

The Sonicprep™ Ultrasonic Homogenizer

The Sonicprep™ offers a wide range of techniques, such as extraction, infusion, homogenization, emulsification, suspension, degassing and rapid barrel-aging.

The advantage of the Sonicprep™: Since it applies insignificant amount of heat and can finish the process in less than 2-3 minutes, it maintains vivid flavor and aroma, causes no loss of nutrition, maintains bright colors of ingredients and creates rounder and smoother flavors. Because of short processing times, it provides maximum flexibility for chefs.

The system is comprised of 4 major components: generator, converter, probe and acoustic enclosure. Through the probe, it applies 20,000 cycles of high-frequency ultrasonic waves. In liquid, the probe tip releases rapid vibrations that cause expansion and contraction in the cellular structure of food items.

Features included with the Sonicprep™:

- Ultrasonic processor with 400 Watt
- Power output control to match power to the application
- Continuous or timed (0-15 minutes) operation
- Pulsed mode to minimize heat generation
- Broad process range from 1 ml to over 500 ml per sample
- Power output meter to monitor power and permit reproducibility
- Includes a high-efficiency converter which requires no internal cooling
- Supplied with a standard 1/2" titanium probe
- Supplied with an acoustic enclosure with transparent door to reduce high noise level

Popular Sonicprep™ applications:

- Stable Emulsions: create a very fine suspension of liquids that don't mix (vinaigrette) without using an emulsifying agent.
- Aging calvados with wood chips in less than 2 minutes with a flavor effect that would usually take 2 years.
- Degas and homogenize wine: wine treated for 1-2 minutes will appear with a much fuller and rounder mouth feel.
- Infusions and extractions: volatile aromas of fresh herbs or spices can be quickly infused into a liquid, such as a cocktail.
- Intensifying fruit or vegetable pulp for sauces and purée by cell disruption
- Tenderizing and marinating meat
- Intensify stocks: apply Sonicprep™ to shellfish stock and achieve more intense flavor without overcooking the delicate protein.

Principle of Operation

The power supply converts AC line voltage to 20WHz electrical energy. This high-frequency electrical energy is fed to a converter where it is converted to mechanical vibrations. The heart of the converter is a lead zirconate titanate electrostrictive element which, when subjected to an alternating voltage, expand and contracts. The converter vibrates in a longitudinal direction and transmits the motion to the horn tip immersed in the solution.

The implosion of microscopic cavitation in the solution results, causing the molecules in the medium to become intensely agitated.

The Sonifier functions in two modes - Pulsed and Continuous. In Pulsed Mode, ultrasonic vibrations are transmitted to a solution at a rate of one pulse per second. This pulse duration can be adjusted from 0.1 to 0.9 per second, enabling a solution to be processed at full ultrasonic intensity, while limiting temperature build-up - especially valuable when processing heat-volatile solutions and temperature-sensitive material.

In Continuous Mode, the Sonifier can be set up for continuous duty.

Steps for rapid infusions:

Combine liquid with desired infusion product in quantities up to 8 quarts / 7.5 litres.

Place probe of Sonicprep into liquid, not exceeding maximum depth.

Turn on Sonicprep and adjust to desired power.

Infusion occurs in 2-3 minutes. Stronger infusions may take longer.

Filter infused liquid through fine mesh sieve or through other filtration methods.

Steps for Homogenizations:

Combine fat and liquids in quantities up to 4 quarts / 7.5 litres.

Place probe of Sonicprep into liquid, not exceeding maximum depth.

Turn on Sonicprep and adjust to desired power.

Homogenization usually occurs in 2-3 minutes, although differing fat ratios may influence longer times and stirring of product to ensure even homogenization.

If desired, filter homogenized mixture through fine mesh sieve or through other filtration methods.