

## Smart Phosphorous Pigments Technology and Its Impact on the Glass in Hospitality Establishments in Egypt

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### **Abstract**

*Hospitality services are thriving in almost any locality these days. This mainly driven by both business and leisure visits in different areas. When it comes to hospitality service providers, hotels and other lodging businesses are definitely on the front line. From a customer perspective, the quality of service is naturally one of the most important factors that will determine the popularity and sustainability of the hotel business. However, from a marketing perspective, before customer service comes a clear branding. This is where a good hotel signage comes in. if a hectic world of travelling; the essence of this signage can be easily overlooked. However, the power of good signage actually has an impact of the subconscious of existing and potential customers. It is not surprising, however, how signs can be easily taken for granted. Even business owners are guilty of this. When starting out with a business, the first few things considered are location, design, concepts, among others. The signage is often a decision left for another division. Therefore, there is need for developing signage by using long persistent pigments technology LPPs.*

### **Keywords**

- Sol–Gel Route
- Smart Phosphorous Pigments
- Rare Earth Elements
- Hospitality Establishments
- Inorganic Nanoparticles

### **Introduction**

Hospitality services are thriving in almost any locality these days. This mainly driven by both business and leisure visits in different areas. When it comes to hospitality service providers, hotels and other lodging businesses are definitely on the front line. From a customer perspective, the quality of service is naturally one of the most important factors that will determine the popularity and sustainability of the hotel business. However, from a marketing perspective, before customer service comes a clear branding. This is where a good hotel signage comes in. if a hectic world of travelling; the essence of this signage can be easily overlooked. But, the power of good signage actually has an impact of the subconscious of existing and potential customers.

It is not surprising, however, how signs can be easily taken for granted. Even business owners are guilty of this. When starting out with a business, the first few things considered are location, design, concepts, among others. The signage is often a decision left for another division. So there is need for developing signage by using long persistent pigments technology LPPs.

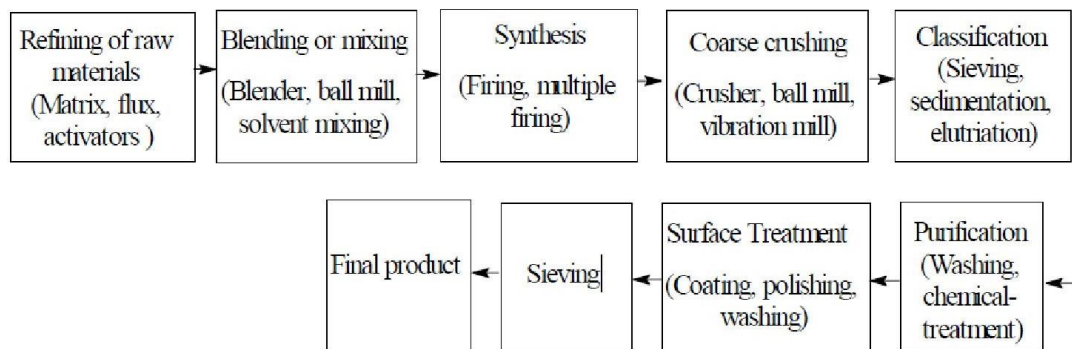


This need highlights the research problem which is not using the long persistent phosphors for producing glass signs in hospitality establishments. That highlights the importance of this research in:

- Confirming the importance of the signs for hospitality establishments as one of the most important factors for its success.
- The importance of long persistent phosphors and its functional and aesthetic impact on glass signs design in hospitality establishments.

Presently, the word phosphorescent is defined as a phenomenon in which the electronic state of a substance is excited by some kind of external energy and the excitation energy is given off as light. Here, the word light includes not only electromagnetic waves in the visible region of 400 to 700 nm, but also those in the neighboring regions on both ends, i.e, the near- ultraviolet and near- infrared regions. The synthesis method of LPPs plays a significant role in determining the features of microstructure and afterglow properties of the pigment. These methods are solid state reaction and sol-gel technique.

Solid–solid reaction, which occurs between powders in the solid state, has been the most widely used approach for the preparation of LPPs including oxides, (oxy)sulfide and (oxy)nitrides because it is comparatively simple, very suitable for mass production, and it is easy to obtain a long persistent duration.



Solid State Reaction synthesis of long persistent phosphors

The sol–gel process has attracted much attention in synthesizing inorganic nanoparticles. The main procedures include the sol–gel route (based on the hydrolysis and condensation of molecular precursors), the gelation route (based on concentration of aqueous solutions containing metal-chelates) and the polymerizable complex route. Generally, this process uses metal salts or alkoxide as precursors, citric acid as a chelating ligand, and alcohol as a cross- linking agent to form a polymeric resin on the molecular level.

#### Sol–gel synthesis of long persistent phosphors

Using phosphorescent glass to produce luminescent glass signs in hospitality establishments add more value to these establishments as the hotel with memorable signage has higher chances of being identified as one of the landmarks of the locality.

This research aims to use long persistent phosphors for designing glass signs and to solve the research problem and achieve the aim of this research; types of signs that can be used in hospitality establishments have been examined. The research proposes designs for room number signs and emergency exit signs using the long persistent phosphors. Also proposes using glass pebbles treated with long persistent phosphors for decorating garden sidewalks in Strand Taba Heights Hotel. The hotel located in Taba, South Sinai, Egypt.

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