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Table of Abbreviations

| | |
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| APP | Ammonium Poly- Phosphate |
| CNT | Carbon Nano Tube |
| CDFA | Carbonyl Difatty Amides |
| CCD | Charge Coupled Device |
| CA | Charring Agent |
| CVC | Chemical Vapor Condensation |
| CVD | Chemical Vapor Deposition |
| CAPB | Cocamidopropyl Betaine |
| CAB | Cocamidopropylbetaine |
| DSC | Differential Scanning Calorimetry |
| DRS | Digital Range Sensor |
| DNR | Do Not Resuscitate |
| DLS | Dynamic Light Scattering |
| EDX | Energy Dispersive X-ray |
| ESO | Epoxidized Soybean Oil |
| EG | Exfoliated Graphite |
| EXAFS | Extended X-Ray Absorption Fine Structure |
| FA | Fatty Amides |
| FHA | Fatty Hydroxamic Acids |
| FNC | Fatty Nitrogen Compounds |
| FWHM | Full Width at Half Maximum |
| GPC | Gel Permeation Chromatography |
| HRR | Heat Release Rate |
| HRTEM | High Resolution Transmission Electron Microscopy |
| HTXRD | High-Temperature X-Ray Diffraction |
| HA | Hydroxyapatite |
| IR | Infrared |
| ISCD | International Society for Clinical Densitometry |
| LA | Lactic Acid |
| LDH | Layered Double Hydroxide |
| EPMgMA | Maleic Anhydride-Grafted Ethylene Propylene Rubber |
| MFC | Micro Fibrillated Cellulose |
| MW | Microwave |
| MMT | Montmorillonite Clay |
| NMR | Nuclear Magnetic Resonance |
| OMLS | Organically Modified Layered Silicate |
| OREC | Organically Modified Rectorite |
| OZrP | Organo-Modified Zirconium Phosphate |
| OMMT | Organo-Montmorillonite |
| POM | Petra/Osiris/Molinspiration |
| PBAT | Poly (Butylene Adipate-Co-Terephthalate) |
| PLA | Poly Lactic Acid |
| PLLA | Poly L-Lactic Acid |
| PDI | Polydispersity Index |

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| pXRD | Powder X-Ray Diffraction |
| RPM | Revolutions Per Minute |
| SEM | Scanning Electron Microscopy |
| SiC | Silicon Carbide |
| SEC | Size Exclusion Chromatography |
| SZ | Sulfated Zirconia |
| SFM | Synthetic Fluorine Mica |
| TAC | Triallyl Cyanurate |
| THF | Tetrahydrofuran |
| TMS | Tetramethylsilane |
| TG | Thermogravimetry |
| TGA | Thermogravimetry Analysis |
| TPS | Thermoplastic Starch |
| TLC | Thin-Layer Chromatography |
| THR | Total Heat Release |
| TEM | Transmission Electron Microscopy |
| TMSCN | Trimethylsilyl Cyanide |
| TFC | Twice Functionalized Organoclay |
| UV | Ultraviolet |
| XRD | X-Ray Diffraction |

General Remarks

- [1] Melting points were determined on a Fargo melting point apparatus and are uncorrected.
- [2] ^1H NMR & ^{13}C NMR spectra were recorded on 400 MHz, Bruker AVANCE II spectrometer. Making a solution of samples in DMSO-*d*₆ or CDCl₃ solvents using tetramethylsilane (TMS) as the internal standard and are given in the ppm (δ) scale. The standard abbreviations s, d, t, q, m, dd, brs refer to singlet, doublet, triplet, quartet, multiplet, doublet of doublet, and broad singlet respectively.
- [3] Mass spectra were recorded on Shimadzu GC-MS-QP 2010 spectrometer operating at 70 eV using direct injection probe technique.
- [4] IR spectra were recorded on an IR Affinity-1S spectrophotometer Shimadzu or Shimadzu FT-IR 8400 Spectrophotometer.
- [5] Powder XRD measurements were performed on the Philips PANalytical by an X-ray diffractometer using Cu K α radiation source ($\lambda = 1.540598 \text{ \AA}$) operated at 30 mA, 40 kW with step size 0.02 and scan time 0.5 sec.
- [6] Thermo gravimetric analysis and Differential thermal analysis (TGA-DTA) was carried out on a Shimadzu DTG-60H at $10 \text{ }^\circ\text{C min}^{-1}$ heating rate in nitrogen atmosphere.
- [7] Differential scanning calorimetric (DSC) measurements were carried out on a Shimadzu DSC60 at a heating rate of $10^\circ\text{C min}^{-1}$ under a nitrogen atmosphere (flow rate 20 mL min^{-1}) using standard aluminium pans. Known amounts of the samples were sealed with the help of a crimper. The DSC thermograms were scanned over the temperature range from 50-400°C.
- [8] DLS analyses were carried out on Microtrac's DLS model Nanotrac.
- [9] The instrument High resolution transition electron microscope (HRTEM) and Energy Dispersive X-ray (EDX) JEOL JEM 2100 model with OXFORD Instrument INCA X-SIGHT model attached detector.
- [10] Scanning Electron Microscopy (SEM) and Energy Dispersive X-ray (EDX) were carried out on model JEOL-JSM-6510LV.
- [11] The instrument for GPC analysis used was Perkin elmer 200 series Refractive Index Detector and the analytical column for GPC analysis used was PL gel 5

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- μm 'Mixed D' columns connected in series with a guard column, length 30 cm, ID 7.8 mm and particle size 10.0 μm .
- [12] Analytical thin layer chromatography (TLC) was performed on Merck precoated Silica G60 F254 glass plates. Visualization of the spots on TLC plates was achieved either by exposure to iodine vapor or UV light.
- [13] All evaporation of solvents was carried out under reduced pressure on QUITRON Roteva - Rotary Vacuum Evaporator.
- [14] All reported yields are isolated yields after chromatography or crystallization or as mentioned.
- [15] The chemicals used for the synthesis of intermediates were purchased from Aldrich, Merck, Spectrochem, Sisco Research Laboratories (SRL), Thomas Baker and SD Fine Chemicals.
- [16] The structures and names of all compounds given in the experimental section and in physical data table were generated using ChemBio Draw Ultra 12.