

## Accurate Fluorescein Optical pH Sensing of Biofilms on Teeth and Food

**This technology offers accurate optical pH sensing for biofilms using multiple wavelength emissions for data processing. This system can prevent tooth and gum disease before it occurs and produce proper patient care.**

### What is the Problem?

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Biofilm formation is a major problem in oral healthcare, food processing environments and on surgical instruments in a medical environment. Oral biofilms may be a medium that enables tooth decay or the tooth decay process of acidification and enamel demineralization. It is known that pH measurements can indicate the risk of biofilm formation and thus tooth decay in patients. However, technologies for examining and measuring this oral biofilm in early disease stages do not exist, leading to biofilm formation and growth.

### What is the Solution?

The solution is a system and method for accurate optical pH sensing of biofilms. The pH level is measured using multiple wavelengths emitted by a fluorescent substance (fluorescein). This device emits an excitation light, which collects emitted light and processes the data. This can be done in normal lighting conditions at a dentist's clinic.

### What is the Competitive Advantage?

Existing solutions rely on treating the cavities once they form, instead of preventing them before they occur. Preventing tooth and gum disease before they occur would increase the quality of care and the patient outcomes and provides a differentiating service for a care provider. Care could move towards prevention instead of treatment.

### Patent Information:

[WO2020018946A1](#)

### References

### Technology ID

BDP 8684

### Category

Selection of Available

Technologies

Hardware/Optics/Photonics

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### Learn more



1. Manuja Sharma, Lauren K. Lee, Matthew D. Carson, David S. Park, Se W. An, Micah G. Bovenkamp, Jess J. Cayetano, Ian A. Berude, Leonard Y. Nelson, Zheng Xu, Alireza Sadr, Shwetak N. Patel, and Eric J. Seibel(44774) , <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9509691/>,  
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