GLOSSARY

\( \rho \) - density
\( \phi_i \) - cooling rate
\( \chi \) - interaction parameter
\( \sigma_m \) - tensile strength
\( \gamma \) - interfacial tension
\( \gamma_{pl} \) - energy difference between the polymer and the included material
\( \Delta \gamma \) - interfacial tension reduction
\( \theta(T) \) - relative crystallinity as a function of temperature
\( \varepsilon_b \) - elongation at break
\( \phi_d \) - volume fraction of dispersed phase
\( \Delta E \) - activation energy
\( \Delta F \) - variation in free energy
\( \Delta G_m \) - free energy of mixing
\( \Delta H_c \) - enthalpy of crystallisation
\( \Delta H_f \) - enthalpy of fusion for the sample
\( \Delta H_m \) - enthalpy of mixing
\( \Delta H_f^o \) - enthalpy of fusion for 100% crystalline sample
\( \Delta \phi \) - energy needed for the formation of nuclei of critical size
\( \phi_m \) - volume fraction of matrix phase
\( f \) - orientation function
\( A_p \) - projected contact area
\( D \) - diffusion coefficient, thermal diffusivity, thickness
\( E \) - Young’s modulus
\( E' \) - storage modulus
\( E'' \) - loss modulus
\( E_x \) - effective energy barrier for crystallization
\( E_b \) - elongation at break, modulus of blend
\[ E_{IT} \] - indentation modulus
\[ E_m \] - modulus of matrix
\[ E_p \] - modulus of the polymer
\[ E_y \] - Youngs modulus
\[ F_{max} \] - maximum load
\[ G \] - crystallization rate
\[ G_0 \] - pre-exponential term
\[ G' \] - storage modulus
\[ G'' \] - loss modulus
\[ H_{IT} \] - Indentation hardness
\[ h \] - thickness
\[ IPD \] - interparticle distance
\[ K_a \] - Avrami crystallization rate constant
\[ k_t \] - crystallization rate constant from Tobin’s method
\[ k(T) \] - crystallization rate constant
\[ k \] - Boltzmann constant
\[ L \] - sample dimension
\[ \Delta l \] - interfacial thickness
\[ m \text{ or } n_o \] - Ozawa exponent
\[ MW \text{ or } M \] - molecular weight
\[ \bar{M}_n \] - number average molecular weight
\[ \bar{M}_w \] - weight average molecular weight
\[ N \] - nucleation density
\[ n \] - numbers of layers, Coran’s parameter related to phase morphology, Avrami exponent
\[ n_t \] - Tobin exponent
\[ Q_c \] - total heat evolution
\[ Q_t \] - heat evolution up to time ‘t’
\[ R \] - universal gas constant, domain radius, spherulitic radius, dichoric ratio
\[ r \] - radius of the domains
t - time
$t_{1/2}$ - crystallization half time
T - absolute temperature
$T_c$ - crystallisation temperature
$T_\infty$ - temperature associated with all viscous motion are stopped
$T_g$ - glass transition temperature
$T_m$ - melting temperature
$T_m^o$ - equilibrium melting temperature
$T_{\text{endset}}$ - endset of of crystallization
$T_{\text{onset}}$ - onset
$U^*$ - energy for the transport of macromolecule in the melt
$X_r$ - relative crystallinity
$X_v$ - volume fraction of the dispersed phase
A - pre exponential constant
aPS - atactic polystyrene
ABS - poly(acrylonitrile-co-butadiene-co-styrene)
AFM - atomic force microscopy
ATBN - amine terminated butadiene acrylonitrile
CMC - critical micelle concentration
D - compatibilized and dynamically vulcanized blends
DMA - dynamic mechanical analysis
DSC - differential scanning calorimetry
DV - dynamic vulcanize
EAs - elastomeric alloys
ENR - epoxidized natural rubber
EP - ethylene propylene copolymer
EPDM - ethylene propylene diene terpolymer
HDPE - high density polyethylene
HOCP - hydrogenated oligo(cyclopentadiene)
HR - hydrocarbon resin
ISO - international standards organization
iPP - isotactic polypropylene
iPS - isotactic polystyrene
ISNR - Indian standard natural rubber
LCST - lower critical solution temperature
LDPE - low density polyethylene
LLDPE - linear low density polyethylene
MA-PP - maleic anhydride grafted polypropylene
MFI - melt flow index
MPa - mega pascal
NBR - acrylo nitrile-butadiene rubber
NR - natural rubber
OHB-5 - oligo (R)-3-hydroxybutyrate
OH-NR - hydroxy grafted natural rubber
PA - polyam ide
PaP - Poly(a-pinene)
PB - polybutadiene
PBI - polybenzimidazole
PHB - poly hydroxybutyrate
PC - bis-phenol A polycarbonate
PCL - polycaprolactone
PE - polyethylene
PEG - polyethylene glycol
PEO - Poly(ethylene oxide)
PEN - poly(ethylene naphthalenedicarboxylate)
PET - polyethylene terephthalate
PLLA - Poly (L-lactic acid)
PMMA - poly(methyl methacrylate)
POM - polarising optical microscopy
PP - polypropylene
PPE - polyphenylene ether
PPO - polyphenylene oxide
PS - polystyrene
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTT</td>
<td>polytrimethylene terephthalate</td>
</tr>
<tr>
<td>PVB</td>
<td>poly(vinyl butyral)</td>
</tr>
<tr>
<td>PVC</td>
<td>poly (vinyl chloride)</td>
</tr>
<tr>
<td>PVDF</td>
<td>polyvinylidene fluoride</td>
</tr>
<tr>
<td>SAXD</td>
<td>small angled x-ray diffraction</td>
</tr>
<tr>
<td>SBS</td>
<td>styrene-butadiene-styrene</td>
</tr>
<tr>
<td>SBR</td>
<td>styrene-butadiene rubber</td>
</tr>
<tr>
<td>SEBS</td>
<td>styrene-(ethylene/butylene)-styrene copolymer</td>
</tr>
<tr>
<td>SEM</td>
<td>scanning electron microscopy</td>
</tr>
<tr>
<td>SMA</td>
<td>styrene-maleic anhydride</td>
</tr>
<tr>
<td>TEM</td>
<td>transmission electron microscopy</td>
</tr>
<tr>
<td>TEO</td>
<td>thermoplastic elastomeric olefins</td>
</tr>
<tr>
<td>TPEs</td>
<td>thermoplastic elastomers</td>
</tr>
<tr>
<td>TPO</td>
<td>thermoplastic polyolefin</td>
</tr>
<tr>
<td>TPU</td>
<td>thermoplastic urethane</td>
</tr>
<tr>
<td>TPVs</td>
<td>thermoplastic vulcanizates</td>
</tr>
<tr>
<td>UCST</td>
<td>upper critical solution temperature</td>
</tr>
<tr>
<td>UTM</td>
<td>universal testing machine</td>
</tr>
<tr>
<td>$V_r$</td>
<td>volume fraction</td>
</tr>
<tr>
<td>WAXD</td>
<td>wide angle X-ray diffraction</td>
</tr>
<tr>
<td>WAXS</td>
<td>wide Angle X-Ray Scattering</td>
</tr>
<tr>
<td>ZnO</td>
<td>zinc oxide</td>
</tr>
</tbody>
</table>