

---

PDMS+carbon black

ref: Zhu, Y.; Chen, X.; Chu, K.; Wang, X.; Hu, Z.; Su, H. Carbon Black/PDMS Based Flexible Capacitive Tactile Sensor for Multi-Directional Force Sensing. *Sensors* 2022, 22, 628. <https://doi.org/10.3390/s22020628>

Polydimethylsiloxane (PDMS) with micro carbon black particles inside was selected as the dielectric layer of the soft capacitive sensor. The preparation process of the dielectric layer was (Figure 5): first (i) carbon black with different mass fractions was dispersed in toluene solvent and ultrasonically dispersed for 2.5 h in an ultrasonic cleaning machine to obtain carbon black dispersion solution; then, (ii) PDMS prepolymer was added. The beaker was placed on an electric heating plate and heated at 60 °C until toluene volatilized completely. Whether toluene had been completely volatilized can be judged by the weighing method. The mass ratio of prepolymer to curing agent is 10:1. The curing agent is added in the proportion of 1:1 and is stirred with a glass rod and then put into a magnetic stirrer for 10 min to remove bubbles; then, (iii) it is poured into the mold and put into the blast drying oven. The temperature is set at 70 °C for 1 h of drying. Finally, the carbon black/PDMS composite is cut into the required shape and size as the medium layer.