

# ADL Virtual Engineering



ADL Homepage



VE Communication toolkit



Quarterly Updates

<b>Injection molding</b>	flow, spiral flow, imbalanced flow, weld line, pressure, shrinkage/warpage, porosity, buckling, fiber orientation (anisotropy, model parameters, ...), thermal hesitation, mold cooling, validation approach, moldflow&moldev, undercut demolding, thin parts, PVT data, inductive heating (Roctool), micro-injection molding, compressibility effect on pressure prediction, ...
<b>Insert overmolding</b>	Thermal shock, core shift, 2K molding (workflow), "adhesion" and tightness (TP on TP, TP on metal), heating (Joule effect), residual stresses, warpage, thermal conductivity and thermal expansion, ...
<b>Reactive molding (injection, compression, capillary underfill)</b>	Epoxy Molding Compound (semi-conductors), reactive injection molding applied to Tecnoflon, reactive compression molding applied to Tecnoflon, overview of MOLDFLOW capabilities for Capillary Underfill (CUF) using thermoset resin ...
<b>Electrical</b>	PDIV, EMI, Slot liners in e-motors, piezoelectricity (macroscopic), dielectric constant of CF/GF compounds (+moisture), dielectric constant and loss factor for bilayered structures, Joule heating, skin&proximity effect in busbars, electro-corrosion in bearings...
<b>Fluid dynamics (CFD)</b>	introduction, electrostatic spray coating, polymer extrusion of Solef (rheological model&validation), visco-elasticity (melt), melt spinning line (BLT), ...
<b>Thermal</b>	simulation capabilities, conductivity with special fillers, thermal conductivity and thermal expansion, ...
<b>NVH</b>	visco-elasticity, vibration, acoustic, Model identification, Non material damping
<b>High speed (impact...)</b>	model identification & validation
<b>Short-term (mechanical) predictions</b>	stiffness and strength, water-freezing, intrinsic stiffness of compounds
<b>Long-term (mechanical) predictions</b>	creep, fatigue
<b>Mechanical instability (buckling)</b>	pipe reeling (buckling/permanent deformation), liner collapsing, slot liner insertion, ...
<b>Anisotropic prediction for fiber reinforced polymers (Digimat)</b>	digimat suites, anisotropy, the different models we have and the related characterization tests, database, model identification (TEP), introduction of a weld line strength knock down factor, validation, application to really thin parts, use of flakes/platelets applied to Kalix 7650, tension-compression differentiation for plasticity (Drucker-Prager), ...
<b>Long fibers thermoplastics</b>	mechanical behavior (calibration, validation) and in-mold fiber breakage analysis in MOLDFLOW (sensitivity study), ...
<b>Single-screw modeling (extrusion)</b>	flows in a single screw extruder (basics), capabilities of Compuplast, ...
<b>3D print</b>	FFF
<b>Gas permeability</b>	of multi-layer structures (CheFem), ...
<b>Topology optimization</b>	example with validation
<b>Friction &amp; wear</b>	very limited contribution (so far)

<b>Systems</b>	Gears, compressors, small implantable screws, $\mu$ -needles insertion in human skin, e-motors, EV charging plugs, generic M2P support, sub-modeling approach applied to electrolyzer frames, ...
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