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# Calcified Polymeric Valve and Vessels

Tech ID: 28951 / UC Case 2016-119-0

## BRIEF DESCRIPTION

A cast molded methodology for creating polymeric heart valves and vessels with calcium apatite inclusions. The heart valves and vessels can then be implanted in animals to test cardiovascular medical device efficacy.

## FULL DESCRIPTION

Currently there does not exist a large animal model with natural calcified heart valves or vessels for cardiovascular medical device research and development. Without having such a model, certain interventional cardiology medical devices such as the transcatheter heart valves or vascular stents cannot be readily tested in-vivo. The invention describes a methodology to create a molded heart valve or vascular segment with embedded calcium apatite inclusions that can be used to re-create human aortic or vascular stenosis. The construction is created by injecting polyurethane into metal or rigid material mold and allowed to cure under vacuum to remove bubbles. Then a second layer of polyurethane mixed with calcium phosphate will be injected over the first layer to establish calcified spots. These valves or vascular segments can then be implanted into animals or into working laboratory heart models to simulate real world environments for testing trans-catheter heart valve and vascular stenting medical devices.



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## OTHER INFORMATION

### CATEGORIZED AS

- » **Biotechnology**
- » Health
- » **Medical**
- » Delivery Systems
- » Devices
- » Diagnostics
- » Research Tools

### RELATED CASES

2016-119-0

## ADVANTAGES

The invention would benefit the safety of trans-catheter valve repair and stenting medical devices. By providing a means of testing such devices in a real world conditions, namely aortic or vascular stenosis, one can reduce the chance of device malfunction and patient mortality.

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,629,096	04/21/2020	2016-119

## STATE OF DEVELOPMENT

The invention currently resides in prototype development stage. The inventor has created multiple prototype heart valves with variable amounts of calcification.



## RELATED MATERIALS

**UCI** Beall  
Applied Innovation

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