Supporting Information

For *Designed monomers and polymers*

Phosphorus-containing polymers from THPS II : Synthesis and property of phosphorus-containing hyperbranched aromatic-aliphatic polyamides

Zhi-Wei Tan^{a,b}, Jian Sun^a, Min Zhang^a, Jin-Jun Qiu^a, Si-Qian Hu^c, Cheng-Mei Liu^{a*}

^aSchool of Chemistry and Chemical Engineering, Key Laboratory for Large-Format Battery

Materials and System, Ministry of Education, Huazhong University of Science and Technology,

Wuhan, 430074, China

^bSchool of Chemistry and Environmental Engineering, Hubei University for Nationalities, Enshi,

445000, China

^cSchool of Chemistry and Environmental Engineering, Jiangnan University, Wuhan, 430056, China

*Corresponding author. Tel: 86-27-87559627. E-mail: liukui@mail.hust.edu.cn

Figure S1. IR spectrum of TCP

Figure S2. ¹H NMR of TCP

Figure S3. ^{31}P NMR of TCP

Figure S4. IR spectrum of TCPO

Figure S5. ^{31}P NMR of TCPO

Figure S6. ^1H NMR of TCPO

Figure S7. IR spectrum of TCEPO

Figure S8. IR spectrum of PD-03

Figure S9. IR of ODA-04

Figure S10. IR of MDA-04