

Supplementary data

Preparation of fire-resistant poly(styrene-co-acrylonitrile) foams using the supercritical

CO₂ technology

Laetitia Urbanczyk,^a Serge Bourbigot,^b Cédric Calberg,^c Christophe Detrembleur,^a Christine Jérôme,^{*a} Frédéric Boschini,^d and Michael Alexandre^a

^a *Center for Education and Research on Macromolecules (CERM),*

University of Liège, Sart-Tilman B6a, 4000 Liège, Belgium. Fax: +32 43663497; Tel: +32

43663491, E-mail: C.Jerome@ulg.ac.be

^b *Equipe Procédés d'Elaboration de Revêtements Fonctionnels, LSPES*

UMR-CNRS 8008, ENSCL, BP 90108, 59652 Villeeneuve d'Ascq

Cedex, France

^c *Department of Applied Chemistry, University of Liège, Sart-Tilman B6a,*

4000 Liège, Belgium

^d *Laboratoire de Chimie Inorganique Structurale, University of Liège, Sart-Tilman B6a, 4000*

Liège, Belgium

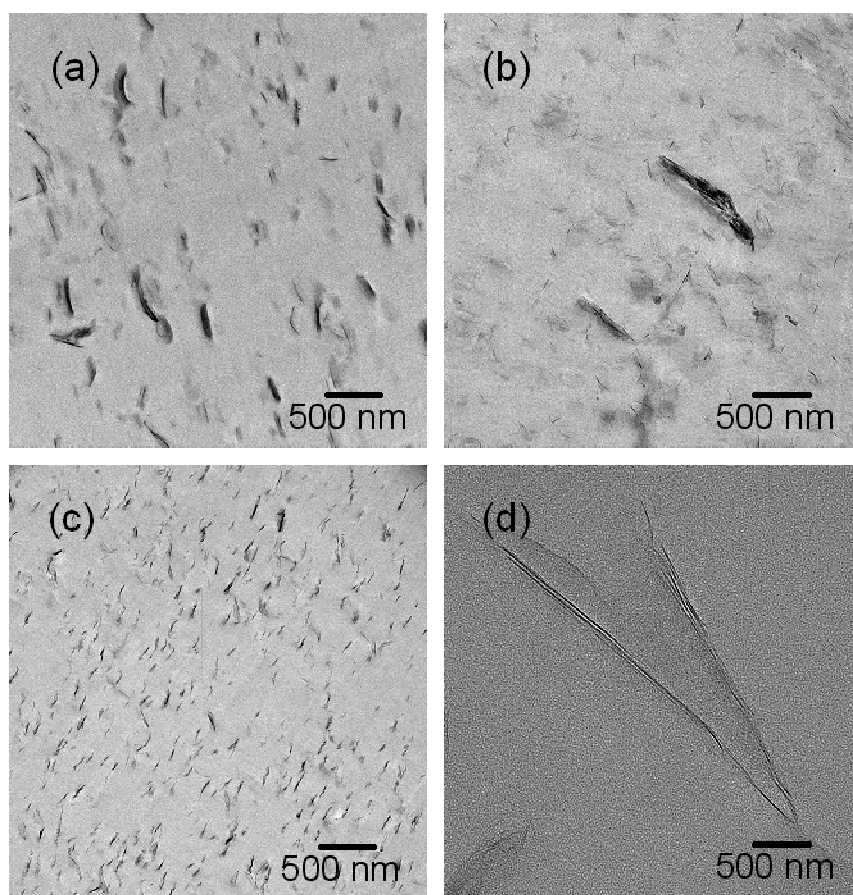


Fig. S1 TEM analysis of SAN/clay nanocomposites: (a) SAN/3CNa, (b) SAN/3C30B, (c) SAN/3MB30B, (d) SAN/3MB30B at higher magnification.

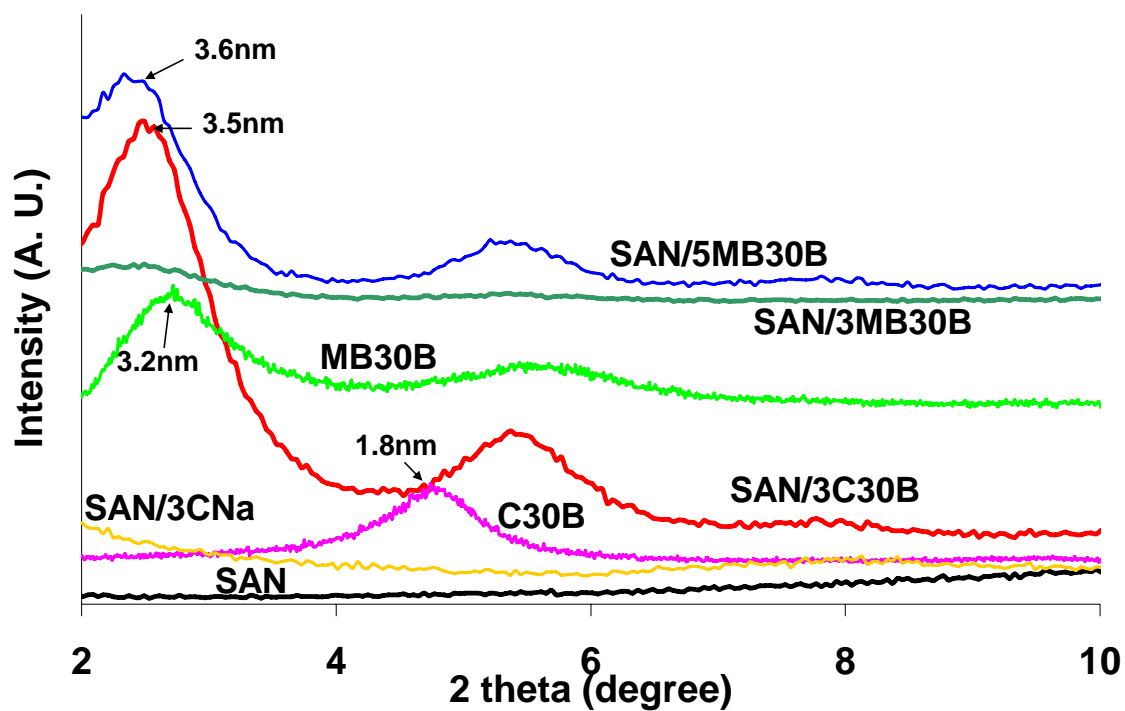


Fig S2 XRD patterns of clays and SAN/clay nanocomposites.

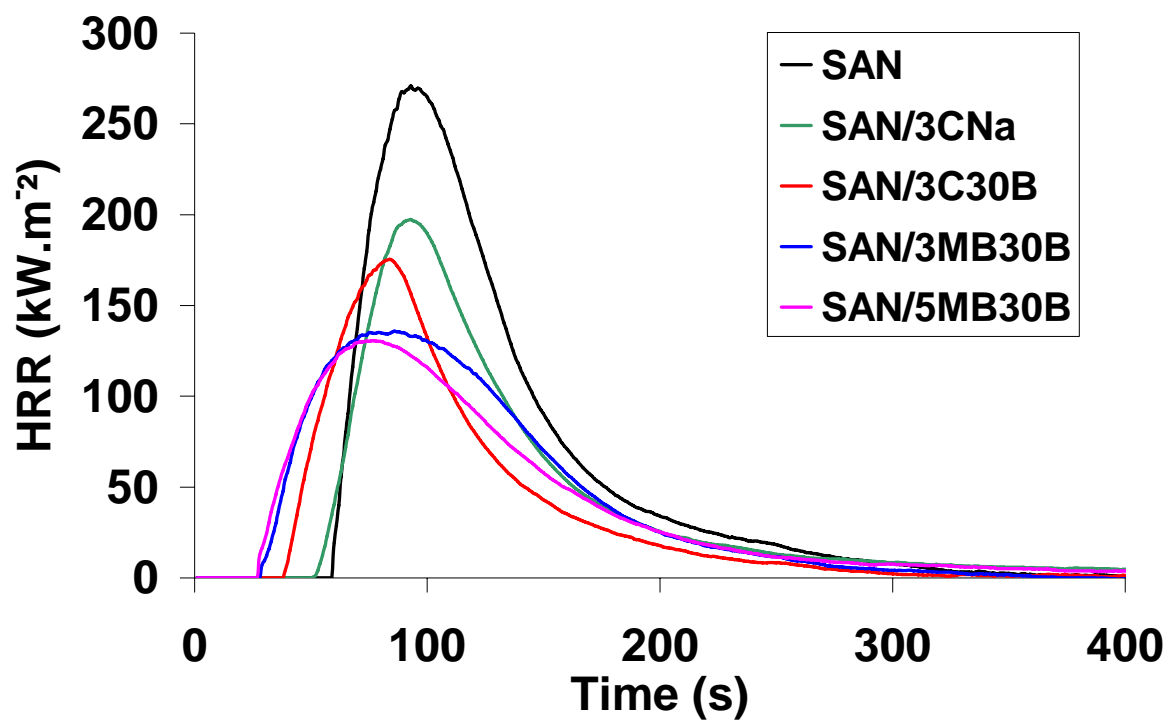


Fig. S3 Heat release rate (HRR) plots of SAN and SAN/clay nanocomposite foams at 35kW.m^{-2} heat flux in the $0.13\text{-}0.15\text{g.cm}^{-3}$ density range.

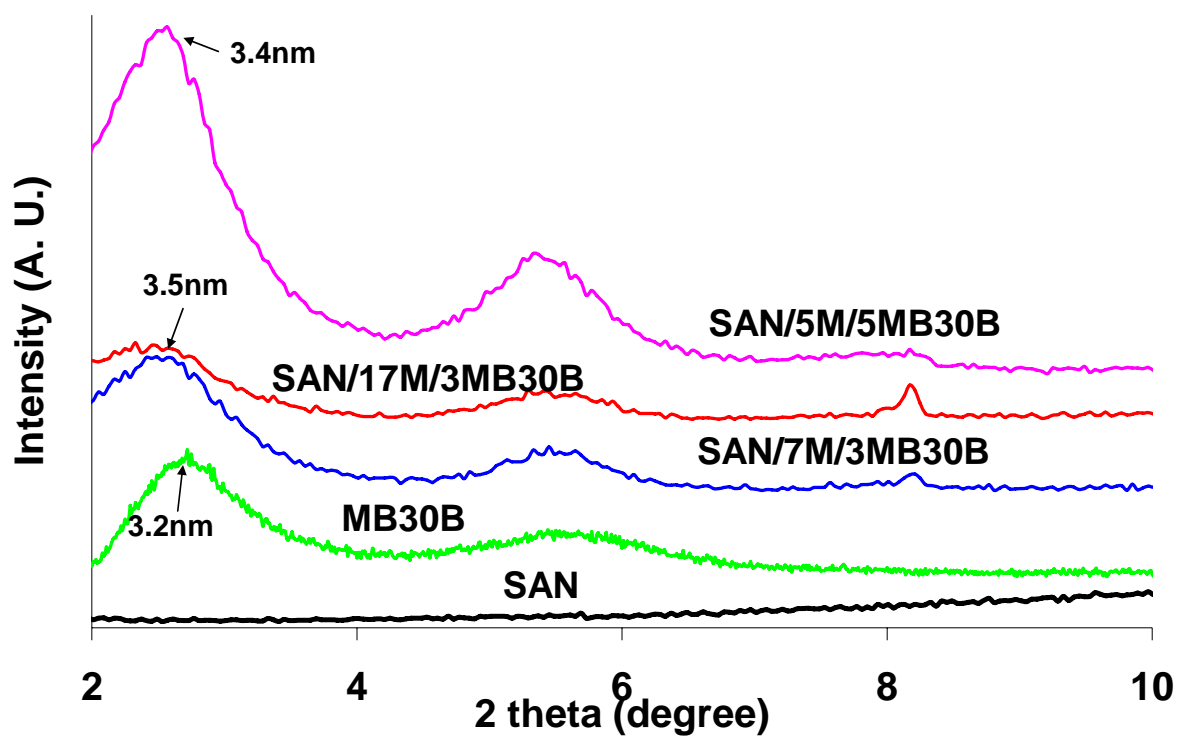


Fig. S4 XRD patterns of SAN/MPP/clay nanocomposites.

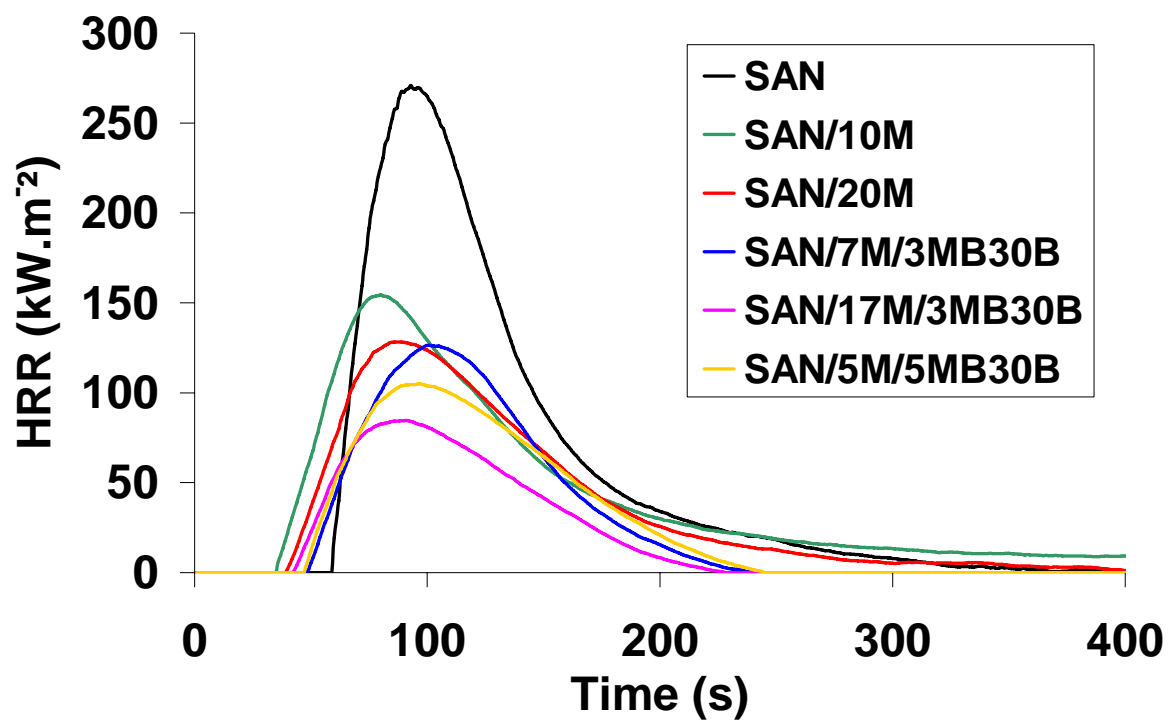


Fig. S5 Heat release rate (HRR) plots of SAN/MPP and SAN/MPP/clay nanocomposite foams at $35\text{kW}\cdot\text{m}^{-2}$ heat flux.

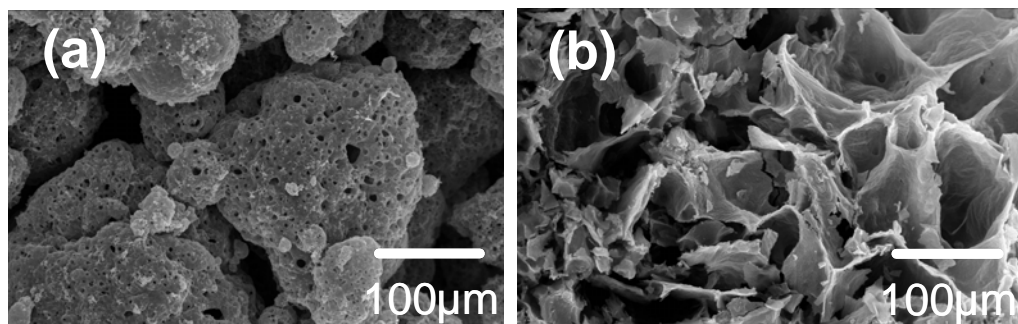


Fig. S6 SEM pictures of the foam-like char obtained after cone calorimetry test : a) SAN/3MB30B, b) SAN/5M/5MB30B.

Foamed sample	Cell size range (μm)	Cell density (10^{-8} cells.cm^{-3})
SAN	20-70	2.5
SAN/3CNa	10-40	5.2
SAN/3C30B	10-100	0.8
SAN/3MB30B	2-20	50
SAN/5MB30B	0.2-4	15000
SAN/10M	2-25	26
SAN/20M	2-20	43
SAN/7M/3MB30B	5-40	13.5
SAN/17M/3MB30B	5-50	13
SAN/5M/5MB30B	5-70	22

Table S1 Cell size and cell density of SAN, SAN/clay, SAN/MPP and SAN/MPP/clay nanocomposite foams.