

Figure 1: Schematic illustration of an ABC-type ALD cycle which comprises two different precursors and a co-reactant step. In step A, the surface is saturated with precursor 1. Subsequently, precursor 2 is dosed in step B, which should be blocked (mostly) by the ligands of precursor 1. Lastly, during step C the surface is exposed to the co-reactant which removes the ligands of precursor 1 and 2 from the surface. The fraction of material deposited by precursor 2 in the resulting film is a metric how effective precursor 1 is at blocking the adsorption of precursor 2.

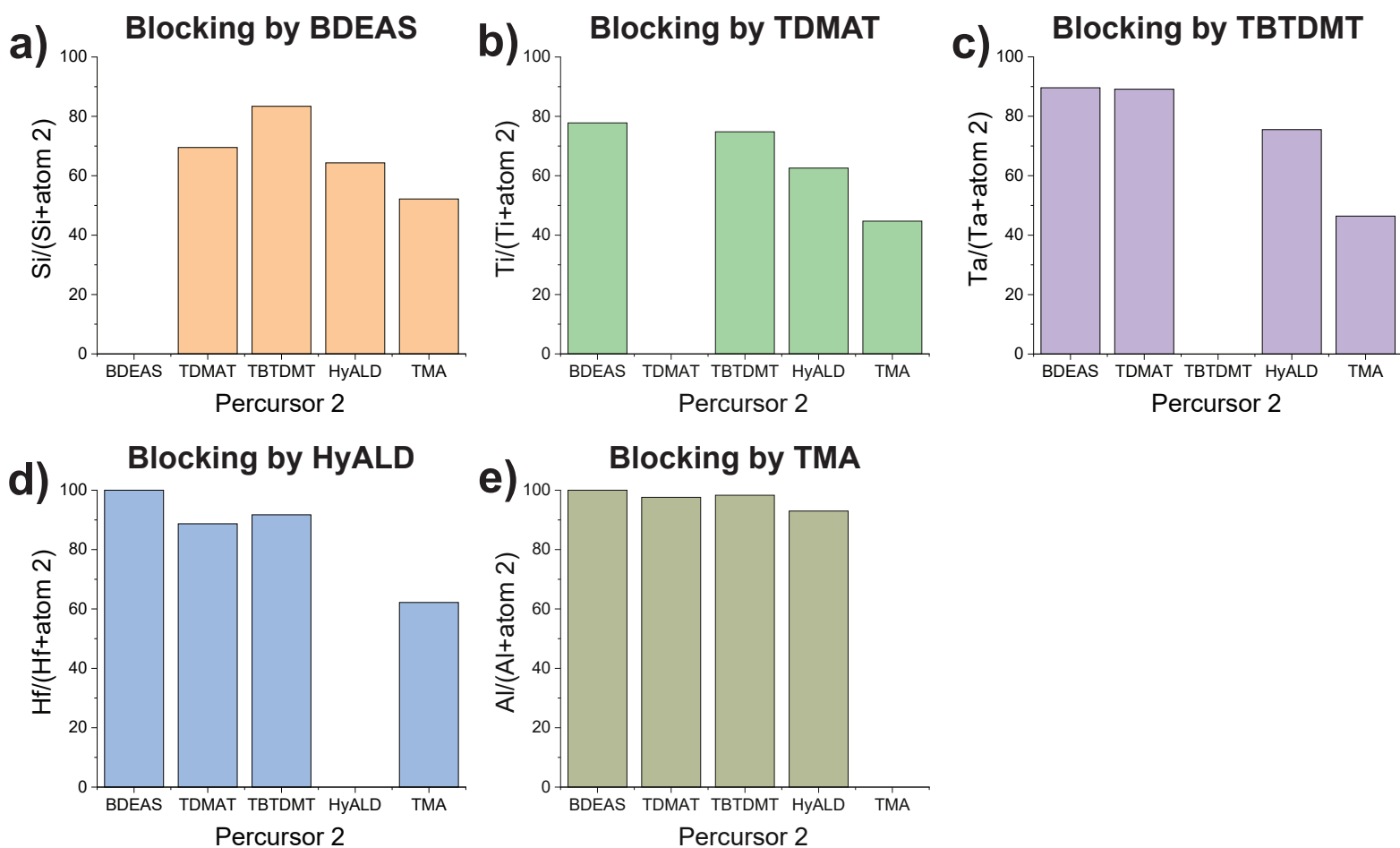


Figure 2: Precursor blocking as measured by XPS for a) bis(diethylamino)silane (BDEAS), tetrakis(dimethylamino)titanium (TDMAT), c) tert-butylimidotris(dimethylamino)tantalum (TBTDMT), d) tris(dimethylamido)cyclopentadienylhafnium (HyALD), and e) trimethylaluminum (TMA) as precursor 1. 100% signifies complete blocking of precursor 2 by precursor 1, whereas the lower the value the poorer the blocking by precursor 1.