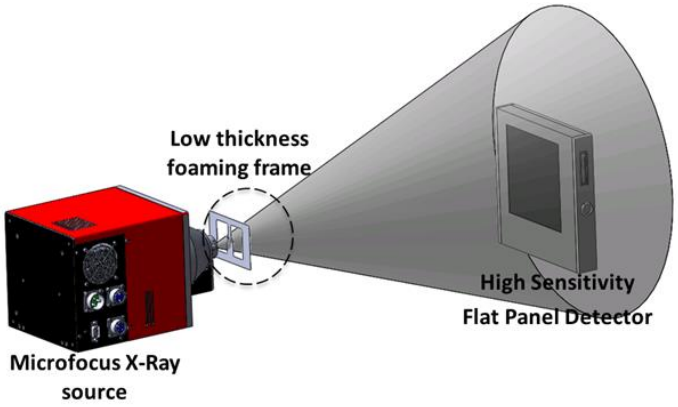
CellMat Technologies

X-RAY RADIOSCOPY

Following the evolution of the internal microstructure of foams during the foaming process

FUNDAMENTALS OF THE TECHNIQUE

- APPROACH TO FOLLOW THE EVOLUTION OF THE DENSITY, CELL SIZE AND CELL NUCLEATION DENSITY AS A FUNCTION OF TIME.
- TOOL TO ANALYZE THE FOAMING MECHANISMS: NUCLEATION, CELL GROWTH AND DEGENERATION.
- VALID FOR DIFFERENT POLYMERIC SYSTEMS: REACTIVE FOAMS AND THERMOPLASTIC FOAMS.
- KEY TOOL TO UNDERSTAND THE FINAL CELLULAR STRUCTURE AND PROPERTIES OF THE FOAMS.
- FUNDAMENTAL APPROACH TO OPTIMIZE POLYMERIC FORMULATIONS.



CASE STUDY

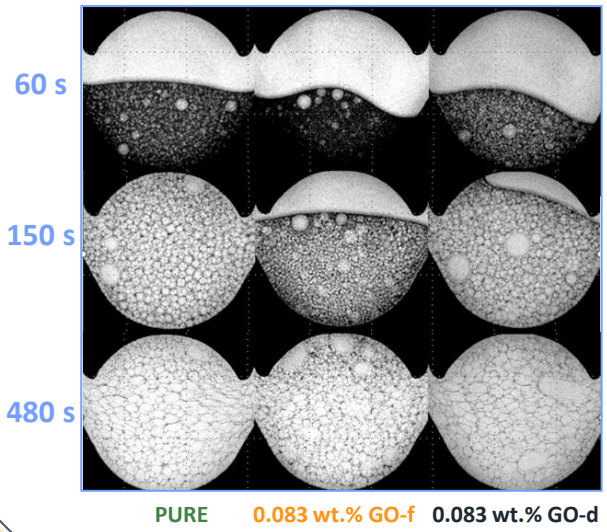
Analysis of the effect of the incorporation of particles in the structure of PUR foams.

OBJECTIVE

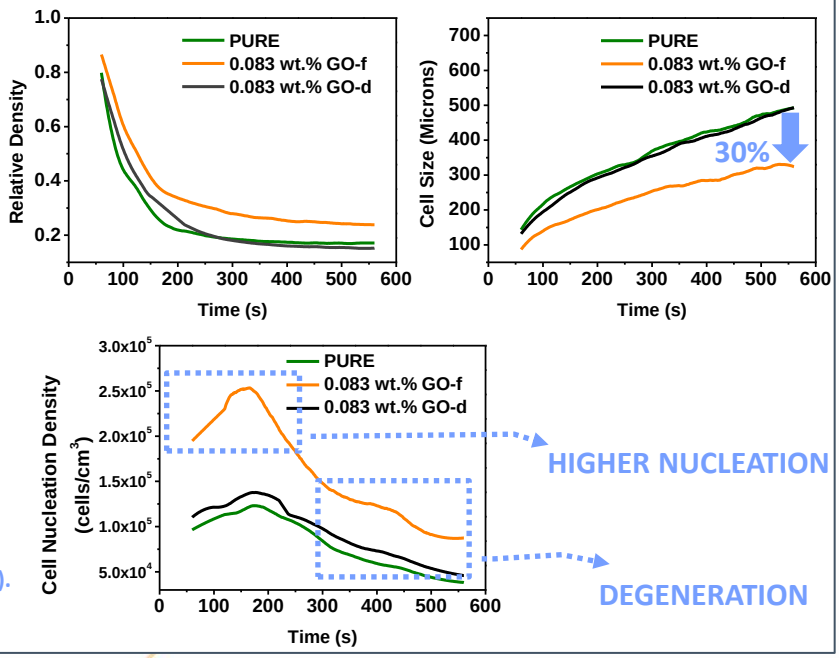
- To determine how the incorporation of particles affects the foaming mechanisms (nucleation, cell growth and degeneration).

RESULTS.

- A reduction in the cell size is detected when adding GO-f.
- In this system the nucleation mechanisms are improved.
- Degeneration (by coarsening, coalescence, and/or drainage) is detected in the three systems.



GO-f: Polyol functionalized with graphene oxide (GO).
GO-d: Graphene oxide dispersed in the polyol.



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X-RAY RADIOSCOPY

CASE STUDY

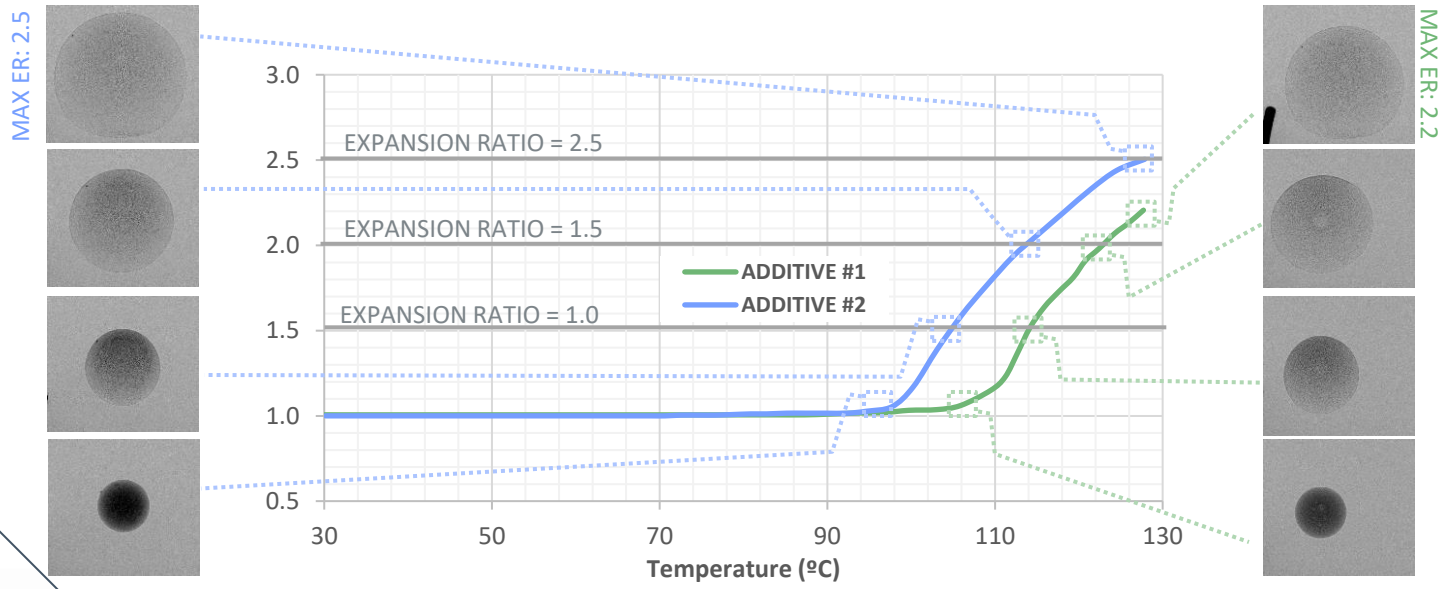
Analysis of the expansion kinetics of polystyrene with different additives and saturated with a physical blowing agent (pentane).

OBJECTIVE

- To determine the effect of formulation on expansion kinetics.

RESULTS

- Additive #1 retards expansion and results in a lower maximum expansion at the same temperature.
- For both additives, same expansion rate is reached.



CASE STUDY

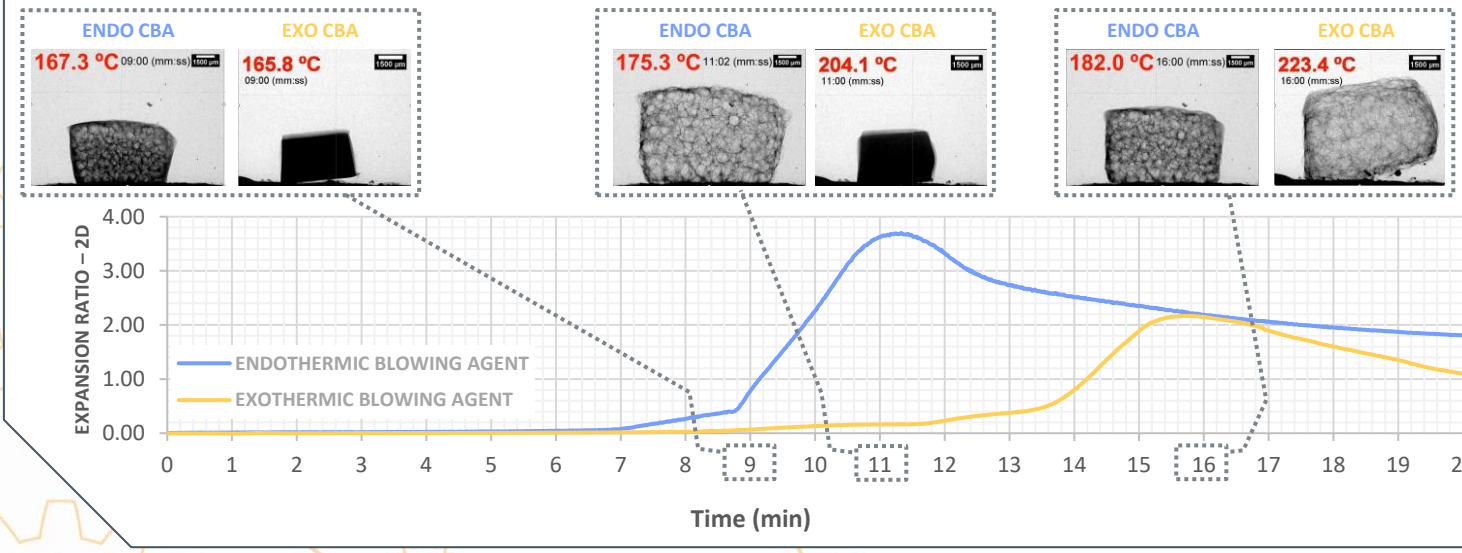
Effect of the type of blowing agent in the expansion kinetics of crosslinked polyolefins

OBJECTIVE

- To evaluate the expansion kinetics of crosslinked polyethylene with two types of chemical blowing agents.

RESULTS

- Exo CBA needs more temperature and longer times to expand.
- Endo CBA provides the maximum expansion faster and at lower temperatures.



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