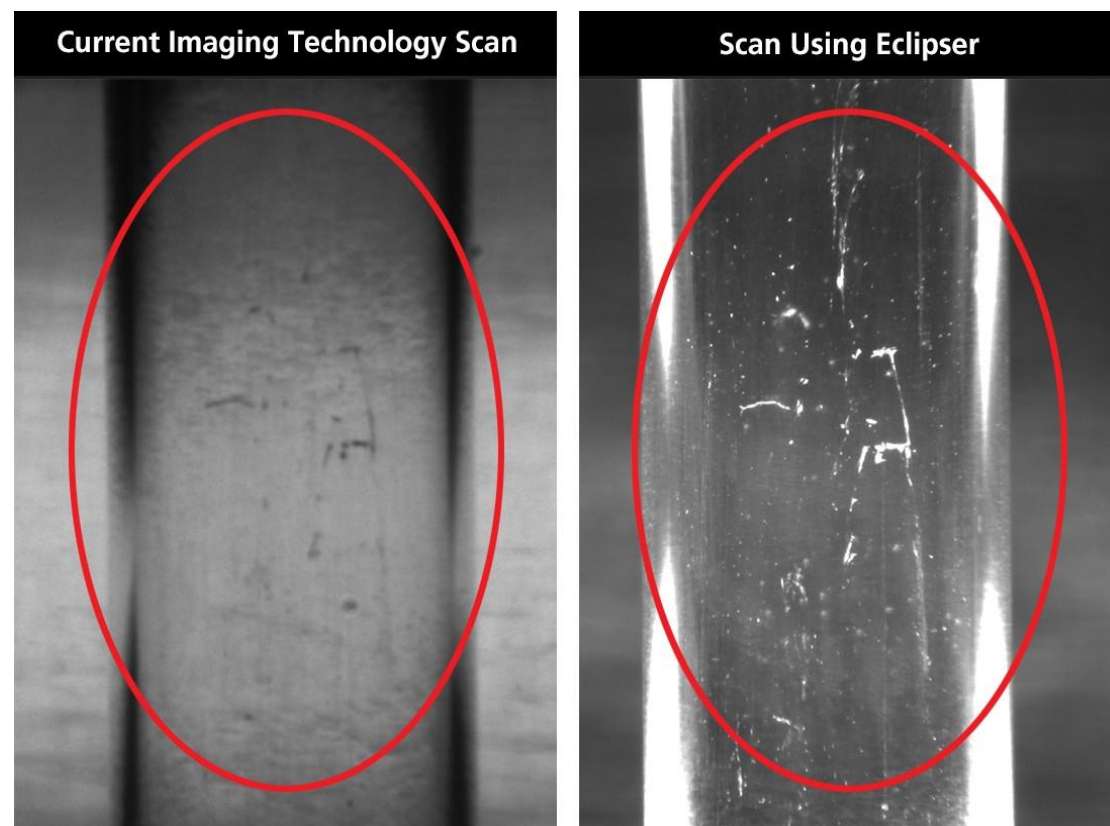




Fundamentals of Industrial Measurement Technology

Illumination



ProDSP Post Series Nr.19.



Why is illumination the most important part of an optical measurement system?

A camera can only interpret what the light makes visible. This is why choosing the right illumination is often the most critical decision in the entire system.





What should be considered?





Highlighting the parameter to be measured

- The goal is to **make** certain **surface** details – such as an edge, fracture, scratch, or texture – **clearly visible**.
- This is strongly influenced by the **material, color, and orientation** of the surface.





Homogeneity

- Uniform light distribution is essential for **stable, repeatable results.**





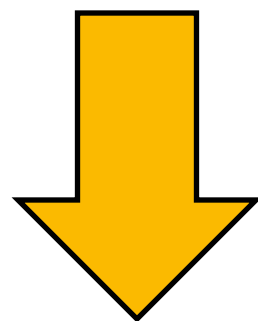
Spectral purity

- Industrial light sources must have a stable and **well-defined spectrum**.
- **Different wavelengths** highlight **different surface** phenomena.





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