



Polymics, Ltd.

High Performance Polymers & Compounds

CAM Molded KD2000 Tubes

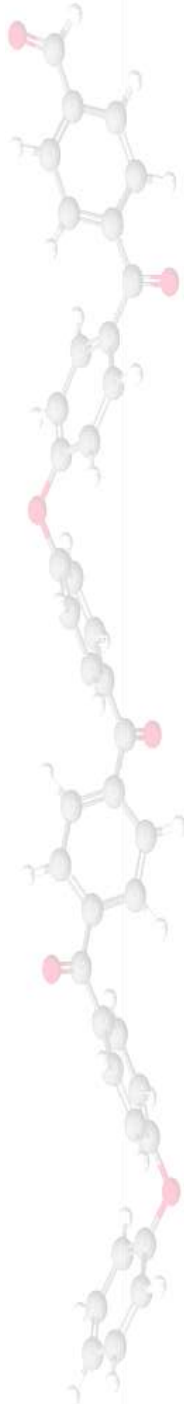
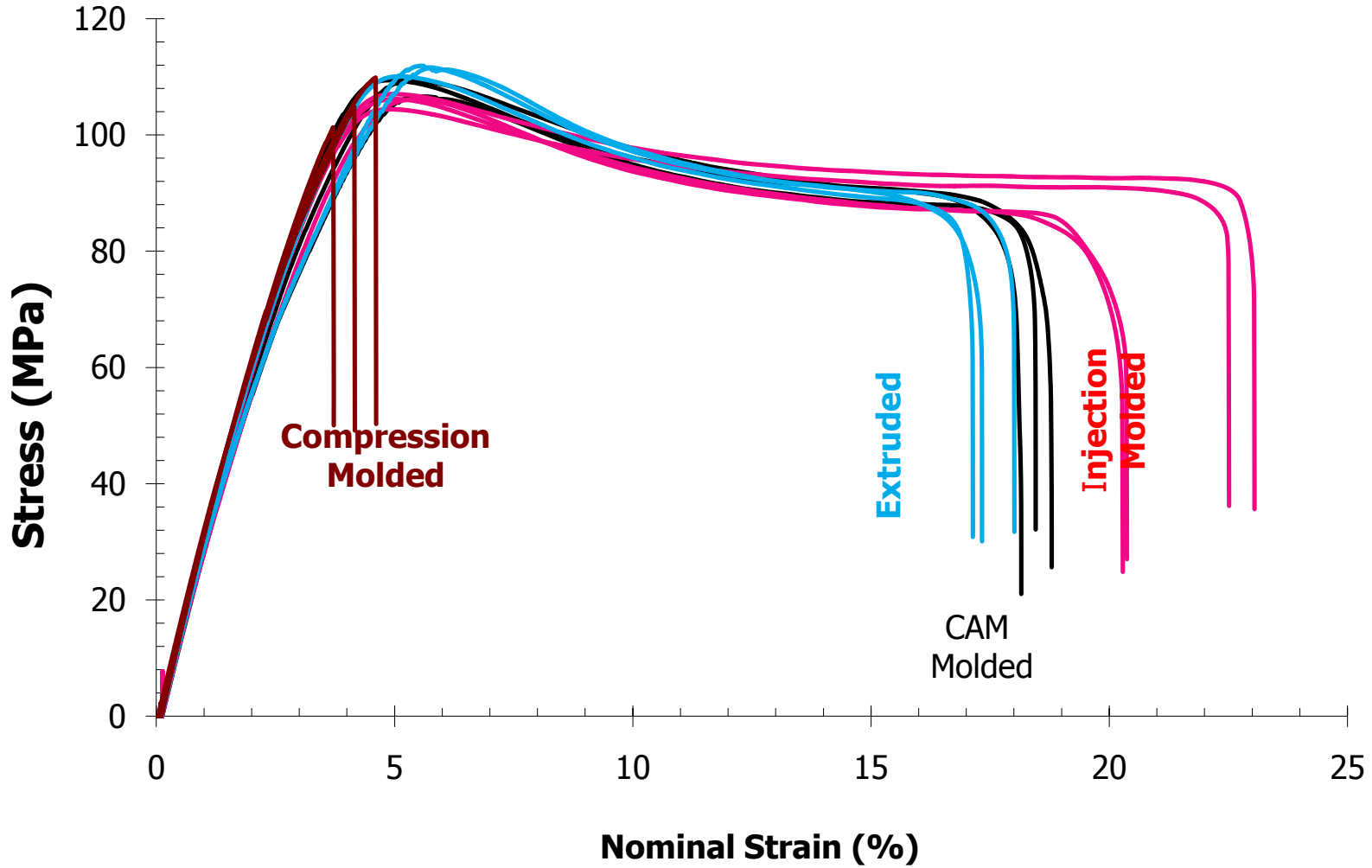


Molded PEEK Tubes Process Validation

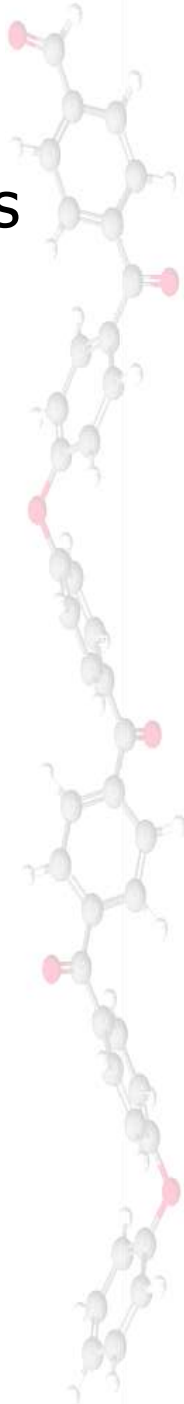
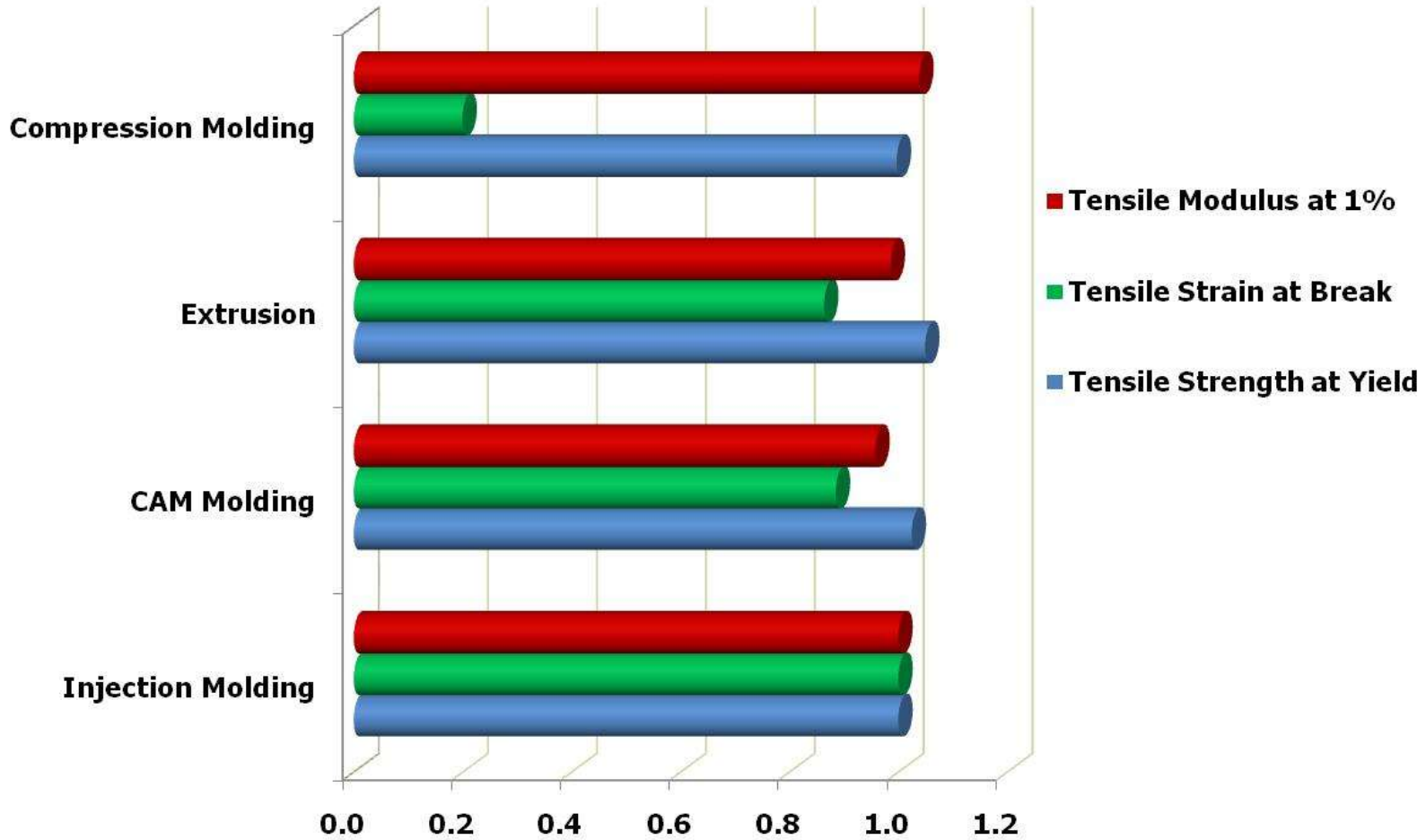
- Material: PEEK, Unfilled.
- Molding Process
 - Injection molding
 - Extrusion
 - Compression molding
 - CAM molding
- Testing Specimens
 - Tensile specimens Type V were machined from As molded neat PEEK tubes at different location.
 - Nominal strain is used for modulus calculation
 - Modulus is calculated at 1% nominal strain



Stress – Nominal Strain Curves of Neat PEEK Tubes



Comparison of Relative Properties of Neat PEEK Tubes



Tensile Properties Comparison

Summary

Molding Process	Injection Molding	CAM Molding	Extrusion	Compression Molding
Tensile Strength at Yield (MPa)	105.6	108.2	110.8	105.3
Tensile Strain at Break	20.90%	18.50%	18.05%	4.17%
Tensile Modulus at 1% (MPa)	3012	2885	2970	3128

Summary - Relative Property

Molding Process	Injection Molding	CAM Molding	Extrusion	Compression Molding
Tensile Strength at Yield	1.00	1.02	1.05	1.00
Tensile Strain at Break	1.00	0.89	0.86	0.20
Tensile Modulus at 1%	1.00	0.96	0.99	1.04

•Uniformity at different location: CAM – Extrusion – Compression – Injection

