PHYSICAL ADHESIVE PATCH FOR WOUND PROTETION

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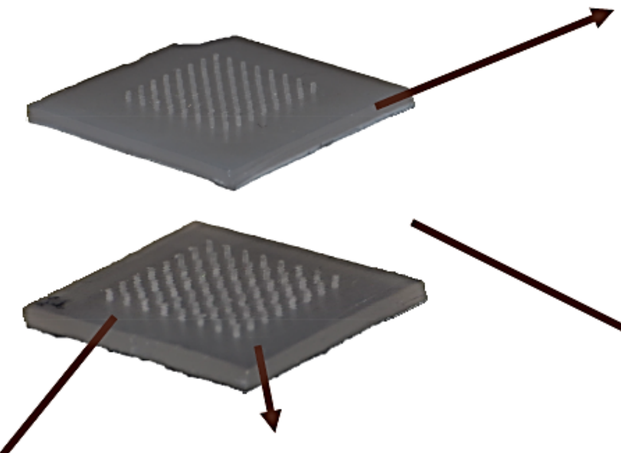
DESCRIPTION SUMMARY

A patch to cover and protect wounds from external environment employs a physical adhesion to stay on skin and maintain flexibility for optical comfort while maintaining appropriate durability and tension of skin, allowing itself to heal without leaving scars and reduces pain caused during its application. Its primary application is on large surface area low-depth wounds and replaces staples. The anchor design is easy to create template, easy to release from mold and pressures to pierce skin with suitable compression of the anchor. The template is made of aluminum manufactured via micro-milling and with oxygen plasma treated with Silane coating.

Overview

- A patch to cover and protect wounds from external environment
- Employs physical adhesion to stay on skin
- Maintain flexibility for optimal comfort, while maintaining appropriate durability
- Maintain tension of skin to allow skin to heal without scars, while reducing pain caused during application
- Primary application in large surface area, low depth wounds
- Secondary application to replace staples

Prototype



Polymer

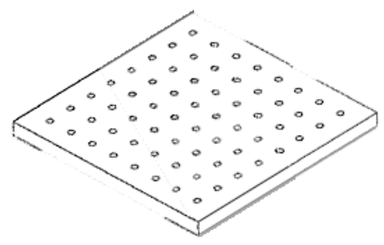
High Density Poly-Ethylene (HDPE)

Low Density Poly-Ethylene (LDPE)

- Easy release due to flexibility
- Low elasticity to maintain tension
- High hardness pierce skin
- Poly-Styrene (PS) will break upon release

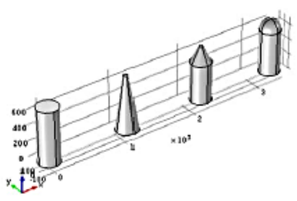
Template

- Manufactured via Micro-milling
- Made from Aluminum
- O_2 plasma treated with Silane coating
- Hotpress used to create prototype



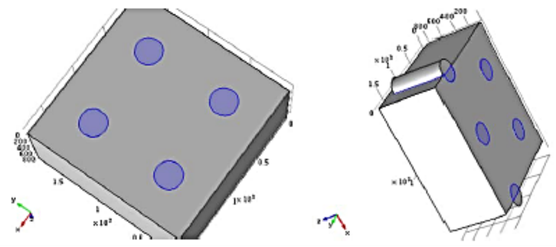
Anchor Design

- Easy to create template
- Easy release from mold
- Pressure to pierce skin
- Compression of the anchors



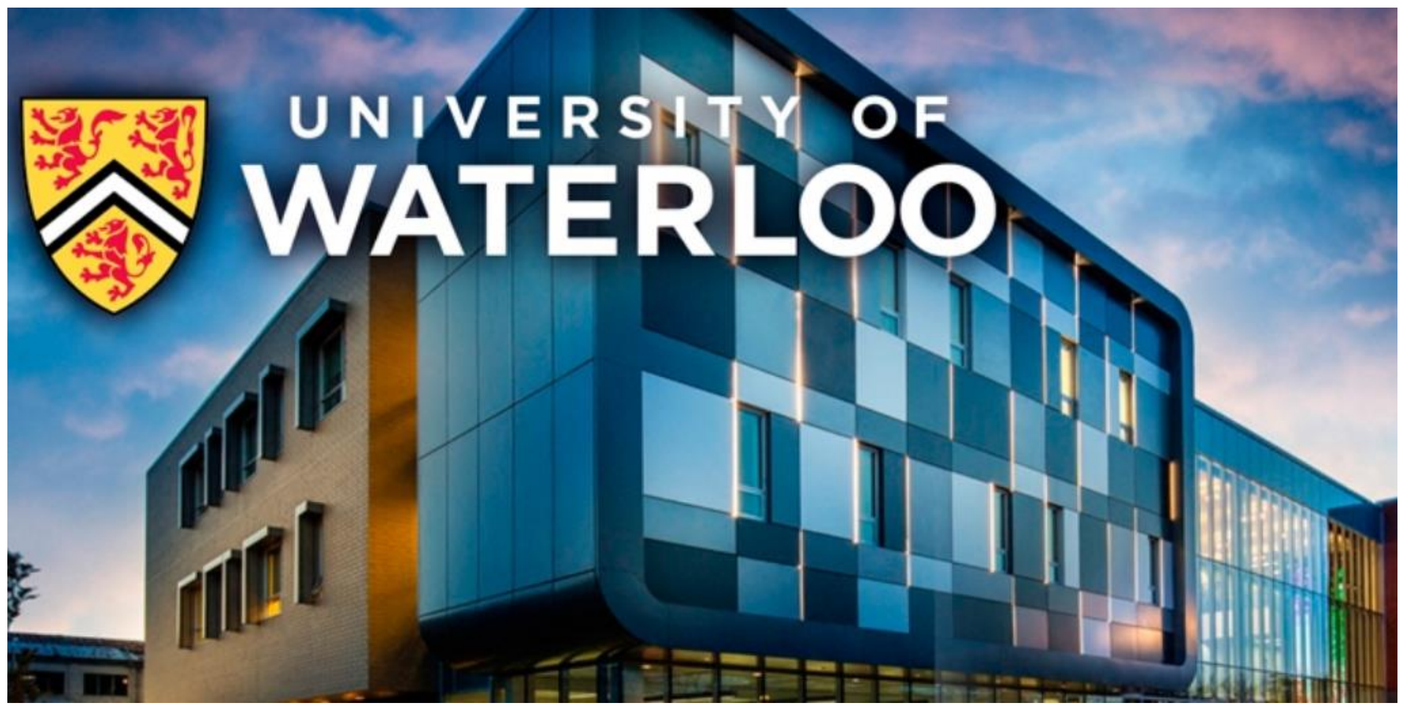
Anchor Orientation

- Least stress on the pillars and skin
- Most uniform stress across the span of the wound



Next Steps

- Explore more polymers
- Larger coverage area
- Reduce thickness
- Test different anchor sizes
- Painless application
- Transparency or Skin colour
- Breathability



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