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Novel Industrial Applications for Microwaves assisted Green Chemistry

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PURPOSE OF THE ABSTRACT

In the last ten years, we have seen hundreds of scientific publications dealing with Microwaves assisted potential applications in chemical synthesis, extraction or other applications.

Very few of them lead to industrial applications. This is mainly due to a lack of scale up capabilities both at academic level but also at industrial level. SAIREM, as a worldwide leader in Microwaves and radio frequency applications, is one the player to develop some microwaves assisted applications in Chemistry.

This presentation will review industrial applications developed by SAIREM in the field of extraction, chemical synthesis and heat assisted stabilization of cosmetic products.

The benefits of microwaves assisted green chemistry are, for the most part, improved quality of the final products like minimized thermal degradation due to the speed of the process and spectacular reduction in process timing and footprint.

There no "magical" microwaves effect. Microwaves are used to heat a product quicker than conventional processes. If we have a heterogeneous product, you can have some temperature differentials inside the product under microwaves that can speed up the intended reaction. This is mainly true in extraction but could also explain some beneficial results in chemical synthesis.

We are at the first steps of the development of microwaves assisted industrial applications in green chemistry.

FIGURES

FIGURE 1

FIGURE 2

KEYWORDS

BIBLIOGRAPHY