

Liqui-Cel® Membrane Contactors Easily Improve Megasonic Cleaning Performance by Controlling Total Dissolved Gases

The amount of dissolved gases present in water has a direct impact on cleaning efficiency in a megasonic-cleaning bath.

UltraPure Water (UPW) from the polishing loop is commonly used in the megasonic cleaning process. Depending on the process design of the system, there are typically two scenarios in the system setup.

First, a system containing Liqui-Cel Contactors could be located in the polishing loop. Here the typical dissolved gas requirement is less than 1 ppb for O₂ and around 3 ppm for N₂.

Second, a Nitrogen blanketed tank could be located in the polishing loop. The typical dissolved gas requirements in this scenario are less than 1 ppb for O₂.

Dissolved N₂ would be saturated at ≈ 20 ppm because of the N₂ pressure from the N₂ blanket on top of the tank.

In both cases, the N₂ gas can be easily manipulated by using a simple Liqui-Cel Membrane Contactor set-up at the point of use prior to the megasonic bath. In the first case the addition of N₂ would be necessary, while in the second case, dissolved N₂ would need to be removed.

Recent test results at a semiconductor plant verified that at specific water flow conditions, a Liqui-Cel Membrane Contactor is capable of reaching gas saturation in a single step. Under this principle, the N₂ control is reduced to setting-up the incoming N₂ gas pressure equal to the theoretical saturation pressure, eliminating the need for expensive and sophisticated mass flow/electronic controllers. See figure 1.



