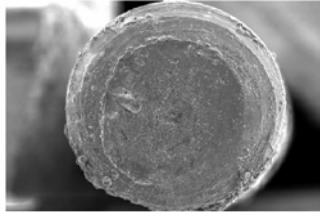


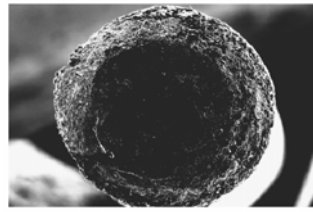


MICRO WELDING & TICAPS™

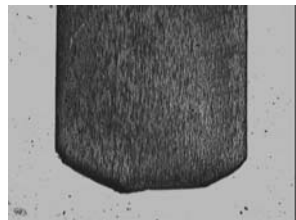
The University of Waterloo has independently tested TiCaps™ on nickel plated steel and found that they ‘stick’ less than the industry standard copper and class 20 copper alloys and that they have a longer life during micro resistance welding.



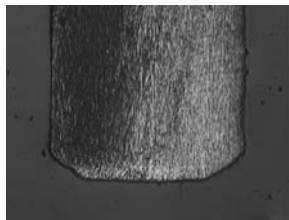
After 800 welds, CuCrZr.



After 1,300 welds, TiCap™



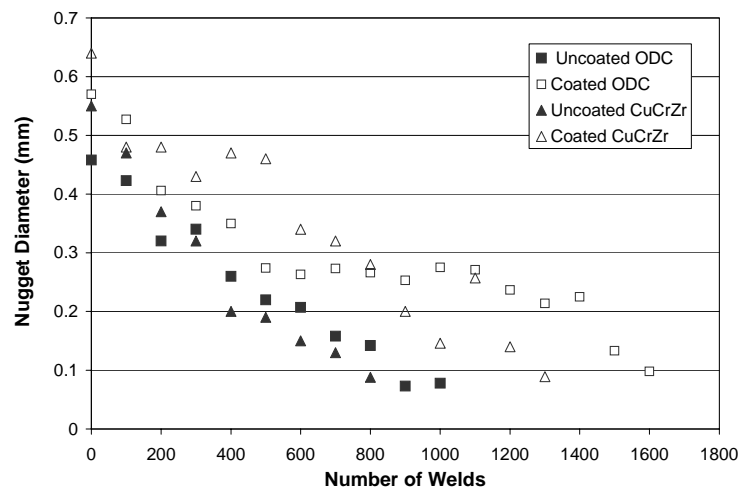
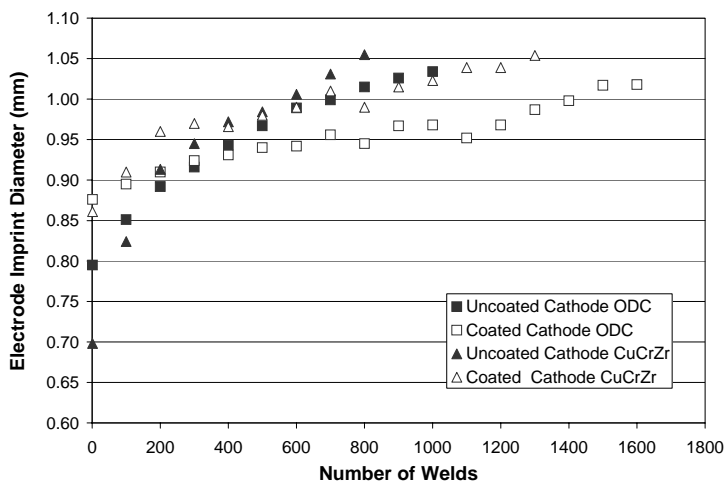
After 100 welds, CuCrZr.



After 1,300 welds, TiCap™

The study found that the patented **TiCap™ coating reduced sticking** by reducing the bondability of the molten metal to the electrode during welding. Also noted was the fact that **the titanium carbide (TiC) coating increased the tip life for both CuCrZr and class 20 dispersion strength copper electrodes by 70%**. The high melting temperature of TiC at 3,140°C, coupled with the fact that TiC is essentially a ceramic material and has a correspondingly lower reactivity with metals, helped explain the outstanding performance of the TiCap™.

The University of Waterloo prepared the charts below and the SEM photographs above. The two photographs on the left clearly show deterioration at an earlier stage and at fewer welds than the TiCap™ electrodes to the right. The graphs below show that TiCap™ coated CuCrZr and TiCap™ coated ODC (dispersion strengthened class 20 copper) last longer than uncoated electrodes. The graph to the left illustrates this by showing the electrode imprint of a nugget after the peel test.

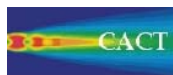


Huys Industries gratefully acknowledges the financial assistance and technical insights of:



National Research Council Canada

Conseil national de recherches Canada



Centre for Advanced Coating Technologies
Centre pour l'Application de Couches

For more information, call 1-416-747-1611 or e-mail us at sales@HuysIndustries.com