

Materials List for:

Fabrication and Characterization of a Conformal Skin-like Electronic System for Quantitative, Cutaneous Wound Management

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Materials

| Name | Company | Catalog Number | Comments |
|---|------------------------------|----------------|---|
| 3" Silicon wafer | University Wafer, USA | | Use as carrier to fabricate the device |
| Acetone | Fisher Scientific, USA | A18-1 | Use to clean a wafer and to remove photoresist |
| Isopropanol (IPA) | Fisher Scientific, USA | A459-1 | Use to clean a wafer |
| AZ4620 photoresist | AZ Electronic Materials, USA | | Use to make patterns on metals and polymers |
| AZ400K developer | AZ Electronic Materials, USA | | Use to develop AZ4620 photoresist |
| Chromium etchant | Transene, USA | 1020AC | Use to etch Cr layer of device |
| Copper etchant | Transene, USA | ASP-100 | Use to etch Cu layer of device |
| Sylgard 184 Silicone Elastomer Kit (PDMS) | Dow Corning, USA | 39100000 | Use as a substrate for 'dry' retrieval |
| PI2545 polyimide | HD MicroSystem, USA | | Use to encapsulate metal layer |
| Solaris | Smooth-On, USA | | Use as substrate and to encapsulate device |
| Petridish | Carolina, USA | 741255 | Use as mold to make substrate |
| Water-Soluble Wave Solder Tape 5414 | 3M, USA | AM000000217 | Use to retrieve device from PDMS layer |
| High Activity Liquid Stainless Steel Flux | Worthington, USA | 331929 | Use to remove oxidation layer on Cu |
| Flexible, micro-film cable | Elform, USA | | Use to make the electrical connection between the electronic device and the data acquisition system |
| pH Neutral Cleaner | Australian Gold, USA | | Use as disinfectant solution to clean device in clinical testing |
| Solder | Kester, USA | 24-6337-9703 | Use as material to solder hard wires |
| Ultraviolet lamp | Cole-Parmer, USA | 97600-00 | Use to activate PDMS layer as hydrophilic surface |
| Multiplexer | FixYourBoard, USA | U802 | Use to acquire measurements from six sensing components |
| DC/AC current source | Keithley, USA | 6221 | Use to supply current |
| SMD Digital Hot Air Rework Station | Aoyue, China | 968A+ | Use to solder hard wires, to electrically connect between the device and external instruments |
| Infrared camera | FLIR, USA | 435-0001-01-00 | Use to take infrared images in experiment |

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|--------------------------|-------------------------------|-------|--|
| Digital multimeter | Fluke, USA | 117 | Use to check electrical connection |
| Lock-in amplifier | Stanford Research System, USA | SR830 | Use to perform four-point-probe-measurement |
| Electron beam evaporator | 9 scale Vacuum Products, USA | | Use to deposit thin films (Cu and SiO ₂) |