

TPU Flexible Filament

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Consumables & Spares

TPU is a flexible, rubber-like 3D printing filament that bends and springs back, used for tyres, gaskets, phone cases, grippers and cushioning parts. It prints slowly with special settings because the soft material buckles in the filament path.

Key Features

- Shore hardnesses from 85A to 95A
- 1.75 mm spools
- Extreme flexibility and tear resistance
- Print at 220-250 degrees C
- Needs direct drive or careful feed settings

Typical Uses in the Workshop

- Print robot tyres and wheels
- Make gaskets, seals and bumpers
- Produce phone cases and grips
- Create flexible hinges and straps

Safe Operation

1. Print at reduced speeds (15-30 mm/s)
2. Use a direct-drive extruder for best results
3. Disable retraction or set it very low
4. Dry TPU before printing - it absorbs moisture
5. Print with a slightly hotter first layer

SAFETY NOTES

- Keep hot parts out of reach
- Vent the printing area
- Dry filament away from water sources
- Never force wet TPU through the nozzle
- Store spools sealed with desiccant

Maintenance & Consumables

- Dry the spool after storage
- Clean the extruder gears of TPU residue
- Check for tangles before each print
- Keep the print bed clean
- Replace worn extruder gears that slip

Specification & Buying Notes

Buy TPU in 85A for general flexible parts and keep it for specific uses rather than daily printing. Quality brands extrude more evenly. Match Shore hardness to the part flexibility needed.