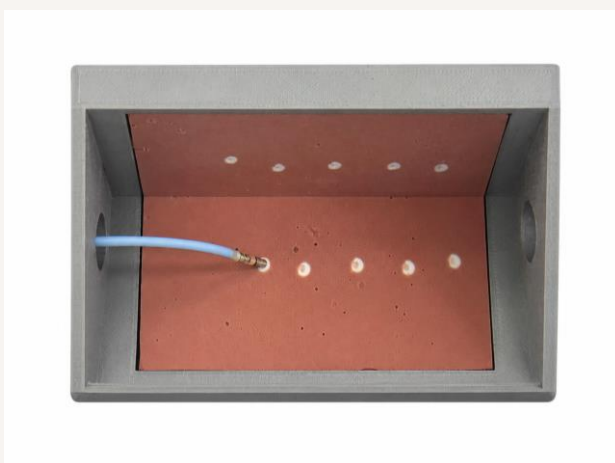




PRODUCT DESCRIPTION

Our patented cardiac tissue-mimicking hydrogel is an ablation-sensitive material developed to reduce the industry's reliance on animal testing by reproducing the key electrical, thermal and mechanical properties of cardiac myocardium using ethically-sourced veagn materials. The gel changes colour when exposed to temperatures that would cause irreversible cell death and scarring in the myocardium (above 50°C or below 0°C). The material was clinically validated and shows no statistically significant difference to ex-vivo cardiac muscle in thermal conductivity, electrical resistivity, or hardness. The colour change is directly representative of the scar lesion that would form as a result of thermal damage in the myocardium. This material has found frequent application in cardiac electrophysiology in the assessment of the thermal effects of ablation techniques, including pulsed field ablation, radiofrequency ablation, and cryoablation. Gel samples can be placed on a holder and ablated in saline for a more controlled experiment, or placed in a cardiac model for training and demonstrations.



Cardiac Tissue-Mimicking Hydrogel
Ablation-sensitive myocardial analogue

KEY FEATURES

- ✓ Myocardium-mimicking alginate hydrogel
- ✓ Electrical resistivity representative of myocardium (no significant difference)
- ✓ Thermal conductivity representative of myocardium (no significant difference)
- ✓ Mechanical hardness representative of myocardium (no significant difference)
- ✓ Permanent visible colour change following thermal damage is representative of the scar lesion formation that would occur in myocardium (no significant difference)
- ✓ Supports pulsed field ablation, radiofrequency ablation, and cryoablation assessment
- ✓ Ablated hydrogel samples are single-use and replaceable
- ✓ Non-hazardous, disposable, vegan, ethically sourced.

WHAT CAN BE PRACTISED

- Ablation delivery and lesion assessment
- Comparison of ablation technologies
- Catheter handling and positioning

TRAINING SETTINGS

- EP catheterisation laboratories
- Medical device R&D facilities
- Conferences, classrooms, offices

EDUCATIONAL VALUE

- Direct visualisation of thermal lesions
- Repeatable alternative to ex-vivo tissue
- Controlled comparative testing

TECHNICAL SPECIFICATIONS

Material: Conductive alginate-based hydrogel
Tissue analogue: Cardiac myocardium
Electrical resistivity: $7.1 \pm 0.2 \Omega\text{m}$
Thermal conductivity: $0.62 \pm 0.02 \text{ W/m K}$
Hardness: 21 ± 2 Shore OO
Response: Permanent thermochromic lesion visualisation

INTENDED TRAINING APPLICATION

- Animal-free ablation testing
- Thermal assessment of pulsed field ablation
- Equipment/technique evaluation
- Comparative device testing
- Product demonstrations
- Electrophysiology training

USAGE AND LIFESPAN

SINGLE USE DISPOSABLE

Used samples can be disposed of in the general waste after use.

STORED AT 20°C KEEP MOIST AT ROOM TEMPERATURE

The samples are vacuum packed and shipped at room temperature to ensure optimal working conditions.

8 WEEKS

FUNCTIONAL SHELF LIFE

The samples stored in its original packaging at 20°C can be used up to 8 weeks after production. Dry or old samples may be compromised.

CLINICALLY VALIDATED

Peer-reviewed validation published in [Nature Scientific Reports \(2025\)](#). The formulation showed no statistically significant difference from myocardial reference data in electrical resistivity, thermal conductivity or hardness, and produced realistic radiofrequency and cryoablation lesions without the use of live animals or advanced laboratory facilities.