## The Intelligent Colorimetric Timer Indicator Systems to develop label Packaging Industry in Egypt

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## **Abstract:**

Attention to the food packaging has become a radical with the need to look for non-traditional packaging solutions. Therefore, this need arises to search for tools to achieve sustainability, particularly in the label technology field. Accordingly, this paper addresses the service as of the tools that help achieving development thru the colorimetric label indicator system manufacturing processes, inks and types of those systems and its application in many packaging fields especially in food and medicine. These considered solutions and systems which are courtesy of corporations are performed on environment and atmosphere friendly label and the development treatments that are made on the products using chemical and physical interactions and its effects on the printed label colorimetric characteristics. Hence, the validation of the paper problem is to bring attention to the new colorimetric indicator systems as one of the most recent label packaging solutions that will help to achieve development the Egyptian packaging market, the importance of the paper is to confirm the proposed indicator label manufacturing, how it can save millions of people lives and the best of them to use. The paper aimed to determine the potential optimization of using timer label in different fields of packaging in Egyptian market to conform to the international market.

## **Keywords:**

Smart Packaging, Intelligent Packaging, Smart Label, Timer Label, Package Indicator Systems, Freshness Label, Intelligent Ink, Modified Atmosphere Packaging, Antimicrobial Packaging, Food Waste.