

LIST OF TABLES

Table 1.1: A list of di/polyols used for the synthesis of epoxy resins and their applications

Table 1.2: A list of oxirane ring containing compounds and their corresponding reactants

Table 1.3: A list of hyperbranched core moieties and their corresponding multifunctional monomers

Table 1.4: A list of hardeners used for the formation of epoxy thermosets and their various applications

Table 2A.1: The values of D, L and T units (%) and degree of branching (DB) of PHE2h, PHE4h, PHE6h, PHE5 and PHE15 resins

Table 2A.2: Physical property values of PHE2h, PHE4h, PHE6h, PHE5, PHE15 and SBE resins

Table 2A.3: Performance of PHE2h, PHE4h, PHE6h, PHE5, PHE15 and SBE thermosets

Table 2A.4: Weight loss (%) of PHE2h, PHE4h, PHE6h, PHE5, PHE15 and SBE thermosets in different chemical media after 30 days of exposure

Table 2B.1: Physical properties of TAHE resins

Table 2B.2: Performance of TAHE thermosets

Table 2B.3: Performance for the combined hardener of PAA and PAD cured TAHE20 thermosets

Table 2B.4: Weight loss (%) of TAHE thermosets in different chemical media after 30 days of exposure

Table 2B.5: Weight loss (%) of TAHE20 thermosets cured with combined hardener system in different chemical media after 30 days of exposure

Table 2C.1: Physical properties of HBPE1, HBPE2, HBPE3 and HBPP resins

Table 2C.2: Performance of HBPE and MSBE thermosets

Table 2C.3: Chemical resistance (weight loss %) of the thermosets in different chemical media

Table 3A.1: Performance of the nanocomposites

Table 3A.2: Predicted and experimental modulus values (MPa)

Table 3B.1: Composition of nanocomposites in weight (phr)

Table 3B.2: Performance of pristine hyperbranched epoxy and its nanocomposites

Table 3B.3: Percentage of weight loss in different chemical media after 30 days of exposure

Table 4B.1: Performance of the nanocomposites

Table 4C.1: The values of physical parameters for PHE4h, CHE and ECP

Table 4C.2: Performance of PHE4h, CHE and ECP thermosets

Table 5A.1: Performance of pristine hyperbranched epoxy (TAHE20) and its nanocomposites with carbon dot and carbon dot reduced Cu₂O nanohybrid

Table 5A.2: Catalytic activity at different cycles of reuse

Table 5B.1: Performance of pristine hyperbranched epoxy and its nanocomposites with MITH-NH