Depending on capacity and installed microwave power
- **Mains voltage**: 3 phase x 208 V + earth or 3 phase x 415 V + earth

**PYROLYSIS CONTINUOUS FLOW REACTOR**

- **Microwave frequency**: 915 MHz + 10 MHz or 2450 MHz + 25 MHz
- **Microwave Power**: Up to 6 kW
- **Total footprint/reactor control cabinet**: L 400 cm x H 205 cm x W 60 cm
  L 100 cm x H 180 cm x W 98 cm
- **Reactors**: 50 L Feed Hopper with motorised screw.
  Adjustable chassis up to 10° angle
- **Operation rate**: up to 30 kg/h
- **Mains voltage**: 3 phase x 208 V + earth or 3 phase x 415 V + earth

**915 MHZ CONTINUOUS FLOW / TUNNEL DRYER**

- **Microwave frequency**: 915 MHz + 10 MHz or 2450 MHz + 25 MHz
- **Microwave Power**: Max. 300 kW
- **Dimensions**: Total length of the system 14 m, including attenuation zones and product loading/uploading
- **Hot air**: Temperature up to 110 °C. The flow rate is calculated depending on the humidity of the material
- **Mains voltage**: 3 phase x 440 V + earth

**CONTACT US**

commercial@sairem.com
www.sairem.com

Your partner in Microwave & Radio Frequency professional solutions

SAIREM, 12 porte du Grand Lyon, 01700 Neyron, France / Tel : +33 (0)4 72 01 81 60 / Fax : +33 (0)4 72 01 81 79