Stray light Calculations for Absorbance

This document calculates the contribution of stray light to the absorbance signal and shows the non-linear response at high absorbance (concentration).

Definitions:

$$M := \frac{mole}{liter} \qquad P_{in} := 1$$

Beer's Law Constants

$$\varepsilon := 300 \cdot \frac{liter}{mole \cdot cm}$$

$$b := 1 \cdot cm$$

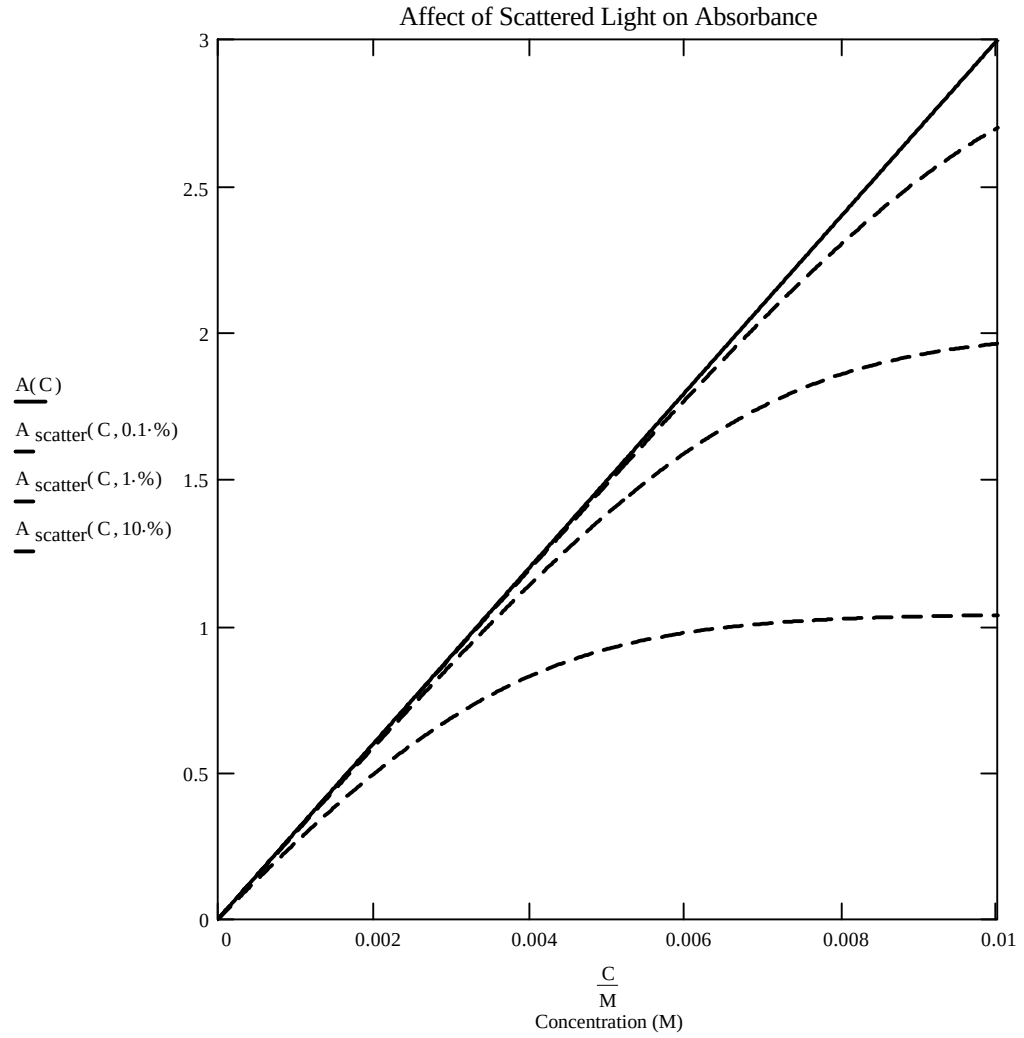
$$C_{max} := 0.01 \cdot M$$

Beer's Law Calculations

Concentration Range $C := 0 \cdot M, \frac{C_{max}}{500} .. C_{max}$

Beer's Law $A(C) := \varepsilon \cdot b \cdot C$

Correction for stray light $A_{scatter}(C, stray) := \log\left(\frac{P_{in} + P_{in} \cdot stray}{10^{\log(P_{in}) - A(C)} + P_{in} \cdot stray}\right)$



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