

# Preparation of Ceramic Fiber Threads with Enhanced Abrasion Resistance Performance

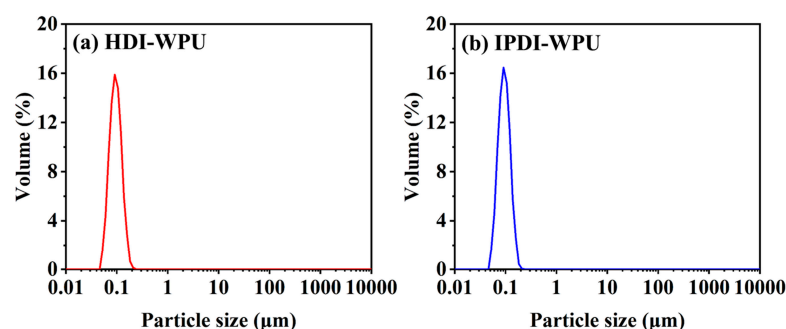
Xueying Zhang, Feng Hou \*, Haiyan Du, Liwen Yan, Anran Guo, Xiaohui Ma and Jiachen Liu \*

Key Laboratory of Advanced Ceramics and Machining Technology of Ministry of Education, School of Materials Science and Engineering, Tianjin University, Tianjin 300072, China; zxy\_92@163.com (X.Z.); hydu@tju.edu.cn (H.D.); lwyan@tju.edu.cn (L.Y.); arguo@tju.edu.cn (A.G.); xiaohuima@tju.edu.cn (X.M.)

\* Correspondence: houf@tju.edu.cn (F.H.); jcliutju@tju.edu.cn (J.L.)

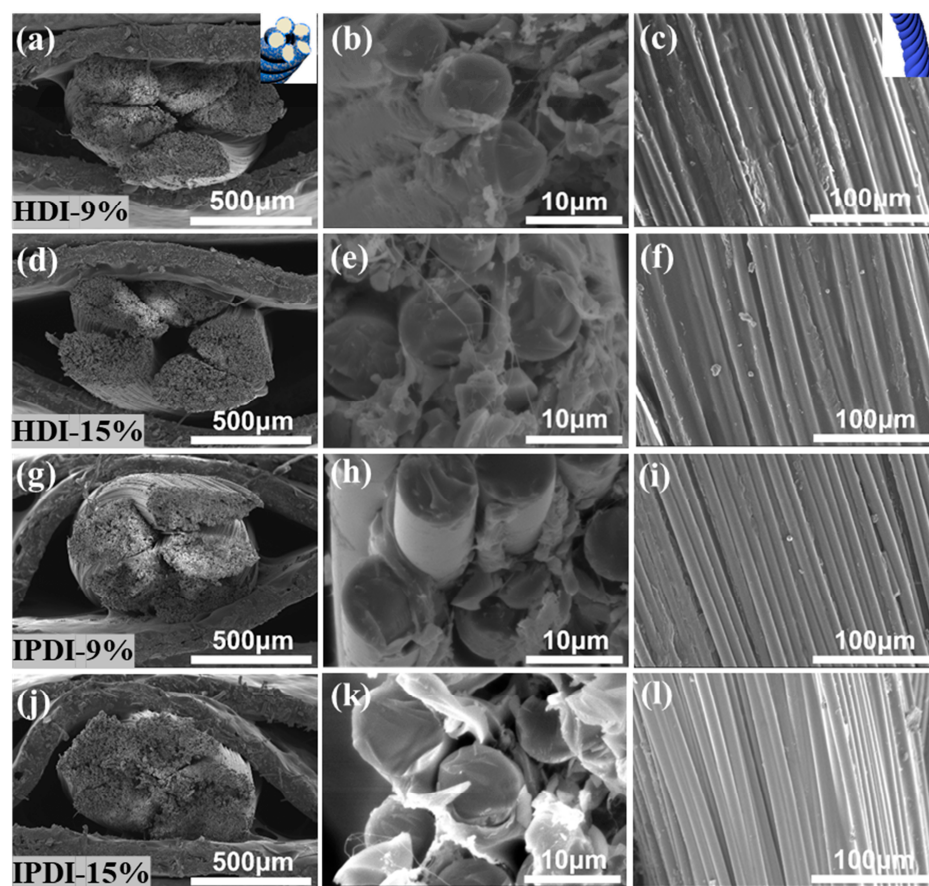
**Table S1.** More details of HDI-WPU and IPDI-WPU.

Type of modifier	Concentration (%)	Particle size $d_{50}$	Tensile strength	Elongation
		( $\mu\text{m}$ )	(MPa)	(%)
HDI-WPU	30	0.110	>20	>900
IPDI-WPU	30	0.108	>15	>700

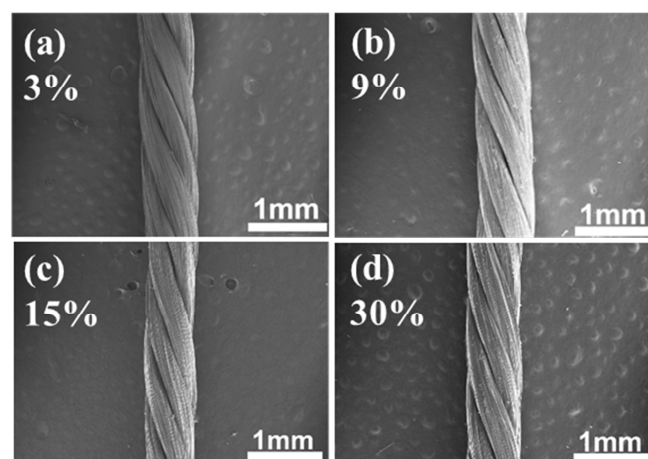


**Figure S1.** Particle size distributions of HDI-WPU dispersion(a) and IPDI-WPU dispersion(b).

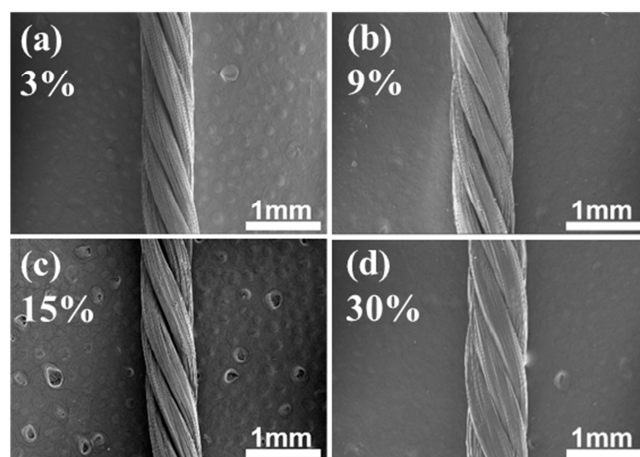
The particle size and distribution of the HDI-WPU and IPDI-WPU particles were measured and analyzed by a laser particle analyzer (Malvern 2000, UK) at ambient temperature.



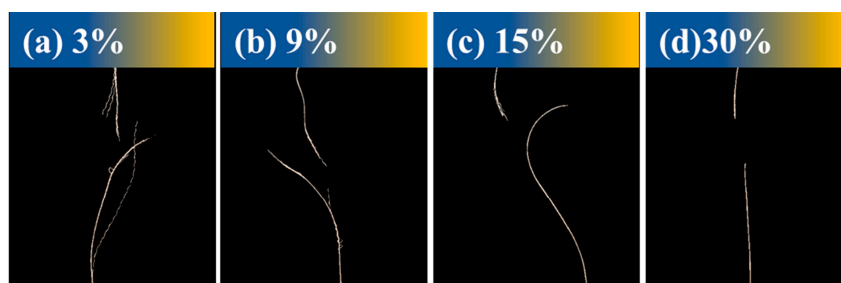
**Figure S2.** SEM images of ceramic fiber threads modified with HDI-WPU (a)-(f) and IPDI-WPU (g)-(l) at concentrations of 9% and 15%.



**Figure S3.** SEM images of ceramic fiber threads modified with HDI-WPU at concentrations of (a) 3%, (b) 9%, (c) 15% and (d) 30%.



**Figure S4.** SEM images of ceramic fiber threads modified with IPDI-WPU at concentrations of (a) 3%, (b) 9%, (c) 15% and (d) 30%.



**Figure S5.** Photographs of the friction fracture area of the IPDI-WPU-modified ceramic fiber threads with concentrations of (a) 3%, (b) 9%, (c) 15% and (d) 30%.