

## ***PRODUCT DEVELOPMENT AND PRODUCT CHEMISTRY***

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Ingredient selection and good synthesis practice are good starting points for any product development; it is usually seen as the most important stage of any product development. There are several stages that one has to overcome in order to put together the right template for product development. We will try to discuss the importance of ingredient selection and knowledge of application. The use of key ingredients such as EO and PO in product synthesis, their role in the overall performances of emulsion formation and how they can influence active ingredient delivery; The role of EO/ PO in irritation reduction in an emulsion and the delivery of Lipophylic and Hydrophylic actives. We will examine the nature of reaction and importance of these materials. Irritation is one key item that is constantly dealt with by cosmetic chemist developing relaxer formulae. This discussion will throw some light into minimizing relaxer emulsion irritation.

### **EO and PO**

Ethylene Oxide



Propylene Oxide



Fatty alcohols are seen as essential structuring agents and viscosity builders. They also do well in other areas of conditioning. We will examine the role of fatty alcohols and their ethoxylates in emulsion formulation. Finally, we will look at active ingredients and their base interaction. Esters and other essential oils will be discussed in relaxers.

### **Fatty Alcohol and Ethoxylation.**

R-OH and R-OH + EO

### **Fatty Alcohol and Propoxylation**

R-OH and R-OH + PO

The use of essential oils as conditioning agents in place of quaternary ammonium compound. This is an interesting experiment that has been documented in several reports and publication. In a recent lab work that was conducted under a high school science project by Yvonne Obukowho and I as a mentor, we set out to explore the benefit of using natural oils as the only source of conditioning for the hair. The experiment was carried out in Croda Lab using SEM and Contact Angle Analyzer as the instrument to measure conditioning. Other works that have been published have measured levels of protein to determine damage.

