



# HASE TYPE POLYMER GRAFTED ON NANOPARTICLES

## > BENEFITS

HOMOGENEOUS  
DISPERSION  
PROCESSABILITY  
EFFICACY  
TOXICITY

## > KEYWORDS

HASE TYPE POLYMER  
NANOPARTICLES  
UV FILTER  
CHEMICAL & BIOLOGICAL  
PROTECTION

## > IP PATENT



## > PARTNERSHIPS

LICENSE AND/OR  
R&D COLLABORATION  
(POSSIBLE CO-FUNDING)

## > CONTACT

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## BACKGROUND

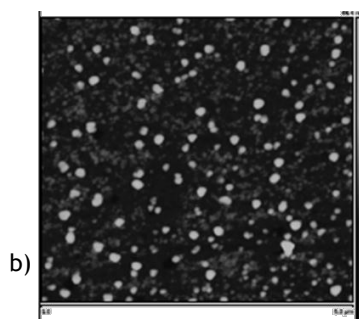
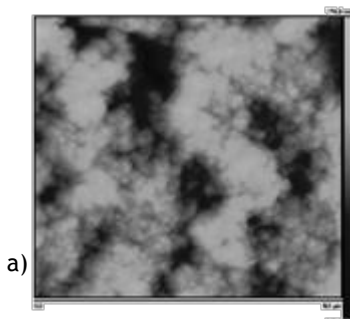
In the field of topical protection, an increasing interest was devoted during these past ten years to polymer/nanocomposites to improve flexibility, processability and stability of the material in which they are integrated. Yet the main difficulty still encountered during the achievement of these materials is the stability and the nature of the nanoparticles dispersion in the surrounding substance.

To facilitate the integration and to obtain an homogeneous dispersion, a new concept has been developed: **the covalent grafting of nanoparticles on new amphiphilic and thickening HASE\* polymers that enhance the colloidal stability in the matrices.**

*\*Hydrophobically Modified Alkali-Swellable Emulsions*

## KEY BENEFITS vs. STATE OF THE ART

- Homogeneous dispersion of grafted nanoparticles
- Processability of the topic
- Efficacy of the topical protection
- Lowering topical nanoparticles content
- Lower environmental and biological toxicity



Nanoparticle dispersion: (a) without, or (b) with the HASE modified grafted Si nanoparticles

## Development Status

- Toxicity testings are being performed
- Formulation and efficacy under study

## APPLICATIONS

Topical skin protection against:

- Chemicals
- Biological compounds
- UV light