FILM LAYER THICKNESS MEASUREMENT

OPTONIKS
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Company Overview

Optoniks supplies high accuracy optical inspection solutions to markets where denser components, tighter tolerances and daunting quality control issues drive competitive advantage. The company's primary markets are semiconductor manufacturers, life science technologies and film/paint coating industries.

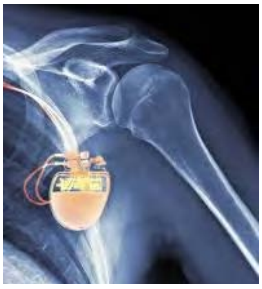
Optoniks uses a combination of algorithms and structured light techniques developed in collaboration with Intel and UNC Charlotte's Center for Precision Metrology. The patented process enables the cleanest, fastest and least invasive data set for modeling and analysis across a range of component characteristics and materials.

A 3D socket measurement solution developed in collaboration with Intel was recently accepted and installed in Intel's AMCL lab for refinement in their semiconductor supply chain. A Boston pharmaceutical research technology supplier is pursuing a solution for automated high accuracy detection of defects across a range of part characteristics. An automated production line supplier wants tighter quality control inspections.

FILM LAYER THICKNESS MEASUREMENT

Optoniks' next family of products – film layer thickness (FLT) measurement – evolved from Intel's need to measure solder resist layers without cutting or needing top/bottom access. Optoniks successfully uses advanced optical distortion techniques and algorithms to achieve non–destructive measurement of thin layers in the measurement range of 20um to 2mm.

FLT is for films/layers with rough surfaces and/or scattering materials. Optoniks' thickness measurement systems can measure film layers used for **medical device coatings** and the **paint layers used in aerospace and automotive applications**.



Biocompatible layers for implantable cardiac device

Automotive/Aerospace layers for looks and performance

Once introduced, the FLT series of products will provide a leading edge of technology in films / layers with rough surfaces and/or scattering materials non-destructively fast and precise.

intel UNC CHARLOTTE CTI SYSTEMS

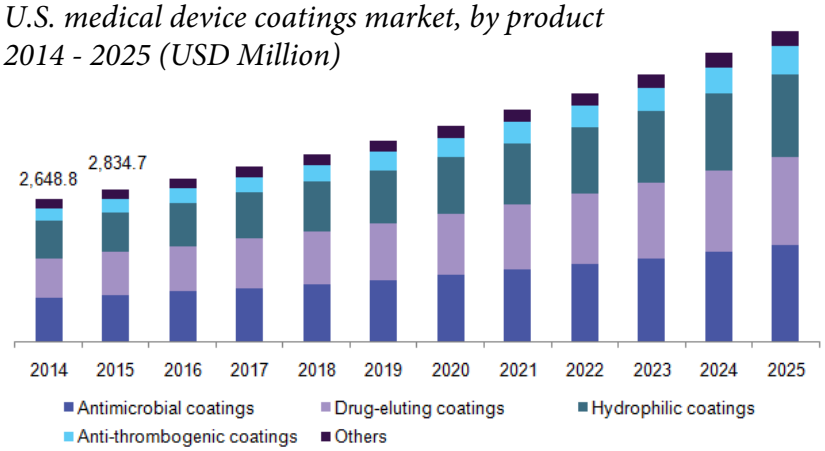
Turbid Film Layer Thickness Measurement

While smooth translucent films already have several measurement solutions in the market, measurement of films with rough surfaces and/or turbid mediums (producing a high level of optical scatter), is not well served. Currently the measurement of rough and/or turbid layers is only addressed if both layer sides have direct access, or by destructive techniques, restricting speed and quality of in-line production.

Film and Paint and Medical Coatings involve turbid challenges

Medical implants must be coated with biocompatible materials. Challenges include scattering from the metallic surface of the implant, the roughness and imperfections of the underlying materials and the small size and steep curves of the devices.

U.S. medical device coatings market, by product
2014 - 2025 (USD Million)

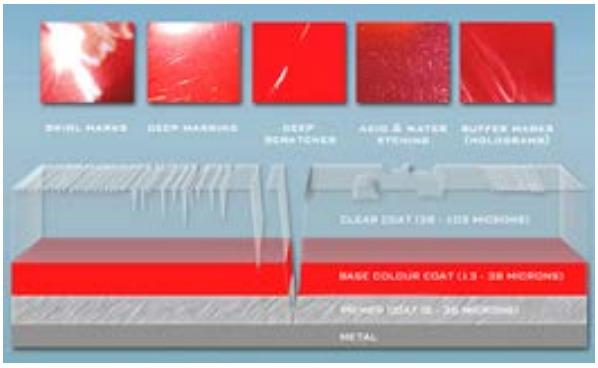


Medical coating is a complicated and growing specialist market segment

as multi-material devices require versatile coatings and specialist expertise

Paint Coatings: pigmentation, surface texture, multi-layering, adhesion, performance and durability all contribute to turbidity and measurement complications.

Optoniks' ability to measure thin layers down to 8um avoids the over-application of paint/film layers, leading to substantial waste reduction and cost/performance benefits



Paint Defects and Coating Thicknesses

Optoniks technology meets Intel's design requirements for accurate and reproducible film layer thickness measurement of turbid layers

Operating Specs and Product Features	***TFLTSS100***	***TFLTMS100***	***TFLTMM100***
Measurement Type	Single Point Thickness	Multiple Point thickness, Selective	Multiple Point Thickness, Area
Measurement Situation	Stationary, after application	Stationary, during application processes	Moving, during application
Layers Measured	Single layer	Single layer	Multiple layers
Lowest Thickness	8 *um*	8 *um*	8 *um*
Lateral Resolution	N/A	80 *um*	10 *um*