



Mussel-Inspired Underwater Adhesives/Coatings From Renewable Resources

Tech ID: 23389 / UC Case 2013-562-0

BRIEF DESCRIPTION

A novel adhesive derived from renewable resources that can be used and applied underwater.

BACKGROUND

Current adhesive technology allows certain adhesives to be water resistant, creating a weather proof seal in harsh conditions. However, once an object is wet, most adhesives can no longer be applied. There is an increasing need for adhesives which can be applied under water or to already wet surfaces, such as boat hulls or undersea industrial equipment.

DESCRIPTION

Researchers at the University of California, Santa Barbara have developed an adhesive which can be used and applied underwater. This material utilizes the adhesion techniques of California mussels and is produced using the plant derivative eugenol, which is an affordable and renewable resource. When tested underwater against the current commercial equivalent, it proved stronger, with a loop tack of 2.6 N/cm² compared to 1.6 N/cm².

ADVANTAGES

- ▶ Suitable for underwater use including ocean use
- ▶ Produced using affordable and renewable resources
- ▶ The monomer in this adhesive is readily formulated with other monomers and polymers

APPLICATIONS

- ▶ Perform boat/ship maintenance on the sea without the requirement of dry docking
- ▶ Underwater adhesives/coatings including:
 - ▶ Pressure-Sensitive Adhesives
 - ▶ Paints
 - ▶ Coatings
 - ▶ Inks

PATENT STATUS

Country	Type	Number	Dated	Case
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INVENTORS

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OTHER INFORMATION

KEYWORDS

adhesive, coating, eugenol,
indadhesive

CATEGORIZED AS

- ▶ **Materials & Chemicals**
- ▶ Other

RELATED CASES

2013-562-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Zwitterionic Nano-Adhesives for Improved Wet-Adhesion](#)

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