



## iCheck Chroma 3: TECHNICAL COMMUNICATION & VALIDATION

### iCheck Chroma 3: A Portable Solution for Measuring Vitamin A in Edible Oils

The iCheck Chroma 3 is a portable, multi-wavelength photometer specifically designed to accurately measure Vitamin A content in a wide range of edible oils and fats. This pre-calibrated device is widely used by manufacturers, quality control labs, and field operators to monitor oil fortification. Requiring only a small sample (0.1 mL), it delivers quick, reliable results, making it an ideal solution for internal quality control (QC) and ensuring compliance with international fortification standards.

### Performance and Validation

In validation studies, the iCheck Chroma 3 was compared to High-Performance Liquid Chromatography (HPLC) across various oil types, including palm, rapeseed, groundnut, and soya oils. Results showed a strong correlation between iCheck Chroma 3 and HPLC, with  $R^2$  values of 0.99 for palm oil and above 0.96 for the other oils tested ([Rohner et. al. Vitam. Nutr. Res. 2011](#); [Renaud et al. Int. J. Vitam. Nutr. Res. 2013](#); [iCheck Chroma 3 Whitepaper](#)). A recent study by Glasgow University confirmed its accuracy for Vitamin A detection, showing strong evidence for its use in fortified foods ([Palma-Duran et al. Food Anal Methods 2024](#)). These results demonstrate that iCheck Chroma 3 provides performance comparable to laboratory-based methods for measuring Vitamin A content in edible oils.

The iCheck Chroma 3 is pre-calibrated, meaning no additional calibration is needed, and it is ISO 9001:2015 certified, ensuring compliance with international quality standards. The device delivers high performance, with a 96% recovery rate for added Vitamin A in edible oils. Trueness—the measure of how close the results are to the true value—is also 96%. Precision is expressed by a Coefficient of Variation (CV) of up to 13%, measured at a 95% confidence level, ensuring consistent and reliable results. For more information, review the [iCheck Chroma 3 Performance Guide](#).

### Industry Adoption

The iCheck Chroma 3 is trusted by major industry players such as Nestlé, Cargill, and Wilmar Africa Ltd., as well as organizations like the World Food Programme (WFP), GAIN, and Nutrition International. These organizations rely on the device to meet fortified oil manufacturing requirements and ensure quality control in both field and lab environments. The iCheck Chroma 3 has also been cited in key publications and industry manuals, including the [World Food Program Technical Expectation – Manufacturing of Fortified Vegetable Oils, 2024](#) and the [World Health Organization's Guides on Monitoring Flour Fortification 2021](#).