

SUPPLEMENTARY INFORMATION TO:

Vapour Phase Deposition of

Phosphonate-containing Alumina Thin Films

using Dimethyl Vinylphosphonate as Precursor

Juan Santo Domingo Peñaranda, Arpan Dhara, Aditya Chalishazar, Matthias M.
Minjauw, Jolien Dendooven, and Christophe Detavernier*

*Department of Solid State Sciences, CoCooN research group, Ghent University, Krijgslaan
281 (S1), 9000 Gent, Belgium*

E-mail: christophe.detavernier@ugent.be

Table 1: Atomic concentrations obtained from XPS measurements on the air-exposed sample surfaces.

Process	Temperature °C	Al 2p (at%)	C 1s (at%)	O 1s (at%)	P 2s (at%)	F 1s (at%)
ABCD	100	26.5	28.4	40.9	2.5	1.7
ABCD	175	23.9	32.1	38.9	4.1	1.1
ABCD	250	22.6	24.6	41.5	6.0	5.3
ABC	250	24.4	33.1	38.4	4.1	-

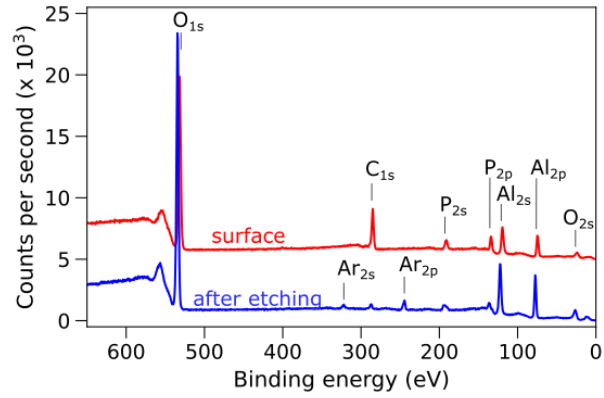


Figure 1: The effect of an Ar ion etching step on a representative XPS survey scan is illustrated for the ABCD-250°C sample. The C 1s, P 2s and P 2p photo-emission lines drop drastically in intensity after etching. No energy calibration was performed.

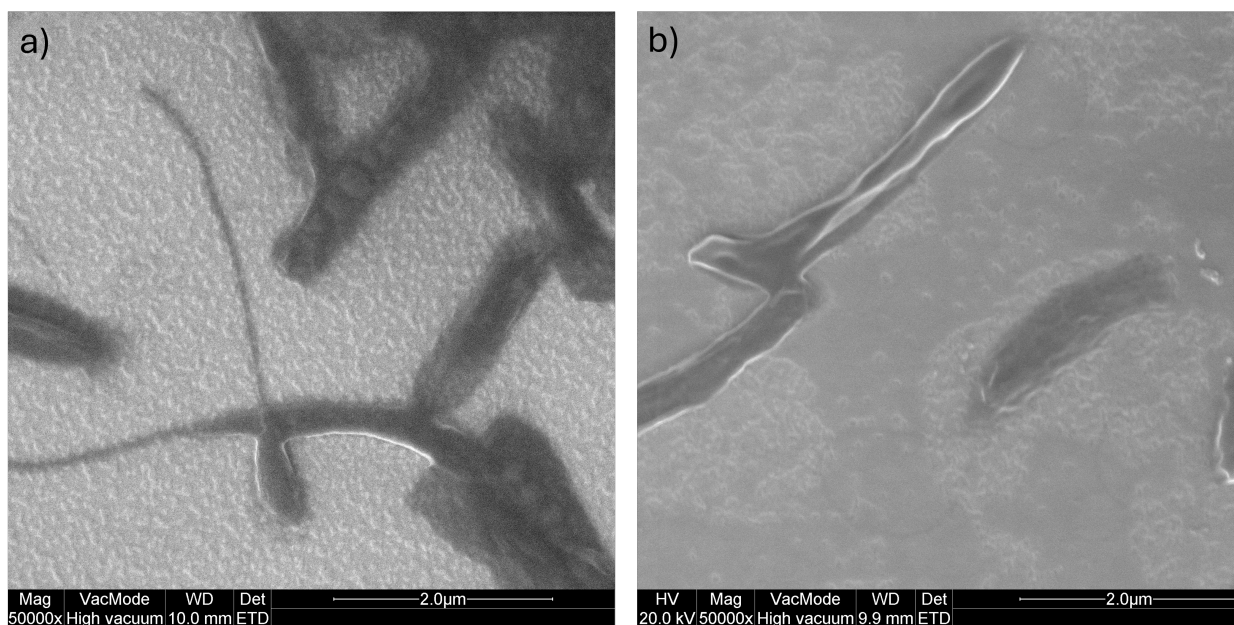


Figure 2: Secondary electron microscopy images of the ABCD (a) and ABC (b) films after the water stability test. FTIR showed that both films were oxidized and that carboxylate species were generated after 1 week in water (Figure 7 in the main manuscript). The SEM images show the formation of cracks and a clear roughening of the film surface. The as-deposited films remained featureless in SEM.