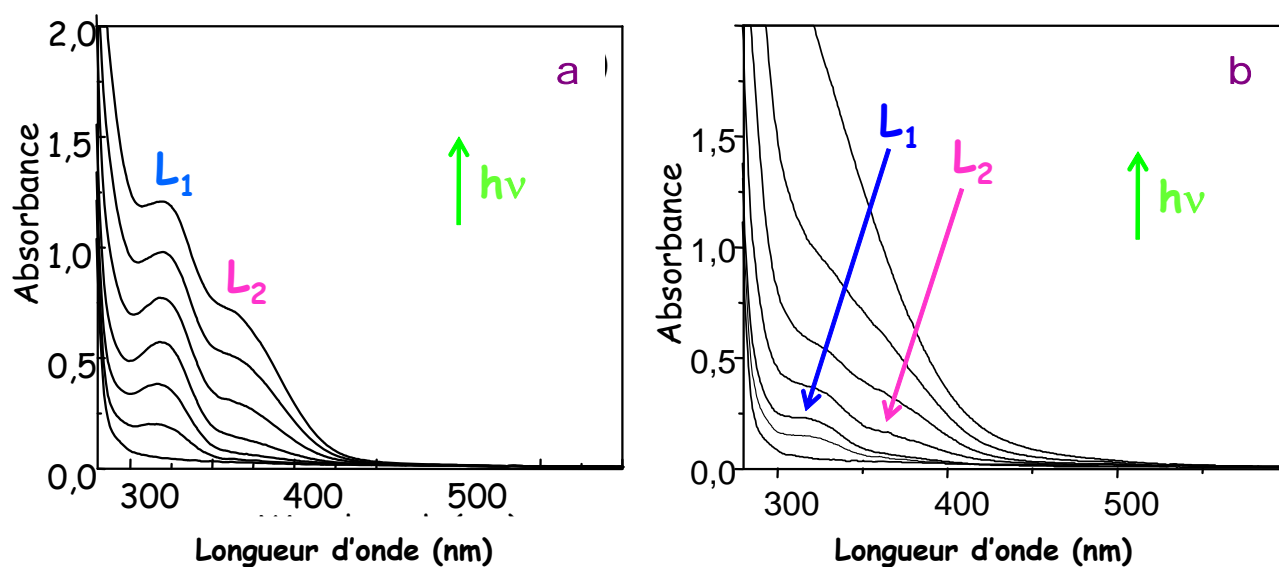
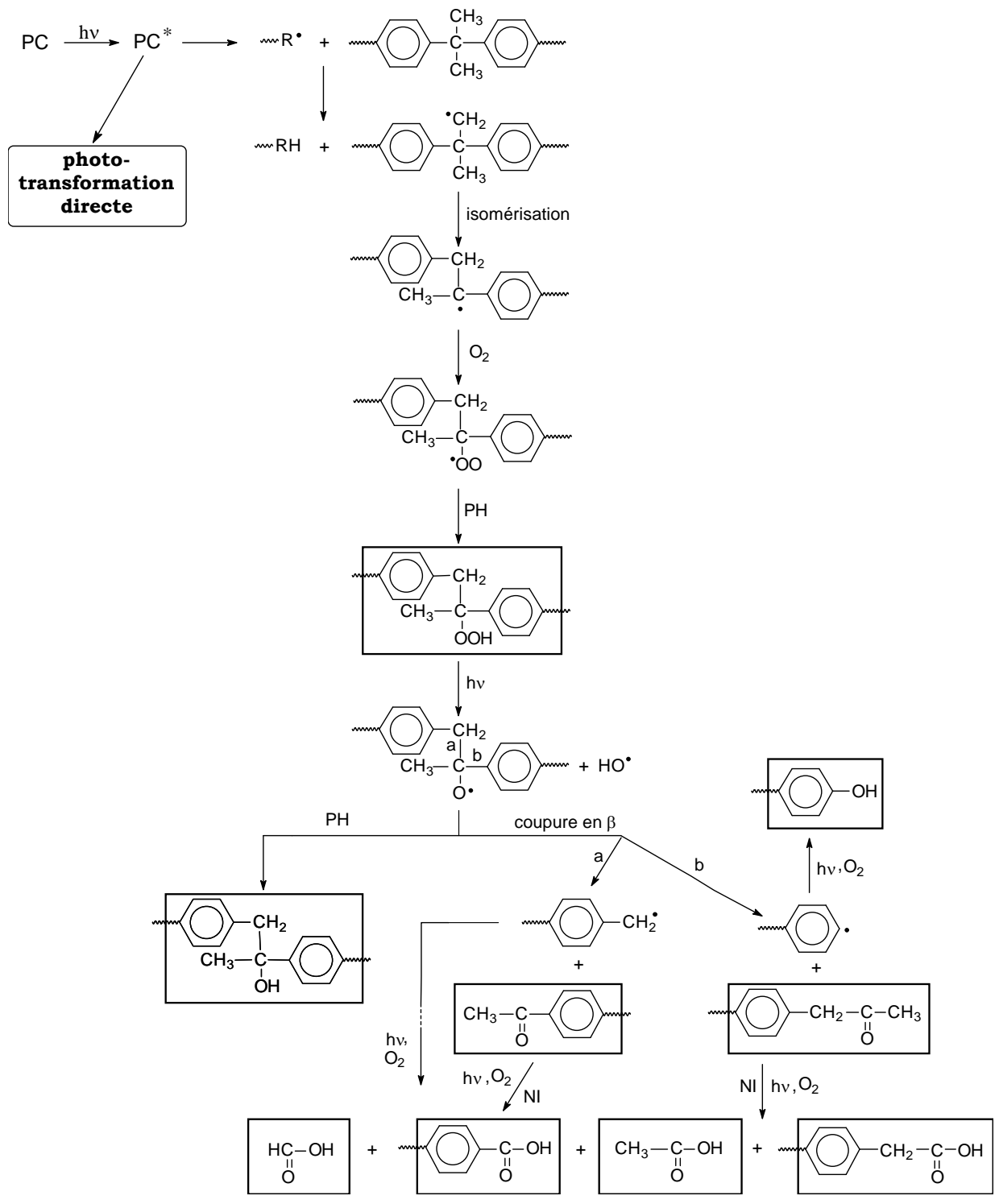


Compléments à l'article « Photodégradation des matériaux polymères », de Jean-Luc Gardette, Mohamed Baba, Bénédicte Mailhot, Sandrine Morlat-Thérias et Agnès Rivaton (*L'Act. Chim.*, 2008, 317, p. 25).

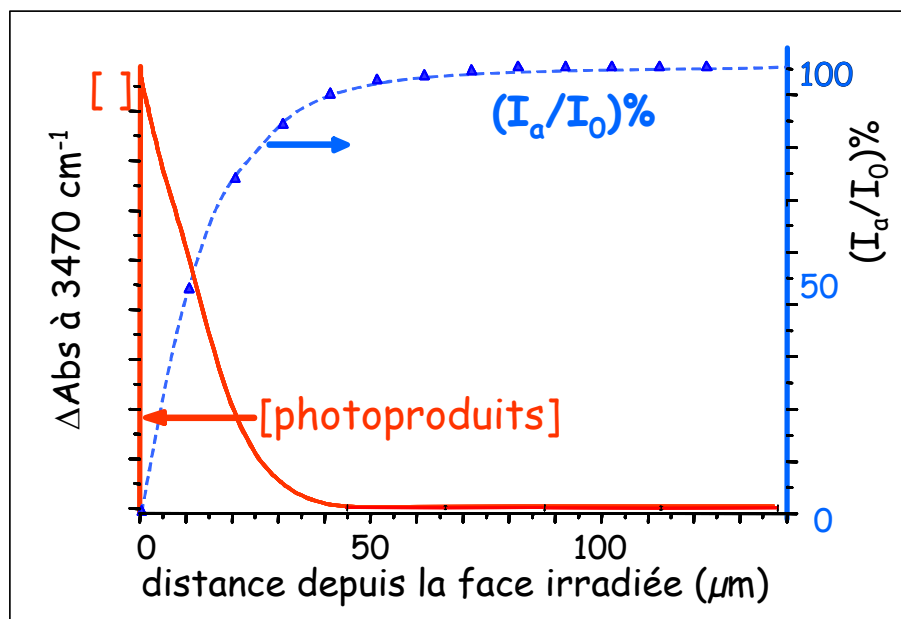
Annexe I - Évolution du spectre UV-visible du polycarbonate de bisphénol-A (PC) (a) sous irradiation monochromatique à 254 nm et (b) sous irradiation polychromatique ( $\lambda > 300$  nm).



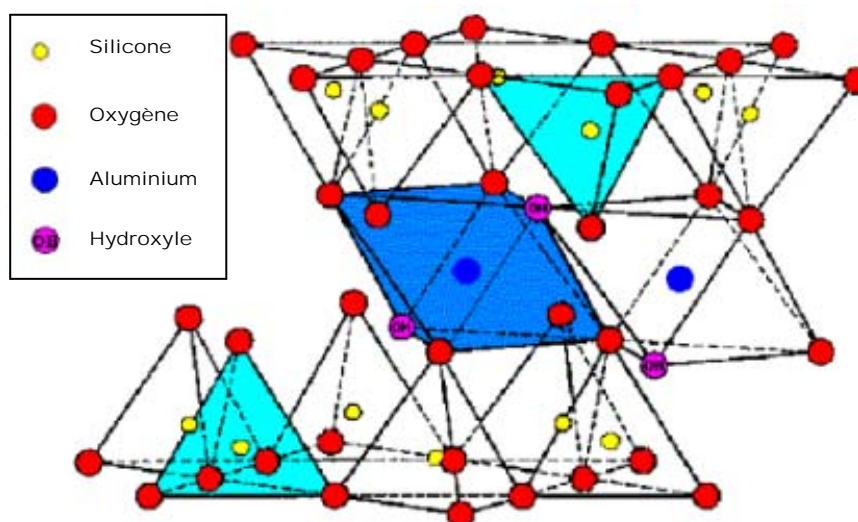
## Annexe II - Mécanisme de photooxydation du polycarbonate de bisphénol-A (PC).



### Annexe III - Profil de distribution des produits d'oxydation et de pénétration de la lumière incidente ( $\lambda = 300$ nm).

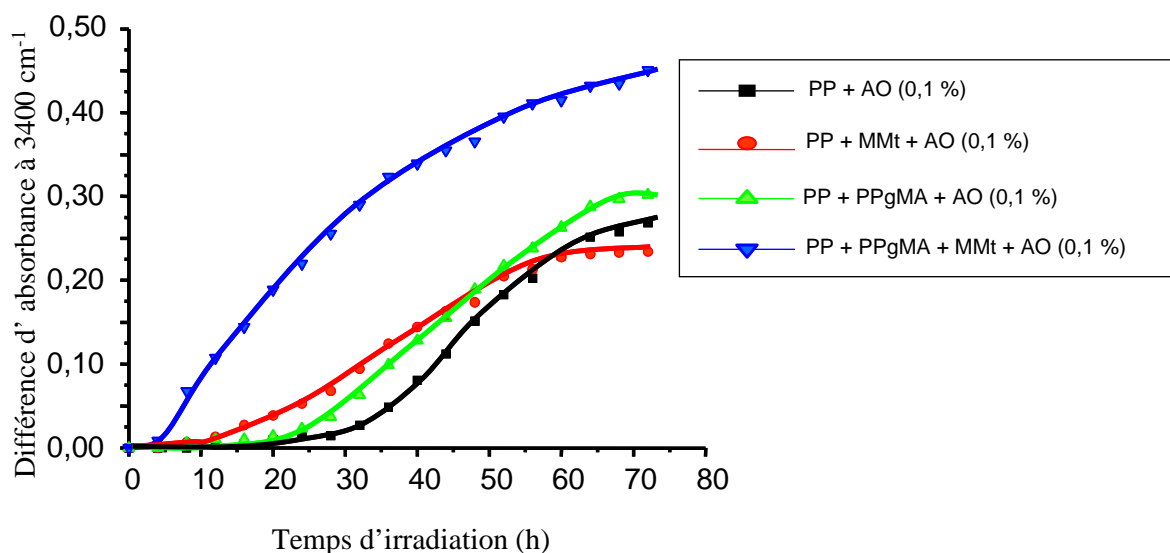


### Annexe IV - Structure de la montmorillonite (MMt).



## Annexe V - Évolution de l'absorbance à $3400\text{ cm}^{-1}$ en fonction du temps d'irradiation pour des films de nanocomposites photooxydés à $\lambda > 300\text{ nm}$ , $60\text{ }^{\circ}\text{C}$ .

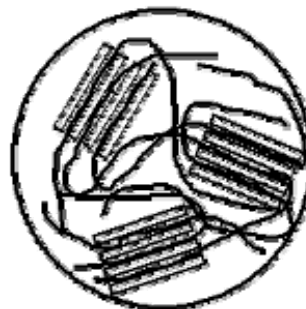
AO : antioxydant ; MMt : montmorillonite ; PP : polypropylène ; PPgMMA : polypropylène greffé anhydride maléique.



## Annexe VI - Morphologie des nanocomposites.

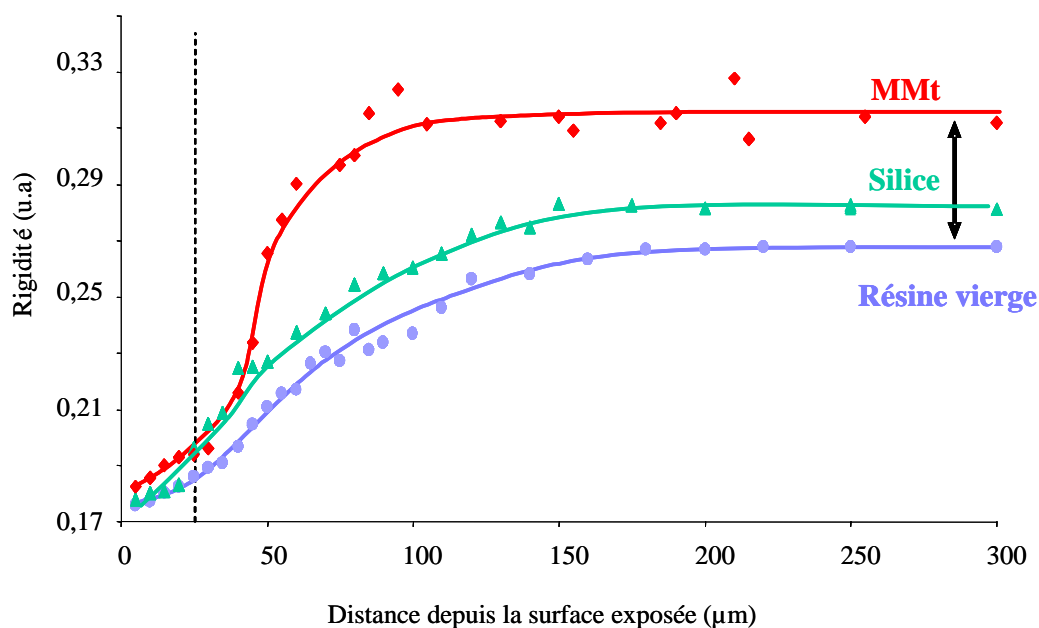


Nanocomposite  
exfolié

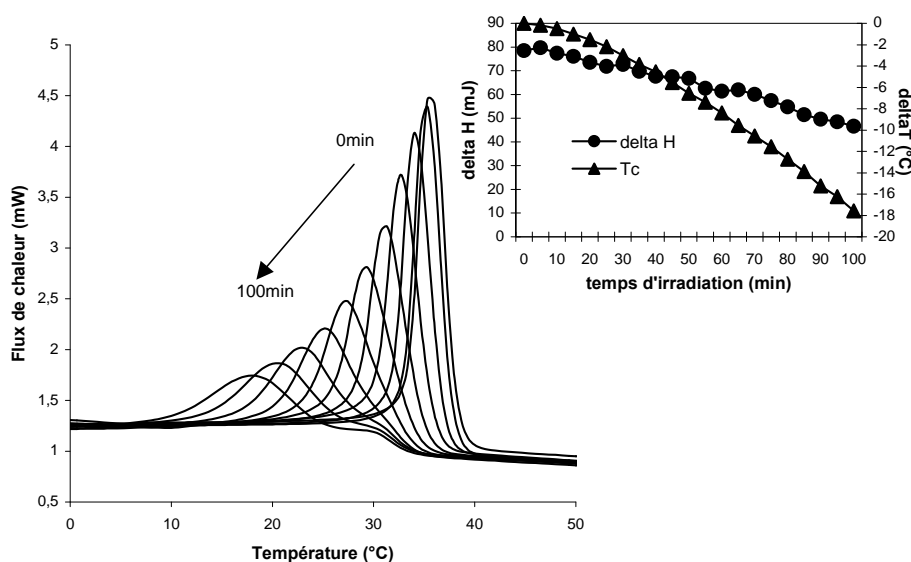


Nanocomposite  
intercalé

**Annexe VII - Profil de rigidité mesuré par AFM pour différents systèmes nanocomposites en fonction de la distance depuis la surface exposée.**



**Annexe VIII - Thermogrammes de cristallisation anisotherme (température de vieillissement : 60 °C) et incrément de temps de vieillissement de dix minutes.**



## Annexe IX - Pour en savoir plus

- Gardette J.-L., Fundamental and technical aspects of the photooxidation of polymers, *Handbook of Polymer Science*, S.H. Hamid (ed), Marcel Dekker, **2000**, p. 671-698.
- Gardette J.-L., Infrared spectroscopy in the study of the weathering and degradation of polymers, *Handbook of Vibrational Spectroscopy*, vol. 4, J.M. Chalmers, P.R. Griffiths (eds), Wiley, **2002**, p. 2514-2522.
- Gardette J.-L., Rivaton A., Morlat-Thérias S., Mailhot B., Fundamental and technical aspects of the photoageing of polymeric materials, *Service Life Prediction*, J.W. Martin, R.A. Ryntz, R.A. Dickie (eds), Federation of Societies for Coatings Technology, **2005**, p. 275-286.
- Rivaton A., Recent advances in bisphenol-A polycarbonate photodegradation, *Polymer Degradation and Stability*, **1995**, 49(1), p. 163.
- Rivaton A., Mailhot B., Soulestin J., Varghese H., Gardette J.-L., Comparison of the photochemical and thermal evolution of bisphenol-A polycarbonate and trimethylcyclohexane-polycarbonate, *Polymer Degradation and Stability*, **2002**, 75(1), p. 17.
- Mailhot B., Morlat-Thérias S., Ouahioune M., Gardette J.-L., Study of the degradation of an epoxy/amine resin. Part 1: photo- and thermo-chemical mechanisms, *Macromol. Chem. Phys.*, **2005**, 206, p. 575.
- Morlat S., Mailhot B., Gonzalez D., Gardette J.-L., Photooxidation of polypropylene/montmorillonite nanocomposites. Part 1: Influence of nanoclay and compatibilising agent, *Chemistry of Materials*, **2004**, 16(3), p. 377.
- Morlat-Thérias S., Mailhot B., Gonzalez D., Gardette J.-L., Photooxidation of polypropylene/Montmorillonite nanocomposites. Part 2: Interactions with antioxidants, *Chemistry of Materials*, **2005**, 17(5), p. 1072.
- Moustaghfir A., Rivaton A., Tomasella E., Mailhot B., Cellier J., Jacquet M., Gardette J.-L., Photostabilisation of polycarbonate by ZnO coatings, *Journal of Applied Polymer Science*, **2005**, 95(2), p. 380.
- Mailhot B., Rivaton A., Gardette J.-L., Moustaghfir A., Tomasella E., Jacquet M., Ma X.-G., Komvopoulos K., Enhancement of photoprotection and nanomechanical properties of polycarbonate by deposition of thin ceramic coatings, *Journal of Applied Physics*, **2006**, 99, p. 104310.
- Morel M., Lacoste J., Baba M., Photo-DSC: a new tool to study the semi-crystalline polymer accelerated photo-ageing, *Polymer*, **2006**, 46(22), p. 9274.
- Billamboz N., Nedelec J.-M., Grivet M., Baba M., Cross-linking of polyolefins: A study by thermoporosimetry with benzene derivatives as swelling solvents, *ChemPhysChem*, **2005**, 6, p. 1.
- Fraisse F., Morlat-Thérias S., Gardette J.-L., Nedelec J.-M., Baba M., In situ kinetics study of the accelerated aging of poly(ethylene oxide) using photoDSC, *J. Phys. Chem. B*, **2006**, 110, p. 14678.