



Engineering, Operations & Technology
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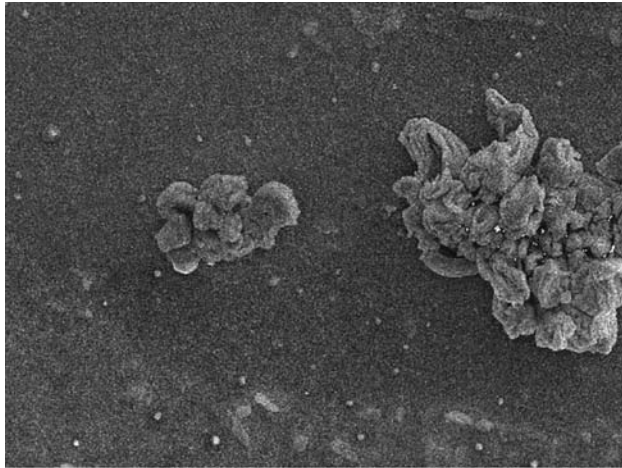
Research & Technology

Composition of Tin Whiskers on Tin-Plated Brass

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Boeing Research & Technology

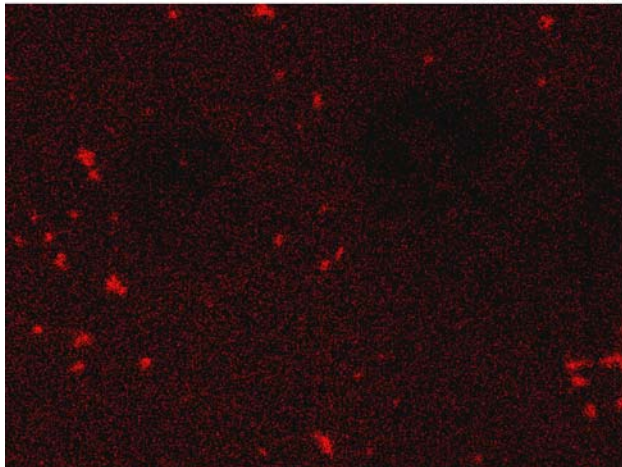
Tin Whisker Alert Group
May 26, 2010

EDS Maps of OSE on 4 Microns of Sn Plating on Brass

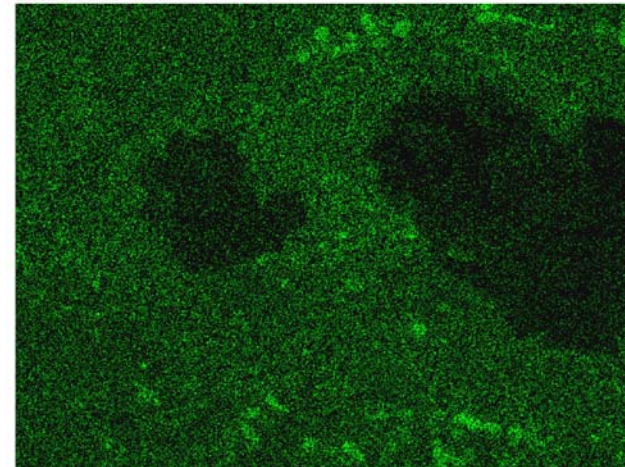


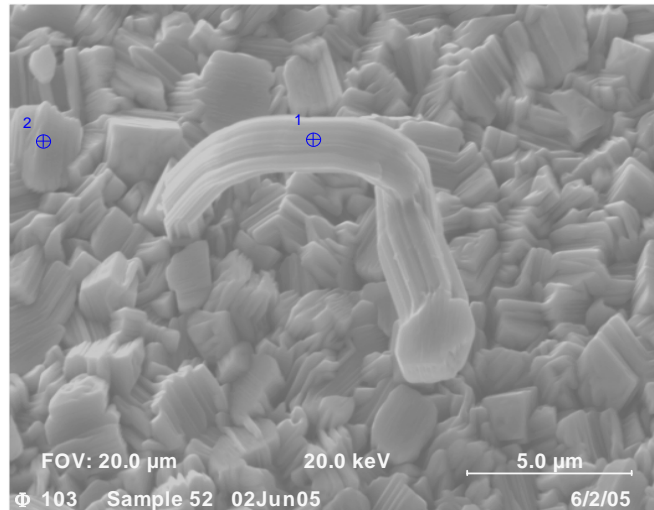
EDX SECONDARY IMAGE (AT 30Kv)
FROM THE SURFACE OF
COUPON

Cu X-RAY MAP



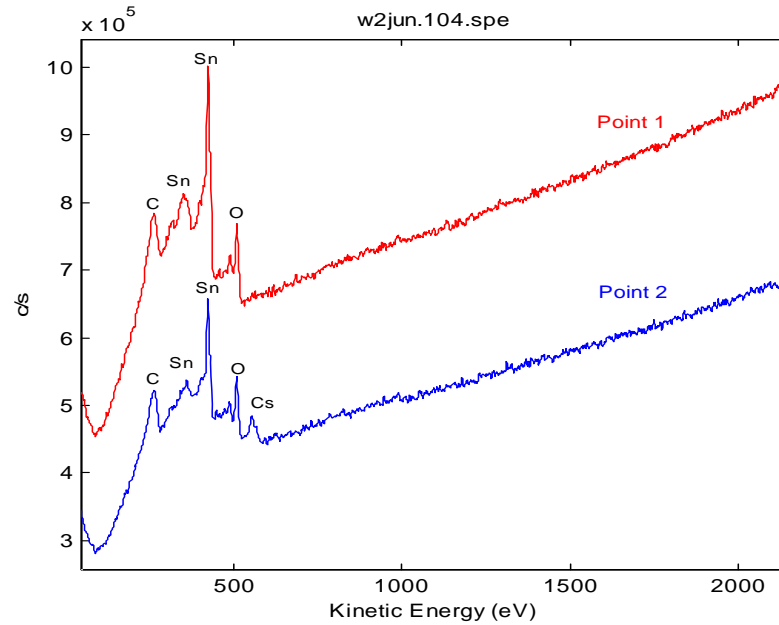
Zn X-RAY MAP





Whisker growing on a Matte Tin Plating on Brass

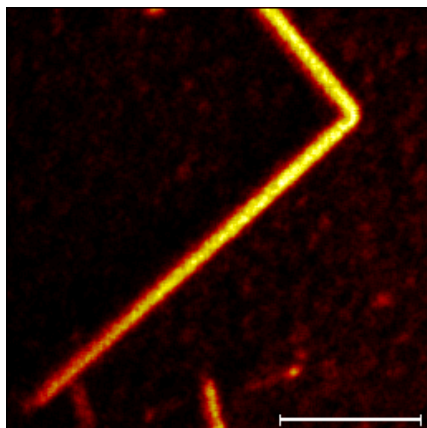
w2jun.104.spe: Sample 52 02Jun05 PHI
 05 Jun 2 20.0 keV 0 FRR 4.0686e+005 max 0.00 s
[Sur1/Area1/2 \(SG9\)](#)



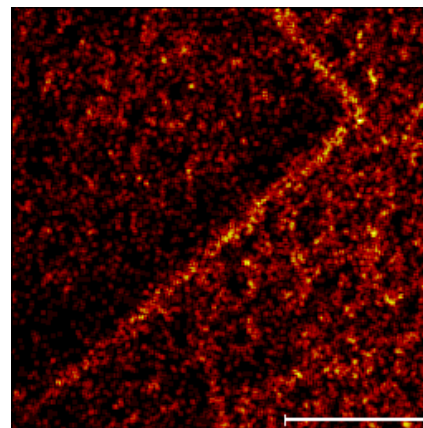
Auger Analysis of the Whisker (Point 1) and the Adjacent Plating (Point 2)

TOF-SIMS Maps of Whisker on Sn Plating on Brass

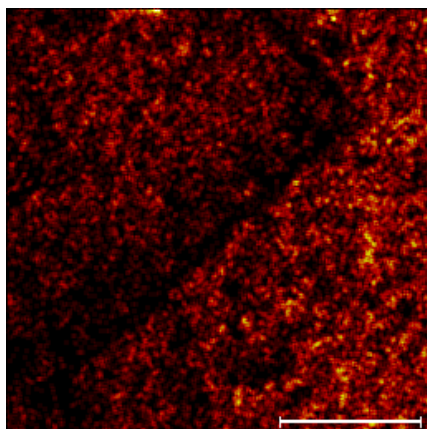
Note No Cu or Zn On Surface of Whisker



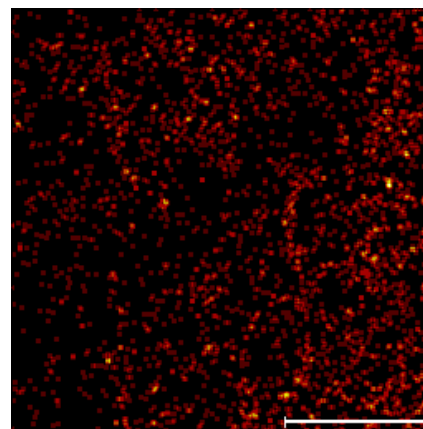
Sn - 119.92
Cts: 1234115; Max: 252; Scale: 10 μ m



Sn - 117.91
Cts: 110739; Max: 15; Scale: 10 μ m

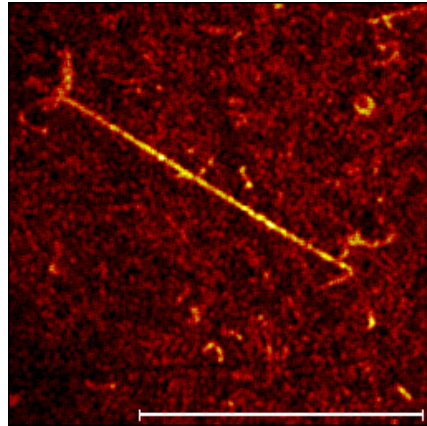


Zn - 63.93
Cts: 175109; Max: 22; Scale: 10 μ m

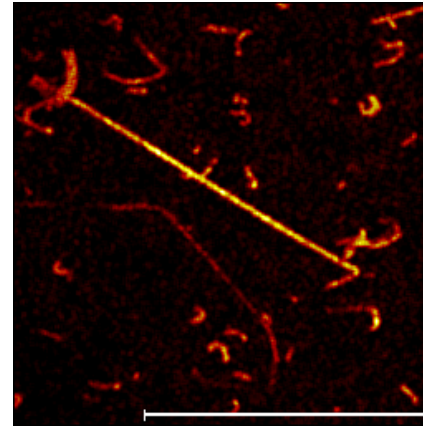


Cu - 62.93
Cts: 24394; Max: 7; Scale: 10 μ m

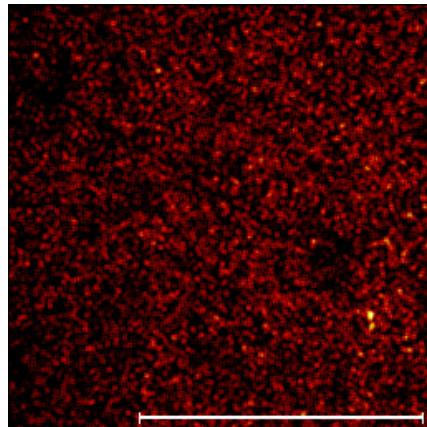
**TOF-SIMS Maps of Whisker on Sn Plating on Brass
After 60 Second Sputter - Note No Cu or Zn Inside of Whisker**



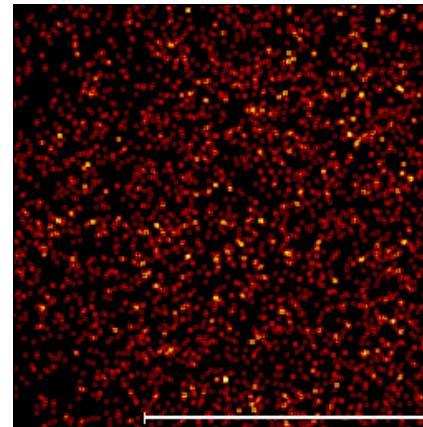
Sn - 119.92
Cts: 595140; Max: 64; Scale: 100µm



Sn - 117.91
Cts: 290966; Max: 84; Scale: 100µm



Zn - 63.93
Cts: 117572; Max: 17; Scale: 100µm



Cu - 62.93
Cts: 31768; Max: 6; Scale: 100µm