Case Study Quality Check of surface roughness and corrosion

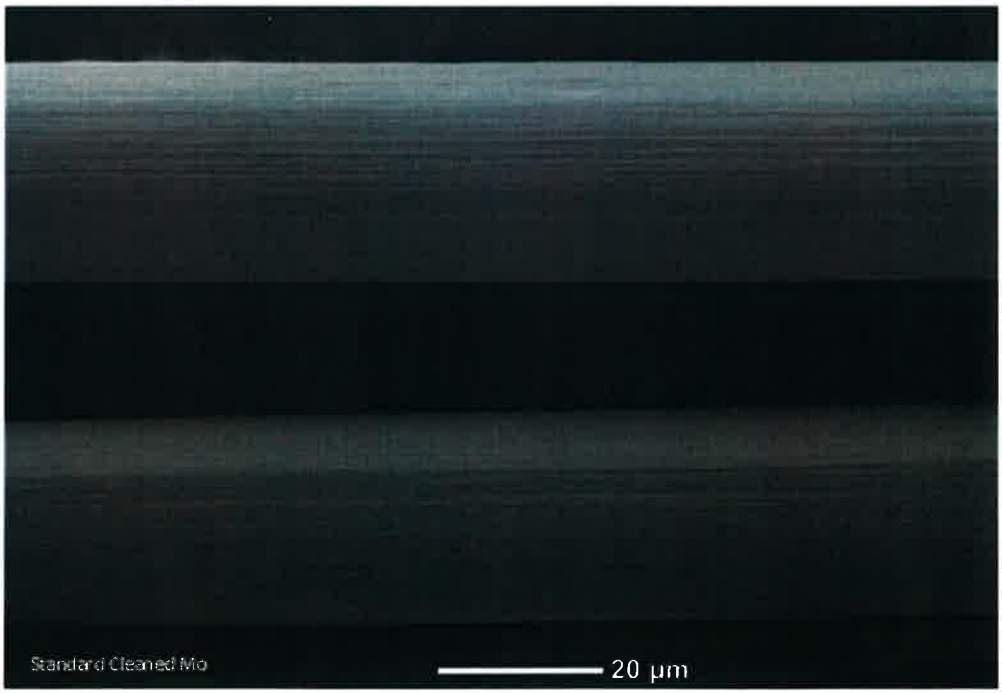
1.5 SEM (JCM 6000 instrument) on Cleaned wire – Instructions

One spool/ID will be checked after cleaning to determine how the surface is looking like in general (roughness, defects, and cleanliness). The surface will be compared with standard images after cleaning.

1. Take 1 piece of wire of 2 cm long and put it onto double-sided carbon adhesive tape.
2. Scan the wire at 300x magnification and take three images at random location at 1000x magnification.
3. Compare the image with a standard image of cleaning: 1) Standard, 2) Mix of rough and smooth surface, 3) Rough surface i.e., not acceptable – not approved.
4. Change from secondary electron mode to back scatter electron mode.
5. Scan the wire at low magnification (x300) and check if there is any carbon content on the surface.
6. Take 1 image at 300x magnification and save it
7. If the surface is dirty, carbon, notification to cleaning personnel and technology manager.

Standard Reference for Cleaned wire:

1000x:



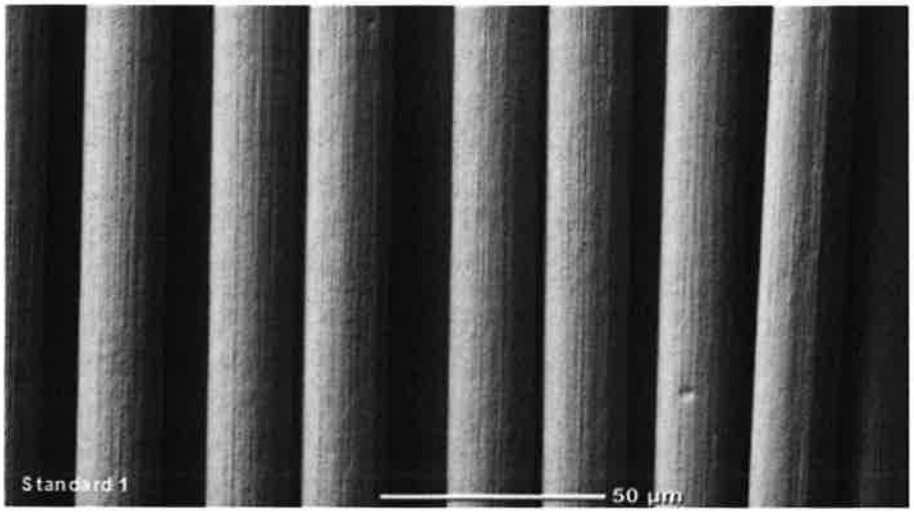
1.4 Surface roughness evaluation of Gold plated wire

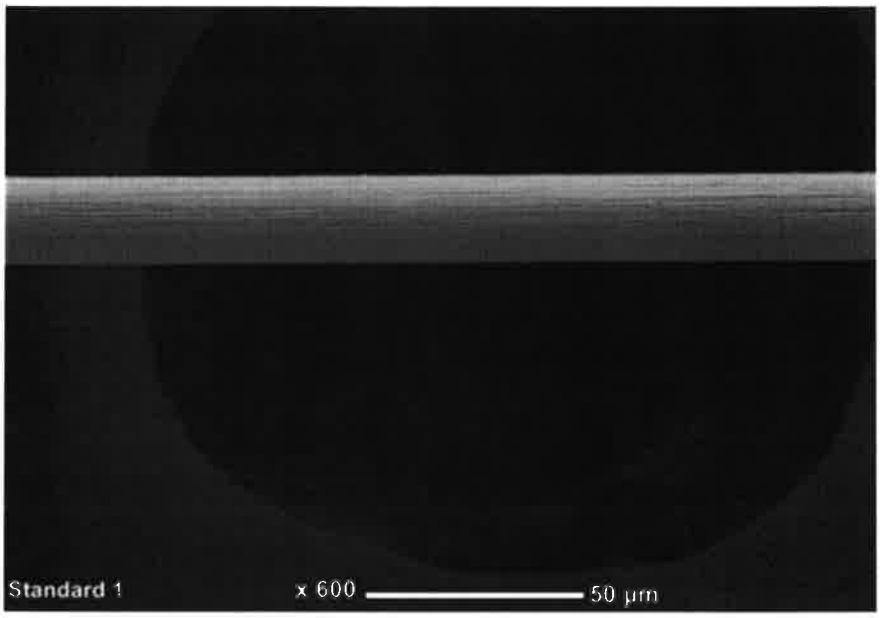
1. Compare and evaluate the three images that are taken under R3 (the small red spool) SEM with the reference surface images.
2. If the surface is similar in appearance as the reference image, assign (1) to the surface. The surface is OK.
3. If the surface seems rough, powdery/dotted/ then assign (3). The surface is not OK.
4. If the surface is the mixture of smoother and rough areas then assign (2) to the surface.

Reference surfaces to compare with:

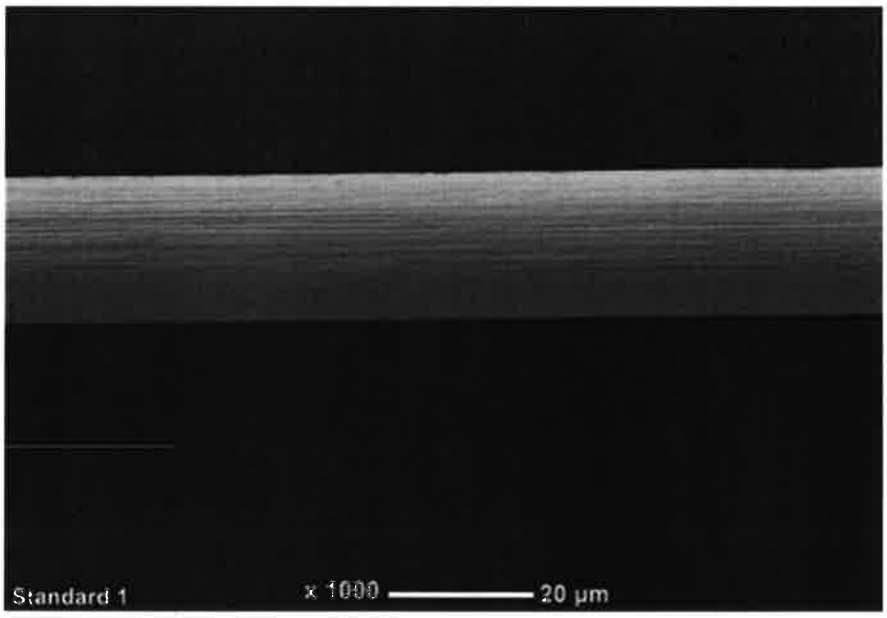
Acceptable Gold plated surface at different magnifications:

600x:





1000x:



- Luma to send an image at higher magnification at secondary mode instead of backscatter mode for approval as corrosion test images.

Corrosion test, SEM, using Secondary mode instead of Back scatter mode for approv