Improved Ultrasound Phantom

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an ultrasound phantom that prevents both desiccation of water-based material within the phantom and oxidation or contamination of the material.

OVERVIEW

Imaging phantoms comprise materials that closely mimic the ultrasonic propagation characteristics of human tissue. The tissue mimicking material typically is water based to best simulate human tissue. These phantoms allow for performance checks on ultrasound scanners and may be used by student technologists for training or testing. Current ultrasound phantoms utilize thin sheets of plastic to cover a scanning window to allow transmission of the ultrasound to the tissue mimicking material; however, the relatively high rate of water vapor transmission permits unacceptable desiccation of the water-based tissue mimicking material.

Consequently, gel-based phantoms have been implemented that use a layer of oil-based gel covering the tissue mimicking material. Although this reduces water loss through the flexible plastic window cover, it does not entirely eliminate it and it also adds a layer of material through which the ultrasound must be transmitted. Additionally, oil-based gels can detach from the plastic cover and walls of the phantom, allowing significant desiccation of the phantom contents to occur. An improved ultrasound phantom is needed.

THE INVENTION

UW–Madison researchers have developed an improved ultrasound phantom that can contain water-based liquid or solid gel tissue mimicking material. The container comprises a window covered by an ultrasound transmitting window cover that seals and protects a water-based tissue mimicking material within the container. The window cover comprises a metal layer that is adhered to a layer of plastic and is essentially impervious to moisture and air molecules; this prevents both desiccation of the water-based material within the phantom and oxidation or contamination of the tissue mimicking materials. Multiple windows may be formed in the container or the phantom may be formed entirely of the multilayer film.
APPLICATIONS

• Ultrasound phantoms for use with ultrasound scanners

KEY BENEFITS

• Prevents desiccation of water-based material within the phantom as well as oxidation or contamination of the material

ADDITIONAL INFORMATION

Tech Fields
Medical Imaging - Ultrasound

CONTACT INFORMATION

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or (608) 262-5733.