

MAC-75

Microwave-assisted infusion: new horizons in the edible oil flavoring



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Milestone MAC-75

MAC-75 offers a microwave assisted flavoring infusion technology unique in the market, enabling the flavoring with fresh note of 50 L/h of edible oil from fresh matrix and guaranteeing a new product obtained by infusion with high organoleptic as well as physical-chemical properties.

The market of flavored oils has been exponentially growing in recent years, consequently arousing producer's interest in the flavoring process necessary to obtain them. The commonly used methods such as infusion, maceration and percolation, are slow and scarcely efficient, producing a low quality final product.

To speed up the extraction process and at the same time better preserve the organoleptic profile of the original aroma, Milestone Technologies has recently developed MAC-75, a microwave industrial reactor that is able to perform an innovative infusion process.

MAC-75 combines the advantages of the three common flavoring processes, reducing though their limits.

It is a multimode microwave reactor with a maximum power of 6000W, dimensions of 1000 L x 1100 W x 2100 H and a weight of 500 Kg. The stainless-steel microwave cavity has a capacity of 150 L and contains a removable rotary drum in PTFE, that allows a maximum load of 75 L of fresh material. The temperature, controlled by a resistance temperature detector, automatically adjusts the irradiated power. The cavity is able to work under vacuum, avoiding in this way oxidative processes of the matrix during infusion.

An industrial touch-screen terminal with an intuitive and easy to use user interface controls the device, ideal for quality control processes. The absence of mechanical pretreatments of the matrix in Input is a big advantage: it effectively reduces the risk of Chlorophyll release, aromatic compound that may adversely affect the taste of the oil with an unpleasant bitterness.

The interesting aspect of the microwave-assisted infusion treatment is the "non-thermal" effect of microwaves towards edible oils. Microwaves indeed penetrate selectively inside the plant cells vaporizing the matrix water, causing though the breakage of the cells and directly releasing aroma in the oil pumped inside the microwave cavity. Oil is transparent towards microwaves, though it does not undergo thermal heating by the infusion process.

MAC-75 offers an innovative and unique solution in the market of flavoring technology by microwave-assisted infusion, allowing the flavoring with fresh note of 50 L/h of crude oil. This guarantees higher quality to the flavored oil produced by infusion which can approach the market with a surplus value, standing out among the traditional flavored oils currently present on the market.



To speed up the extraction process and preserve at the same time the organoleptic profile of the original aroma, Milestone Technologies has developed MAC-75, a microwave industrial reactor capable of performing an innovative vacuum infusion process to capture the market with an added value flavored oil produced by infusion.



Flavored oils



Rosemary



White truffle



Lemon



Chilli



Garlic



Basil



Main advantages of the
microwave-assisted
flavoring infusion
(Milestone MAC-75)



It completes the flavoring of 50L of edible oil in less than 1 hour through a real infusion process

It does not require mechanical pretreatments of the fresh matrix before infusion, thus it avoids the release of Chlorophyll, aromatic compound that may adversely affect the taste of the oil with an unpleasant bitterness

It avoids the formation of peroxide groups, since the process takes place under vacuum conditions

High extraction yield of natural aromas from fresh plant matrices

It does not require filtration systems, thus the advantage not to lose important aroma compounds during filtrations

Possibility to obtain either the concentrate or the flavored oil that can be directly bottled

No need of qualified employees to handle the machine

Possibility to work with more units in a modular way according to the production needs

