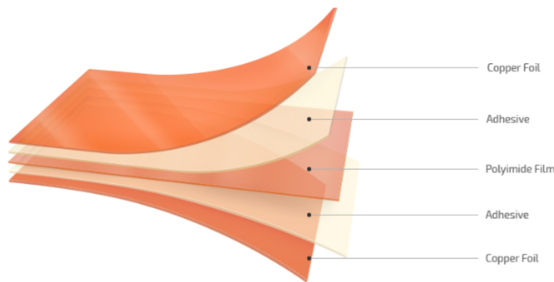
Low loss materials for Flexible Printed Circuits (FPCs)

5G adoption is driving the requirement for **low loss substrates for high frequency FPCs** (see also **this CTD seminar**) in mobile devices (see **here a market analysis by Prismark**). High frequency FPCs are obtained by Flexible Copper Clad Laminates (FCCLs) where smooth foils of copper (typically 18 or 12 micron thick) are laminated on flexible polymeric films. Requirements for the dielectric substrate include low Dk/Df values , low water uptake to minimize the dependence of the electrical performance on humidity, resistance to soldering , low Coefficient of Thermal Expansion (CTE) to match the copper expansion (17 ppm/°), and good adhesion to copper (peeling force > 7N/cm). Incumbent materials include Polyimides (PI) and modified PI (MPI) ; **here a summary of the development of improved solutions in Solvay (with table),** including the **ALP-10150 LCP film and the ELPIS** prototype



Flexible Copper Clad Laminate