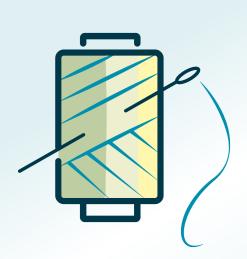
ARE COMMERCIAL CONDUCTIVE THREADS GOOD ENOUGH FOR TEXTILE ELECTRONICS APPLICATIONS?



Performance of off-the-shelf conductive threads has not been tested enough in circuits



They act like resistors, heat up and melt, because they are polymers plated with Ag



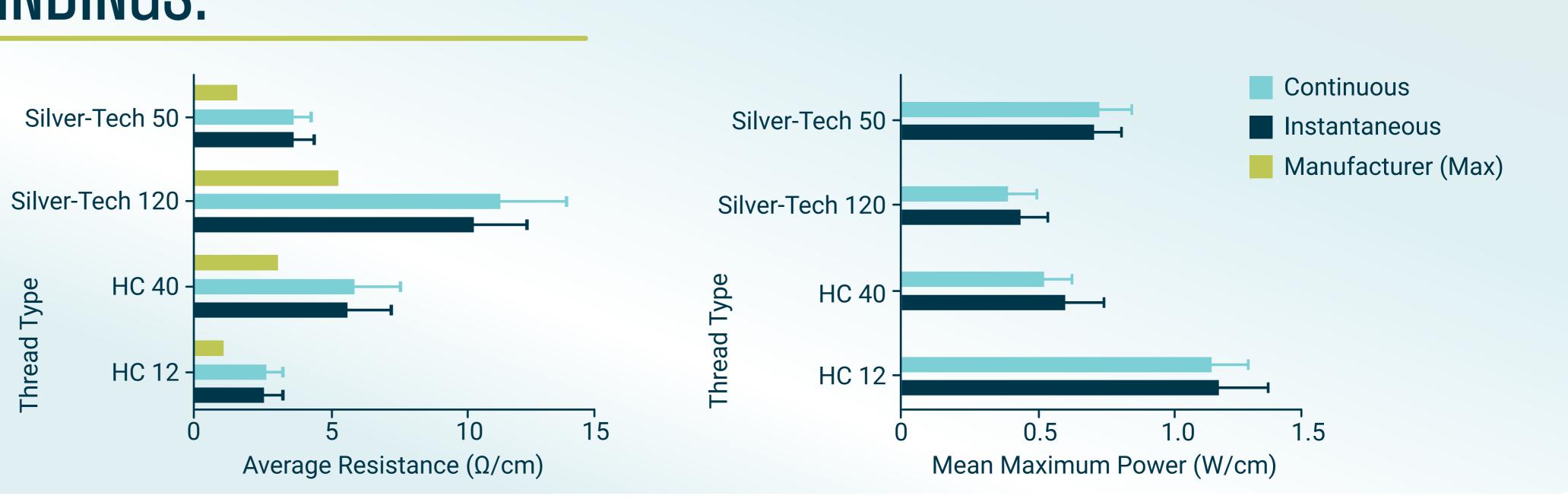
Current and voltage were used to determine maximum power sustained at failure, and time elapsed.



25 samples per thread 4 different threads 2 different test conditions

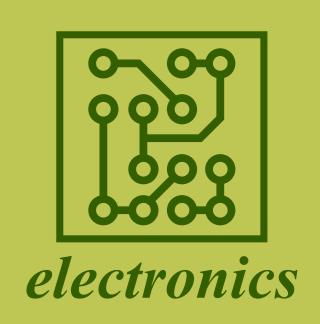
A.K. Stavrakis, M. Simić, G. Stojanović, "Electrical Characterization of Conductive Threads for Textile Electronics", Electronics, 2021, 10, 967. https://doi.org/10.3390/electronics10080967

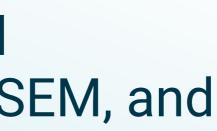
FINDINGS:

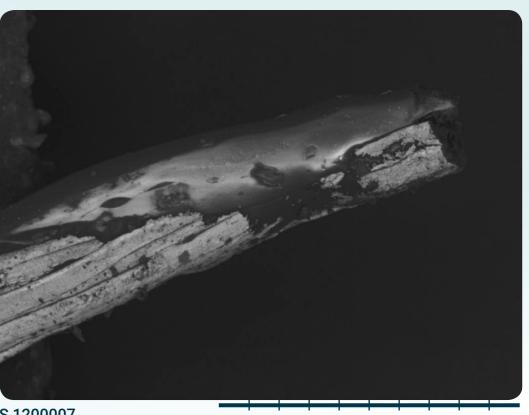


CONCLUSIONS:

Can sustain enough power for small circuits They start failing from 50 °C which is low Their resistance values are higher than expected Ag plating is problematic, as can be seen under SEM, and damage is permanent after meltdown.







S 1200007

11:10 D.8.0 x.300