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Hygea® Ultrasonic Validation Kit

Ultrawave's Hygea Ultrasonic Validation kit contains the tools and accessories required to perform Validation and Periodic testing of your ultrasonic cleaning bath.

Designed to meet the testing guidelines for measuring the ultrasonic activity and cleaning efficacy of an ultrasonic bath as stipulated in HTM guidelines, the Hygea Ultrasonic Validation kit assures the operator that the ultrasonic bath is performing effectively.

Why measure?

The need to confirm the performance of all processing equipment in healthcare and industrial manufacturing environments is all important.

HTM01-05 recommends that a measurement of ultrasonic activity and cleaning efficacy for dental ultrasonic baths is taken on a regular basis.

Ultrasonic activity is measured using the Hygea Ultrasonic Activity Meter and aluminium foil test, while STF Load Check indicators are used to measure cleaning efficacy. All results can then be recorded in the Validation logbook provided.



Kit Contents

The Hygea Ultrasonic Validation Kit consists of the following components which will allow you to periodically test your ultrasonic cleaning system to ensure optimum performance:

- 1 x Hygea Ultrasonic Activity Meter
- Aluminium foil roll
- 2 x STF Load Check Holders
- STF Load Check Strips
- Ultrasonic Testing log book

... all packaged in a handy carry case.



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Ultrasonic Activity Detection Foil Ablation Test

The activity of an ultrasonic cleaner may be investigated by the erosion pattern which is created on aluminium foil exposed in the bath for a short period. The activity will not be uniform throughout the ultrasonic bath.

Tests carried out during commissioning are intended to establish the variation in activity at different positions within the bath and the time required to obtain a characteristic erosion pattern.

Tests should be carried out quarterly to ensure the ultrasonic activity remains unchanged.

Equipment and materials

The following equipment and materials are required:

1. Aluminium foil of nominal thickness 0.015 mm to 0.025 mm (A 20mm wide, 240m reel can be ordered from Ultrawave: Part number C7015701, aluminium foil).
2. Waterproof adhesive tape (autoclave indicator tape is ideal).
3. A stopwatch, graduated in 0.2s or better and with an accuracy over a period of 15 min of ± 0.5 s, or better.
4. A rule or tape measure graduated in mm.

Method

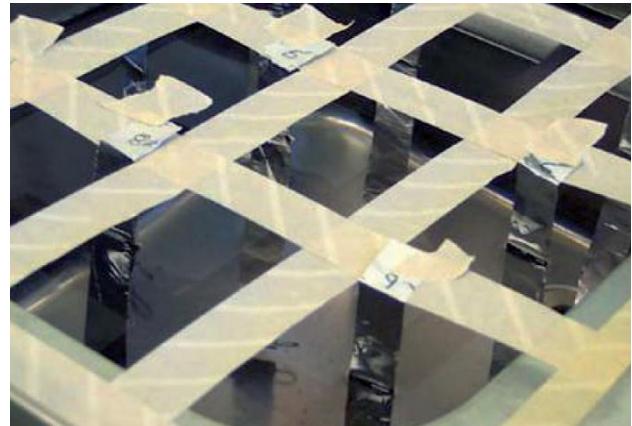
1. Measure the depth of the bath from the level of the lid to the bottom of the bath. Let the depth be D mm.
2. Cut nine strips of aluminium foil 15 mm to 20 mm wide and $\{D + 120\}$ mm in length.
3. Roll 120mm of prepared foil strip into a cylindrical shape and secure with a paper-clip. Repeat for all nine strips.



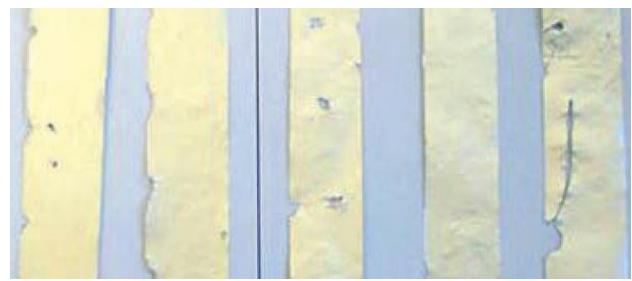


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4. Ensure that the water in the tank is at the required level, that the required amount of any chemical additive has been added and that the water in the tank is at the specified operating temperature.
5. Start the ultrasonic cycle and carry out the degas procedure to eliminate dissolved gases from the liquid in the bath.
6. Using strips of autoclave indicator tape across the top of the bath suspend nine strips of the prepared foil in the bath in a 3 x 3 grid.
7. The rolled end of each foil strip acts as a sinker weight to maintain the foil in an approximately vertical position. The sinker weight should be not more than 10 mm above, but not touching, the bottom of the bath
8. Run an ultrasonic cycle for a minimum of 30 seconds.
9. Remove the strips from the bath, blot dry and examine.
10. Drain the bath and clean to remove debris of eroded aluminium foil.



Foil strips in position



Inadequate or uneven erosion patterns



Positive or satisfactory erosion patterns

Results

The zones of maximum erosion should be at similar positions on all nine foils and each should be eroded to a similar extent (by visual inspection).

On re-testing the extent of erosion and the erosion pattern should have remained consistent with those originally determined during commissioning.

Notes.

The strips may be filed conveniently by sticking them to an A4 sheet of plain paper using a transparent adhesive tape. Laminating will provide a permanent record.

The erosion pattern will depend on the thickness of the foil, the hardness of the foil, and the temperature of the liquid in the ultrasonic bath.



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Hygea® Ultrasonic Activity Meter Specifications

Probe Assembly in Stainless Steel	15 x 244mm long
Handle in ABS Plastic	105mm long
Instrument Case in ABS Plastic	130 x 65 x 25mm
Weight (probe and cable)	350 grams
Weight (instrument including battery)	200 grams
Indicator 1: Frequency	5-50 KHz
Indicator 2: Power	10-100%
Battery 9V	PP3
Cable Connector	BNC 2P
Warranty	12 months
Calibration Period	12 months



Operating Instructions

1. The Hygea Ultrasonic Activity Meter should be used to measure the level of ultrasonic activity throughout the tank. It is recommended that the tank be divided into 9 sections and measurements taken at just below the surface and at least 3 cm from the base of the bath, where the depth of the tank allows.
2. Insert the probe into the cleaning fluid inside the tank. To take a reading press and hold the button on the meter. Record the results displayed on both the Frequency and Power displays.
3. Repeat this in the 9 specified places at the two different depths throughout the bath, including each corner.
4. Record the results so that future tests can be compared. If there is a reduction in the readings over time, your ultrasonic cleaning system may not be working at full efficiency and may need validation and servicing.

Note: It should not be expected that the Meter will give readings of 100% every time. The Hygea Ultrasonic Activity Meter is designed to be used as a comparative measurement device over a period of time. If the readings change significantly, it is recommended that you contact Ultrawave for information and advice.