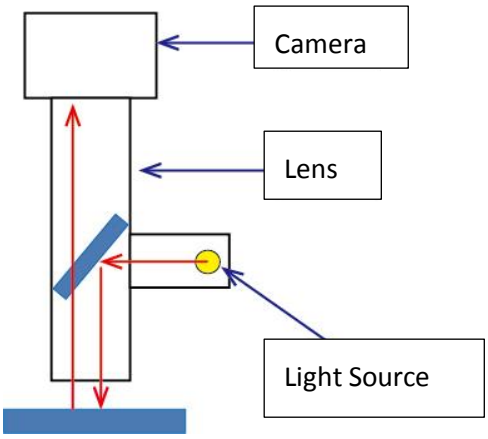
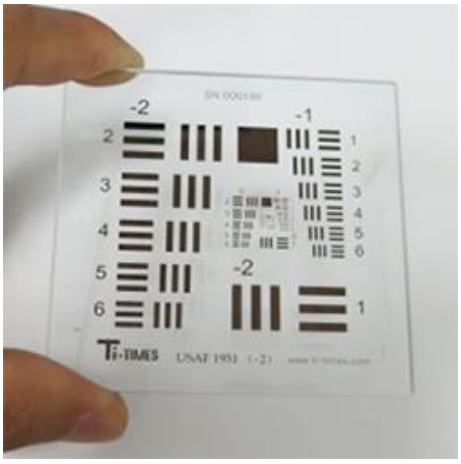
Coaxial illumination is a unique configuration illumination method that incorporates light into the optical path of the lens. （It is effective for observing mirror surface such as silicon wafer, plated surface, polished metal etc.）



Comparing coaxial lighting with bright-field lighting (ring lighting etc.), you can see the difference in the obtained images.



Below is a picture of a transparent glass plate with a test pattern chrome deposited taken. (left picture)

（coaxial illumination）

（Ring Light）

Ring illumination is more natural looking. But because of the higher reflectance of chrome deposition, the coaxial

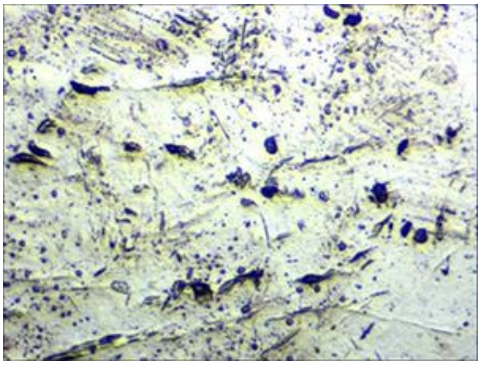
illumination makes the higher contrast between the glass part and the pattern part.
Depending on the inspection content, coaxial illumination may be beneficial. (In the above case, if you are inspecting scratches or defects on chromium evaporation, the coaxial illumination may be easier to inspect.)

＜When coaxial lighting is effective＞

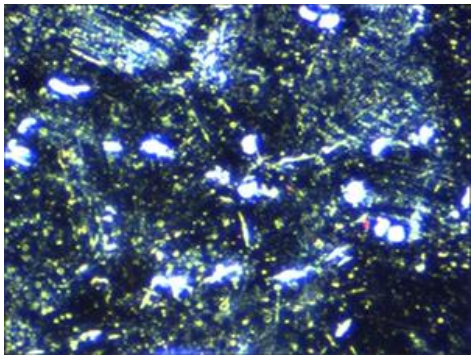
Basically, coaxial illumination is used when observing specular reflection (specular surface) or specular reflection on a flat surface.
It makes the difference in reflectance strong contrast.

・Plated metal surface

（coaxial illumination）



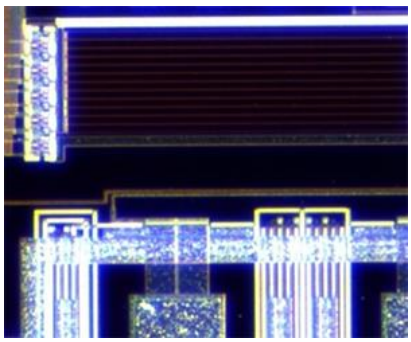
（Ring Light）



・Pattern on silicon wafer

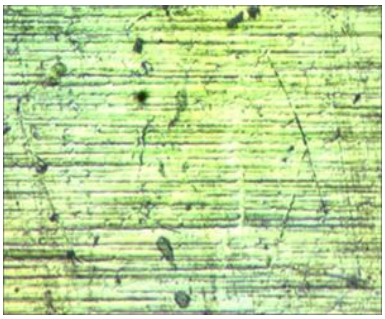
（coaxial illumination）

（Ring Light）

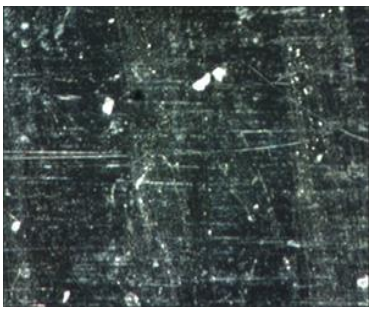


・Electrode (gold plating part)

（coaxial illumination）



（Ring Light）



＜When it is better not to use coaxial illumination＞

There is no difference in surface reflectance for highly diffuse objects (paper, wood, sandblasted resin, etc.)
For this reason, coaxial illumination will result in an image with no contrast.
Also, the hotspot is generated in the image due to the perfect diffusion property (Lambert) of the object.
(Phenomenon in which the center part glows brightly)

・White paper（Black character printing）

（coaxial illumination）

（Ring Light）