

What is Ultrasonic Cavitation?

ULTRASONIC EXPERT SERIES

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CLEAN



Thomas Overbey, CCSVP
Marketing Director, Ultra Clean Systems Inc.

Beyond Clean Ultrasonic Expert Series:

WHAT IS ULTRASONIC CAVITATION?

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The process of ultrasonic cleaning, which uses a type of energy called cavitation, does great work in cleaning surgical instruments. To get a better appreciation as to what cavitation is consider this: Speakers (such as those that produce sound like music or speech) are considered a type of transducer, a device that converts electrical energy into corresponding sound vibrations in air. Low pitched notes like those played on a bass guitar are perceived as lower pitches because they produce fewer vibrations of sound per second. These vibrations are fluctuations of air movement back and forth, which are really alternating changes in air pressure. Conversely, notes played on a flute have a higher pitch because of more rapid fluctuations in air pressure. We refer to this as pitch or frequency (vibrations per second). An ultrasonic cleaning system also have very specific types of speakers also referred to as transducers. These transducers produce sound like vibrations at extremely high frequencies or very rapid fluctuations in pressure, well above what the human ear can perceive (ultra + sonic meaning "having frequency beyond the audible range). When rapid fluctuations of sound energy occur in water, the process of cavitation begins to happen. Millions of bubbles form and implode (like reverse explosions) which produce a unique cleaning action. We'll dive deeper into the effect of these amazing cavitation bubbles as well as discuss many aspects of the cleaning process in future issues but consider that these bubbles have been documented to produce extremely short and instantaneous bursts of energy at temperatures that equal the sun!

Have more ultrasonic questions? Contact Tom at: tom.overbey@ultracleansystems.com

Beyond Clean Ultrasonic Expert Biography:

**THOMAS OVERBEY, CCSVP
MARKETING DIRECTOR,
ULTRA CLEAN SYSTEMS, INC.**



Thomas Overbey's experience originated as media producer at the University of South Florida, College of Medicine, producing content for medical research and education. Overbey has generated live and on-demand surgical procedures for peer-to-peer training and produced the first live hybrid surgical case pushed to iPhones and computers. For the past six years, Overbey has served as the marketing director for Ultra Clean Systems promoting safe cleaning practices, and serves as an advocate for connecting the OR to the SPD for maximum operational efficiency. Tom has presented numerous times at IAHCSSM conferences as well as at the inaugural OR Today Live! event in 2015 on residual protein detection. He has published educational content for Healthcare Purchasing News as well as PROCESS, formerly Communiqué, an educational and feature publication for IAHCSSM. Tom also publishes NewSplash, a weekly newsletter bringing positive news and educational event information for the sterile processing and infection control community.

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