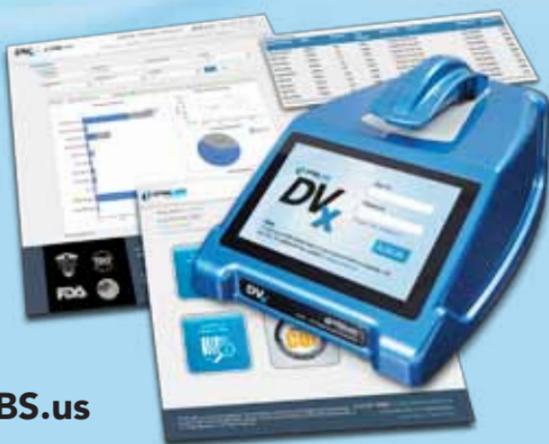




The most advanced on-site drug verification solution anywhere

The DVx versus
a Refractometer



DYNALABS.us

The DVx versus a Refractometer

What is a refractometer?

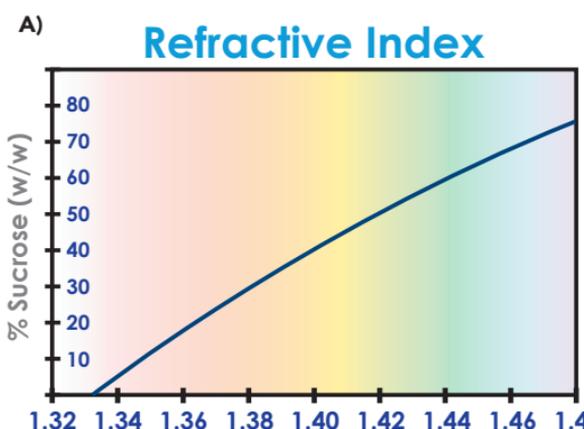
A refractometer is a device that measures the refractive index (RI) of light; that is, the degree to which light changes direction as it passes through one medium, and into another. The most well-measured RI is from air into water.

What are some of the limitations of a refractometer?

Accurate refractive indexes for new compounds are generated by first determining an initial standard RI, then comparing this to measurements taken over time. The initial standard RI degrades into the accurate RI as you perform trending analysis calculations.

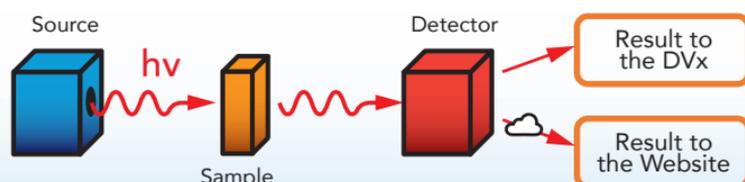
An accurate RI may help you detect diversion at lower concentrations of active pharmaceutical ingredients, where the results from a refractometer are not selective at higher concentrations. This is because refractometers are curvilinear in their response (*illustration A*). They can be easily fooled by a seasoned diverter!

Undiluted fentanyl and sufentanil have the same RI as water; this inhibits the ability to detect diversion or specificity of these actives. Similarly, undiluted morphine has the same RI as ethanol. Different combinations of replacement liquid can reproduce any needed refractive index.



How does the DVx work?

The DVx is an easy-to-use spectrophotometer that detects the absorption of light at a specified wavelength for an analyte of interest, such that both the identity and concentration of a drug are determined at the same time. At that wavelength, using a traceable and primary reference standard, the drug can be validated – shown to be specific, selective, and sensitive for the identification and linear for the concentration.

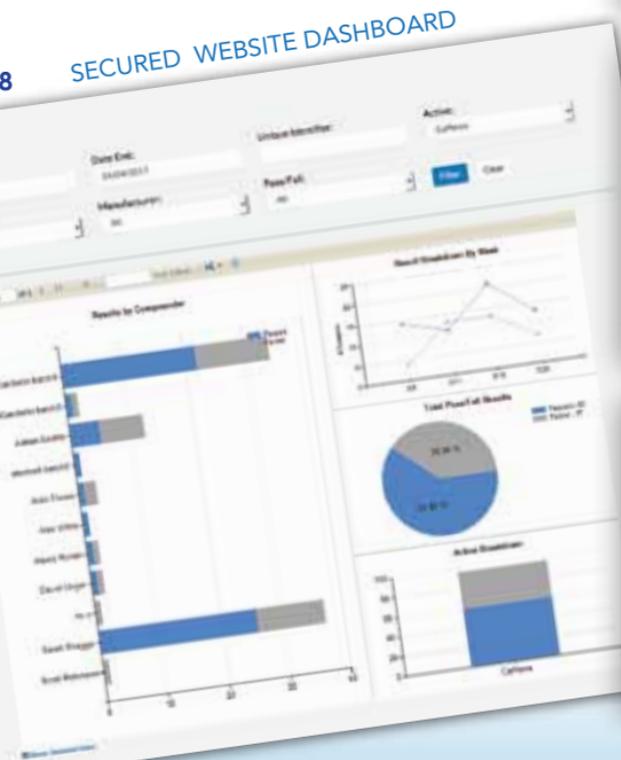


What are the advantages to the DVx?

The placement of small sample amounts - 2µl or 0.5ml - into a sample holder gives a result in about 4 seconds. The DVx machine provides a UV spectrum of the sample. This is then compared to the primary reference standard absorbance and wavelength stored in the DYNALABS' cloud. Adjustments for common diluents are made to ensure not only the absorbance but the overall spectral profile match. A mismatched spectrum red flags the sample.

The DVx is more than an instrument; it is a fully inclusive service. DYNALABS expert customer service team responds to all questions and concerns by phone or by email. Also, any problem samples can be sent to the core lab for further analysis, if needed.

DYNALABS DVx™ brings the analytical lab into your pharmacy. Our onsite Drug Verification system reduces mortality due to adverse drug events, medication errors, and drug diversions.



“Deficiencies such as the inability to distinguish sterile water from fentanyl or sufentanil have been discounted in somewhat cavalier fashion.”

Use of refractometry to identify opioid-containing solutions

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