

# Setting a New Standard for Ultrasound Probe Disinfection



trophon® EPR

**nanosonics**  
Infection Prevention. For Life.

# Why High Level Disinfect Ultrasound Probes?

The Spaulding classification system<sup>1</sup> classifies ultrasound probes that contact mucous membranes or non-intact skin, as semi-critical medical devices. The Centers for Disease Control and Prevention (CDC) and the Australasian Society for Ultrasound in Medicine (ASUM) mandates high level disinfection (HLD) of such semi critical probes between patients.

HLD is necessary, even when a single use disposable cover is used routinely, due to the possible rupture or breaching of the cover which could lead to contamination of the probe.<sup>2</sup>

## Issues with Traditional Disinfection Methods

Traditional ultrasound probe disinfection practices such as soaking in toxic chemicals, can be ineffective, inefficient and environmentally unsound.

- Ultrasound probe handles are not routinely soaked in disinfectant. A study has shown that more than 80% of handles that were not disinfected, had residual bacteria, including pathogens such as MRSA.<sup>3</sup>
- One study found that employee compliance to HLD recommendations was 1.4% for manual methods versus 75.4% for an automated process.<sup>4</sup>

- Glutaraldehyde and *ortho*-phthalaldehyde (OPA), do not kill natural, infectious, high-risk HPV16 – even after 24 hours of contact time.<sup>5</sup> OPA has also been shown ineffective against HPV 18.<sup>6</sup> These strains are associated with 99.7% of cervical cancers as well as a number of other cancers including anal, vaginal, vulvar and penile cancers.<sup>7</sup>
- Published case reports show workers and patients have experienced respiratory problems, anaphylaxis, skin reactions, and systemic antibody production with use of OPA.<sup>8-10</sup>

## trophon® EPR

Addressing the need for a fast and environmentally friendly HLD for ultrasound probes

The trophon EPR's advanced simplicity has revolutionized HLD. It achieves fast, automated and quality assured HLD of ultrasound probes – in just seven minutes.

The device uses proprietary disinfectant based on hydrogen peroxide chemistry to effectively high level disinfect the entire ultrasound probe including the shaft and handle. After use, the disinfectant breaks down into harmless, environmentally friendly water and oxygen.

Due to its design, trophon EPR is fully self-contained and can be safely used at the point of care to facilitate clinical workflow.

The trophon EPR is the first high level disinfection system proven to kill natural, infectious, high-risk HPV16 and HPV18 in laboratory testing, using the manufacturer's FDA-cleared conditions.<sup>6</sup> For more information visit [www.hpvdisinfection.com](http://www.hpvdisinfection.com)

## Why trophon EPR?

FEATURE	TROPHON EPR	SOAK SYSTEMS*
Automated HLD process	+	-
Fully contained system	+	-
Hydrogen peroxide mist	+	-
Probe handle disinfection	+	Variable**
HLD achieved in 7 minutes	+	-
POC designed	+	-
Water and oxygen by-products	+	-
Manufacturer traceability solution	+ ***	-
No ventilation required	+	-
Inactivates HPV	+	- ****

POC: point of care; HLD: high level disinfection

\* Using 2.4% glutaraldehyde or 0.55% *ortho*-phthalaldehyde

\*\* If probe manufacturer approves full immersion of the probe

\*\*\* With trophon Printer

\*\*\*\* Not effective with glutaraldehyde and *ortho*-phthalaldehyde, other soaks not tested

# trophon EPR Benefits at a Glance



## Probe Friendly

The trophon EPR's probe friendly process reduces probe exposure to potentially damaging chemicals. Instead of soaking, the hydrogen peroxide mist is in contact with the probe for just a few minutes. To date, trophon EPR is approved for use with more than 900 probe models across leading manufacturers – see the validated probe list on trophon.com.



## Proven Effective

The trophon EPR is an HLD device for ultrasound probes that has been tested by independent laboratories against a wide range of organisms. A published, peer-reviewed study shows that trophon EPR demonstrates HLD efficacy against a range of microorganism according to a broad range of international standards<sup>13</sup> and is effective for disinfecting transducer handles.<sup>3</sup>



## Fast & Automated

CDC recommends automated ultrasound probe reprocessing over manual methods.<sup>11</sup> The trophon EPR delivers fast, automated HLD and is proven to save time over glutaraldehyde-based soak processes.<sup>12</sup>



## Traceability Solution

The trophon EPR's optional traceability solution provides automated documentation and reporting to help meet audit and accreditation requirements. The solution helps link the probe and HLD cycle date and time with the patient and medical procedure.



## Environmentally Friendly

The trophon EPR uses nebulized hydrogen peroxide mist which is broken down into harmless, environmentally friendly by-products: water and oxygen. The disinfectant cartridges are recyclable, as are more than 70 percent of trophon EPR components.



## Cost Efficient

trophon EPR helps reduce costs by integrating into the HLD process at the point of care. This means more time for clinical procedures and faster patient turnaround time. The reduced requirement for personal protective equipment and waste disposal saves on overhead costs.



## Consistent Process

The automated trophon EPR assures process consistency in every cycle. Each cycle is validated by sophisticated sensor technology and the Chemical Indicator delivers further assurance of quality HLD.



## Helps Protect

The trophon EPR is fully enclosed to minimize exposure to harmful chemicals. The disinfectant cartridge remains sealed until it is inside the device and the wastes are harmless water and oxygen.

# trophon EPR Product Portfolio



## CONSUMABLES NANONEBULANT®

NanoNebulant is a proprietary disinfectant liquid with 35% w/w hydrogen peroxide chemistry that achieves effective HLD.



## CHEMICAL INDICATORS

A Chemical Indicator provides further validation of each disinfection cycle with a qualitative color change.



## ACCESSORIES CLEAN ULTRASOUND PROBE COVER

Clean Ultrasound Probe Covers are custom designed to protect intracavity and surface ultrasound probes from recontamination after HLD.



## TROPHON® PRINTER

The trophon Printer is a fast, easy to use traceability solution that prints high quality disinfection labels for each HLD cycle.



## TROPHON CART

The trophon Cart makes the trophon EPR fully mobile at the point of care in your ultrasound suite.



## TROPHON® CONNECT

trophon Connect software helps meet documentation requirements and aids in auditing records.



## TROPHON WALL MOUNT

The trophon Wall Mount is a convenient option for installing the trophon EPR where there are space constraints.



## TROPHON CURVED PROBE POSITIONER (CPP)

The trophon CPP is an accessory which improves the positioning of approved curved probes in the trophon EPR chamber.

## TECHNICAL SPECIFICATIONS

Weight	38 lb (17 kg)
Dimensions	19.3"H x 13.6" W x 13.6" D (490mm H x 345mm W x 345mm D)

## References

1. Spaulding EH, 1968 Chemical Disinfection of Medical and Surgical Materials. In: Disinfection, Sterilization and Preservation. Lawrence CA and Block SS (editors). Philadelphia: Lea and Febiger; pp. 517–31.
2. Milki AA, Fisch JD. Vaginal ultrasound probe cover leakage: implications for patient care. *Fertil Steril*. 1998;69(3):409-11.
3. Ngu A et al., Reducing infection risk through high-level disinfection of transvaginal ultrasound transducer handles. *Infect Control Hosp Epidemiol*.
4. Ofstead, CL et al., Endoscope reprocessing methods: A prospective study on the impact of human factors and automation. *Gastroenterology Nursing*, 33:304–11, 2010.
5. Meyers, J., et al., Susceptibility of high-risk human papillomavirus type 16 to clinical disinfectants. *J Antimicrob Chemother*, 2014.
6. Ryndock E, Robison R, Meyers C. 2015. Susceptibility of HPV16 and 18 to high level disinfectants indicated for semi-critical ultrasound probes. *J Med Virol*. Published online 13 Nov 2015. DOI 10.1002/jmv.24421.
7. Walboomers JMM, Jacobs MV, Manos MM, et al. Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. *J Pathol*. 1999; 189: 12–19.
8. H. Fujita, M. Ogawa, and Y. Endo. A case of occupational bronchial asthma and contact dermatitis caused by ortho-phthalaldehyde exposure in a medical worker," *J Occupational Health*, vol. 48, pp. 413–416, 2006.
9. W. N. Sokol. Nine episodes of anaphylaxis following cystoscopy caused by Cidex OPA (orthophthalaldehyde) high level disinfectant in 4 patients after cystoscopy. *J Allergy and Clinical Immunology*, vol. 114, pp. 392–397, 2004.
10. Cooper, D.E., et al., Anaphylaxis following cystoscopy with equipment sterilized with Cidex OPA (orthophthalaldehyde): a review of two cases. *J Endourol*, 2008. 22(9): p. 2181-4.
11. Rutala W., et. al, Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008, Centers of Disease Control, 1-158, 2008.
12. Johnson et al., Evaluation of a Hydrogen Peroxide-Based System for High-Level Disinfection of Vaginal Ultrasound Probes, *Journal of Ultrasound Medicine*, 32:1799-804, 2013.
13. Vickery K, et al. Evaluation of an automated high-level disinfection technology for ultrasound transducers, *Journal of Infection and Public Health*, 2013.

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