

Summary

This document provides customers with information on compatibility of the EchoNous™ System with cleaning and low-level disinfection agents. The information is intended to assist customers in determining a cleaning and disinfection strategy for the EchoNous System components. The document will be periodically updated as additional cleaning and disinfection products are qualified.

The EchoNous User Manual contains instructions on cleaning and disinfection of the EchoNous System components with the preferred cleaning and disinfection agents.

The table below provides a list of additional compatible cleaning and disinfection agents.

General Recommendations

All surfaces of the EchoNous System including probes, displays and stands can be safely cleaned and disinfected using ammonium chloride-based wipes such as Sani-Cloth Plus, CaviWipes, and Protex disinfection wipes. These are the recommended wipes for the EchoNous System. Hydrogen peroxide and sodium hypochlorite bleach wipes can be used on all surfaces, but caution should be used on display screens as extended use can damage the anti-smudge coating, creating a slightly cloudy appearance. Isopropyl alcohol wipes can be used, but used with caution on painted surfaces and display screens.

Probes (Bladder™ probe, Uscan probe and Vein™ probe)

EchoNous probes may be disinfected using a wipe or spray method of disinfection. First clean each ultrasound probe as instructed in the User Manual. Then wipe or spray the probe with disinfectant and leave wet for the disinfectant manufacturer's recommended contact time. Remove any residue with a clean, soft cloth moistened with water. Do not allow any solutions to dry on the probe handle and transducer. After disinfection examine the ultrasound probe for cracks or leaks, and if damage exists, discontinue use of the system and contact EchoNous customer support.

Displays (HP and Samsung)

It is recommended to avoid spraying the cleaning and disinfection solutions directly onto the displays. Instead spray onto a non-abrasive cloth and then gently wipe. Ensure that all excess solution is wiped off and not left on the surface after cleaning. Hydrogen peroxide-based solutions should be used carefully on the screen, as the anti-smudge coating will degrade with regular use (although function is not affected). Use isopropyl alcohol 70% and sodium hypochlorite bleach-based wipes carefully, being careful to follow the recommendation above and remove any excess. After disinfection examine the display for cracks, and if damage exists, discontinue use of the system and contact EchoNous customer support.

Technical Bulletin

Signostics Mobile Stand

The Signostics mobile stand can be cleaned and disinfected by a wide variety of wipes, including isopropyl alcohol and hydrogen peroxide-based wipes. Care should be taken when cleaning exposed metal surfaces with hydrogen peroxide-based wipes, as these surfaces will corrode with extended use. The use of CaviCide1 or CaviWipes1 is **not** recommended for extended application.

EchoNous AI Station™ Mobile Stand

The AIS mobile stand can be cleaned and disinfected by a wide variety of wipes, including ammonium chloride-based wipes, isopropyl alcohol and hydrogen peroxide-based wipes. Care should be taken when cleaning exposed metal surfaces with hydrogen peroxide-based wipes, as these surfaces will corrode with extended use. The use of Super Sani-Cloth wipes is **not** recommended for extended application.

Compatibility Evaluations

Health care facilities use a wide variety of cleaning and low-level disinfection agents to clean medical equipment. To determine their impact on the EchoNous System including the display, EchoNous performs accelerated life testing. The parts are inspected for signs of deterioration, and their functionality is tested at the completion of the above tests.

No visible signs of deterioration and continued EchoNous functionality are considered a “Pass”. “Notes” provide details on cautions and exceptions to general use.

The test results of the cleaning and disinfection agents tested so far are detailed in the table on the following page. The table will be updated as additional cleaning and disinfection products are qualified.

Technical Bulletin

Summary of Disinfection Results

The table below summarizes the disinfection solutions tested for compatibility with notes on exclusions and exceptions.

Cleaning and/or Disinfection Agent	Active Ingredient	Bladder Probe	Vein Probe	Uscan Probe	Displays	Signostics Mobile Stand	AI Station Mobile Stand
Warm Soapy Water	None	Pass	Pass	Pass	Pass	Pass	Pass
Bleach Germicidal Wipes Clorox Healthcare, Inc.	Sodium Hypochlorite, 0.55%	Pass	Pass	Note 1, Note 9	Note 7, Note 8	Pass	Note 12
CaviWipes Metrex	Diisobutylphenoxyethoxyethyl dimethyl benzyl ammonium chloride 0.28% Isopropanol 17.20%	Pass	Pass	Pass	Pass	Pass	N/A
Hydrogen Peroxide Wipes Clorox Healthcare®	Hydrogen Peroxide (1.4%)	Pass	Pass	Note 1	Note 3, Note 7	Note 6	Note 11
Isopropyl 70% Wipes (various manufacturers)	70% isopropyl alcohol	Pass	Pass	Note 1, Note 9	Note 2	Note 4	N/A
Oxivir® Tb Wipes Diversey	Hydrogen Peroxide (0.1-1.5%) Benzyl alcohol (1-5%)	Pass	Pass	Note 1	Note 3, Note 7	Note 5, Note 6	N/A
Protex Disinfectant Wipes Parker Laboratories	Quaternary ammonium compounds, di-C8-10-alkyldimethyl, chloride 0.14% Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides 0.09%	Pass	Pass	Pass	Pass	Pass	N/A
Sani-Cloth® Plus PDI	n-Alkyl (68% C ₁₂ , 32% C ₁₄) dimethyl ethylbenzyl ammonium chlorides. 0.125% n-Alkyl (60% C ₁₄ , 30% C ₁₆ , 5% C ₁₂ , 5% C ₁₈) dimethyl benzyl ammonium chlorides. 0.125%	Pass	Pass	Pass	Pass	Pass	Pass
Sani-Cloth® AF3 PDI	n-Alkyl (68% C ₁₂ , 32% C ₁₄) dimethyl ethylbenzyl ammonium chlorides. 0.14% n-Alkyl (60% C ₁₄ , 30% C ₁₆ , 5% C ₁₂ , 5% C ₁₈) dimethyl benzyl ammonium chlorides. 0.14%	Pass	Pass	Pass	Pass	Pass	Pass
Super Sani-Cloth Germicidal Disposable Wipe, PDI, Inc.	n-Alkyl dimethyl ethylbenzyl ammonium chlorides – 0.25%, n-Alkyl dimethyl benzyl ammonium chlorides – 0.25%, Isopropyl Alcohol 55%	Pass	Pass	Note 1, Note 9	Note 2	Note 4	Note 10
Sodium Hypochlorite 10% Wipes (various manufacturers)	10% sodium hypochlorite	Pass	Pass	Note 1, Note 9	Note 7, Note 8	Pass	N/A
Tuffie 5 Wipes VernaCare	Cocoalkyl dimethylbenzyl ammonium chloride 0.5%	Pass	Pass	Pass	Pass	Pass	N/A

Technical Bulletin

Note 1: The Uscan Probe overmold shows some discoloration and peeling following extended contact. Function and safety are not affected.

Note 2: Ingress of alcohol around the buttons and edge of the screen results in deterioration of the tablet and may impact function. Caution is recommended in the use of isopropyl (wipe and do not leave excess solution)

Note 3: The display has an anti-smudge coating which will be affected by extended use of hydrogen peroxide. Function is not impacted. Use caution and wipe excess hydrogen peroxide off after recommended disinfection time.

Note 4: The rubber gaskets on the tablet dock lose adhesive when soaked in isopropyl for extended periods. Caution is recommended in the use of isopropyl (wipe and do not leave excess solution).

Note 5: Hydrogen Peroxide solutions can corrode the stand screws and bolts over time. Use caution and wipe excess liquid off after recommended disinfection time.

Note 6: Exposed metal surfaces (e.g. mobile stand, cable connectors) will corrode after extended contact with hydrogen peroxide. Use caution and wipe excess solution off after recommended disinfection time.

Note 7: The tablet body is affected by extended use of hydrogen peroxide and sodium hypochlorite-based wipes. Function is not impacted. Use caution and wipe excess liquid off after recommended disinfection time.

Note 8: Sodium hypochlorite-based wipes will leave a residue on the tablet screen after extended use. Use caution and wipe excess liquid off after recommended disinfection time.

Note 9: Minimize application of isopropyl alcohol, sodium hypochlorite bleach or hydrogen peroxide-based disinfectant to colored overmold materials. Long-term use may result in material degradation. If such a disinfectant is applied to the overmold, immediately remove by wiping with a damp cloth.

Note 10: The AI Station mobile stand has been tested with Super Sani-Cloth Germicidal Disposable Wipe (n-Alkyl dimethyl ethylbenzyl ammonium chlorides – 0.25%, n-Alkyl dimethyl benzyl ammonium chlorides – 0.25%, Isopropyl Alcohol 55%), PDI, Inc. Painted surfaces that are exposed to this chemical for extended periods of time may experience a weakening of the paint bond and make it subject to scratches. Function and safety are not affected.

Note 11: Some surfaces on the AI Station mobile stand exposed to hydrogen peroxide for an extended period of time may experience a cosmetic change in the surface quality. Painted surfaces and the central column of the stand may develop slight variations in gloss level. Function and safety are not affected.

Note 12: The AI Station mobile stand has been tested with Bleach Germicidal Wipes, (Sodium Hypochlorite, 0.55%), Clorox Healthcare, Inc. The black rubber-like pad in the collar may discolor with extended exposure to sodium hypochlorite. Function and safety are not affected.