Introducing QuickBlu™: Revolutionizing Chlorine Detection with Enhanced Efficiency, Precision, and Extended shelf life

Product description

Chlorine has played a pivotal role in safeguarding public health for over a century, particularly in the disinfection of drinking water, agricultural products, and food processing. With an annual consumption exceeding 80,000 tons in the United States and Canada alone, maintaining optimal chlorine levels is paramount for preventing waterborne illnesses and upholding public well-being.

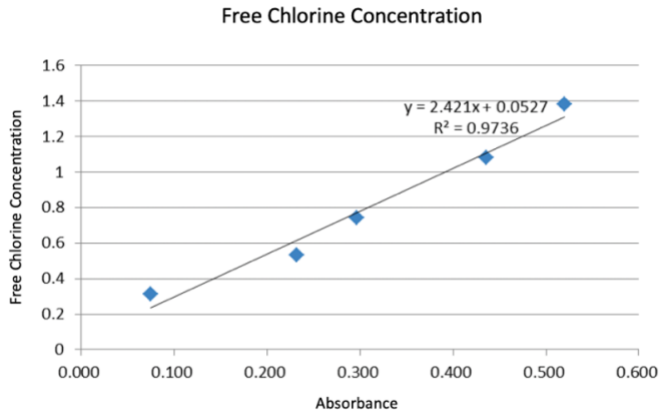
Traditionally, the DPD (N,N-diethyl-p-phenylenediamine) method has served as the go-to technique for determining chlorine concentration, relying on a color-forming indicator. However, its reliance on additional buffers and time-consuming procedures, coupled with its short shelf life, has posed challenges.

Enter Onestep Laboratories with a groundbreaking solution: QuickBlu™, a stable TMB (3,3',5,5'-Tetramethylbenzidine) formulation set to transform chlorine concentration determination. Unlike conventional DPD methods, QuickBlu™ distinguishes itself with its non-toxic composition, heightened sensitivity, and unparalleled convenience. With QuickBlu™, there's no requirement for pH adjustments or supplemental component additions during sample reactions, streamlining the testing process. Moreover, its remarkable two-year shelf life ensures prolonged reliability and cost-effectiveness.

Recognizing the limitations and complexities inherent in total chlorine measurement experiments utilizing TMB powder, we embarked on a quest to refine the method further. Drawing inspiration from the principles of the TMB liquid reagent colorimetric method, akin to the widely used DPD detection method, our experiments sought to assess the viability of QuickBlu™ TMB colorimetric reagent for total chlorine measurement. Our investigation focused on determining its compatibility with spectrophotometers and evaluating its stability and linearity. The TMB colorimetric reagent swiftly reacts with chlorine, producing a discernible blue hue. Within a defined range, the color intensity correlates directly with concentration, enabling precise measurement at 630nm using a spectrophotometer.

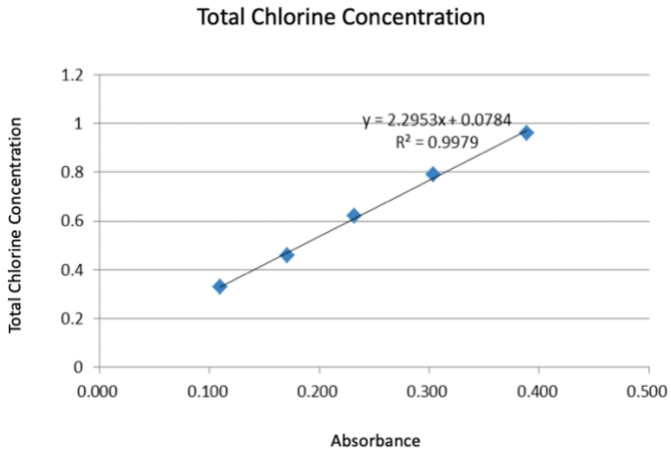
Experiment 1:

Free chlorine detection with 2mmol/L QuickBlu™ TMB					
No.	Absorbance	Free chlorine concentration detected with TMB (ppm)	Free chlorine Concentration of similar water samples (ppm)	pH of similar water samples	pH after detection with TMB
1	0.110	0.31	0.30	7.625	3.756
2	0.197	0.57	0.60	7.661	3.693
3	0.270	0.71	0.75	7.771	3.742
4	0.447	1.18	1.21	7.622	3.850
5	0.541	1.41	1.39	7.634	3.856



Experiment 2:

Total Chlorine Detection with 3mmol/L QuickBlu™ TMB							
No.	Absorbance	Total Chlorine Concentration detected with portable device (ppm)	TMB pH	pH of water samples	pH after detection with TMB	Total chlorine concentration detected with TMB （ppm）	Difference
1	0.110	0.33	3.5	5.4	3.9	0.331	0.001
2	0.171	0.46		5.3	3.9	0.471	0.011
3	0.232	0.62		5.3	3.9	0.611	-0.009
4	0.304	0.79		5.5	3.8	0.776	-0.014
5	0.389	0.96		5.4	3.8	0.971	0.011



Conclusion:

The QuickBlu™ TMB colorimetric reagent demonstrates excellent linearity in experimental settings. Additionally, its superior convenience stems from the absence of pH adjustment requirements and the elimination of supplementary component additions during water sample reactions. Contrasted with the conventional DPD method for total chlorine measurement, the TMB method offers notable advantages, including the elimination of the need for a buffer solution and an impressive shelf life of two years with excellent stability.