CellMat Technologies

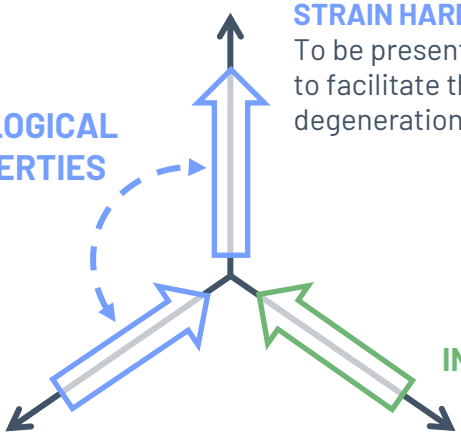
ANALYSIS OF THE FOAMABILITY OF COMPLEX FORMULATIONS

Methodology to predict the foamability of thermoplastic formulations

FUNDAMENTALS OF THE TECHNIQUE

- USEFUL TO DETERMINE THE FOAMABILITY OF COMPLEX FORMULATIONS WITHOUT THE NEED OF PRODUCING THE FOAMS.
- BASED ON THE COMBINED ANALYSIS OF RHEOLOGICAL (EXTENSIONAL & SHEAR) AND THERMAL PROPERTIES OF FORMULATIONS.
- SUCCESSFULLY TESTED FOR DIFFERENT POLYMERS: PP, PS, PE, PLA, PMMA, PC, TPU, PVC, PEI, PET, ETC.

Foamability diagrams – our predictive tool



STRAIN HARDENING COEFFICIENT
To be present, and the higher, the better to facilitate the bubble growth and avoid degeneration

ZERO SHEAR VISCOSITY
Low value to favor the early stages of bubble growth

INTRINSIC THERMAL PROPERTIES
$\Delta T = T_f - T_c$ (SEMICRYSTALLINE)
$\Delta T = T_f - T_g$ (AMORPHOUS)
The lowest value of ΔT to promote fast stabilization of the structure

CASE STUDY

Analysis of the foamability of blends of a linear PP and an HMS PP.

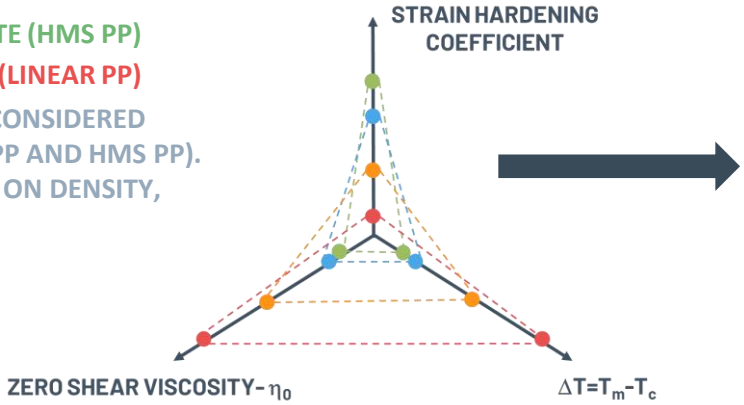
OBJECTIVE

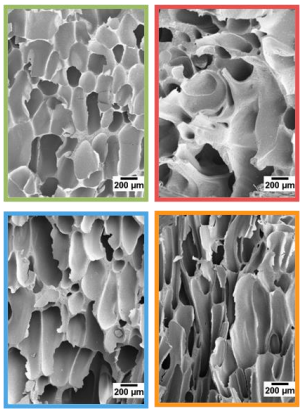
- To understand the characteristics of the cellular structure of different polymeric systems by determining their foamability diagrams.

- THE IDEAL CANDIDATE (HMS PP)
- THE WORST CHOICE (LINEAR PP)
- CANDIDATES TO BE CONSIDERED (BLENDS OF LINEAR PP AND HMS PP). SELECTION DEPENDS ON DENSITY, PROCESS, ETC.

RESULTS

- The material with the most suitable structure is the one with the highest strain hardening, the lowest zero-shear viscosity and the lowest ΔT.





CONTACT US FOR MORE INFORMATION
info@cellmattechnologies.com
www.cellmattechnologies.com
Tel: +34 983 189 197

CELLMAT TECHNOLOGIES S.L.
Edificio Parque Científico UVa
Paseo de Belén 9A
47011, Valladolid, Spain