# Supplementary Material

# Flexible Coatings Facilitate pH-Targeted Drug Release via Self-Unfolding Foils: Applications for Oral Drug Delivery

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**Table S1. Thickness measurements of the different polymeric mixtures.**

**Table S1.** Thickness of the respective enteric polymeric mixtures (mean ± SD, n = 3).

| | Thickness (µm) |
|---|---|
| **EFL** | 26.63 ± 0.77 |
| **E0** | 26.98 ± 1.99 |
| **E12.5** | 29.21 ± 0.57 |
| **E25** | 27.79 ± 1.27 |
| **K0** | 21.49 ± 0.83 |
| **K12.5** | 23.44 ± 0.34 |
| **K25** | 24.71 ± 0.41 |

Table S1 shows the individual thickness of the respective enteric polymeric mixtures used as a top coating during SUF preparation. The thickness was measured by contact profilometry (Alpha-Step IQ Stylus Profilometer, KLA-Tencor Corporation, Milpitas, USA). For that purpose, the different mixtures of the polymers were sprayed on flat silicon chips using the SUF spray coating protocol outlined above. The coating thicknesses were measured by making a scratch in the coating and running measurements across it using a 3 mg tip force with a scan speed of 130 µm/s and a resolution of 0.4 µm. All measurements were performed with three replicates for each polymer mixture and repeated a total of three times in different locations of each sample. Visualization of the loaded and coated foils, before and after fitting into a capsule, was carried out by SEM.

**S1. SEM image of a cross-section of an empty SUF.**

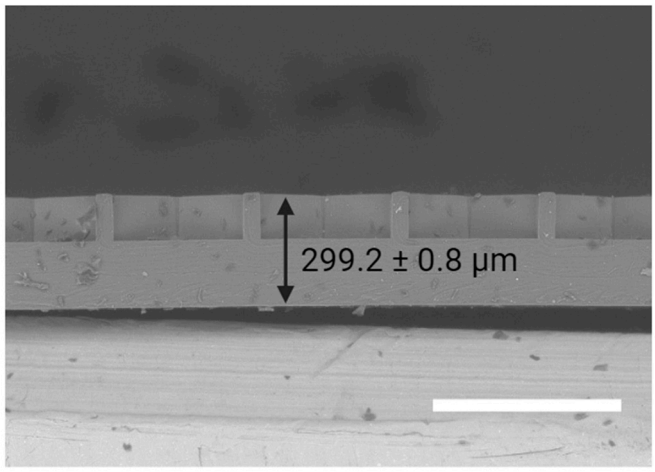


**Figure S1.** SEM image of a cross-section of an empty SUF and its respective thickness (mean ± SD, n = 4). The scale bar represents 500 µm.

**S2. Individual stress-strain curves of tensile tests.**

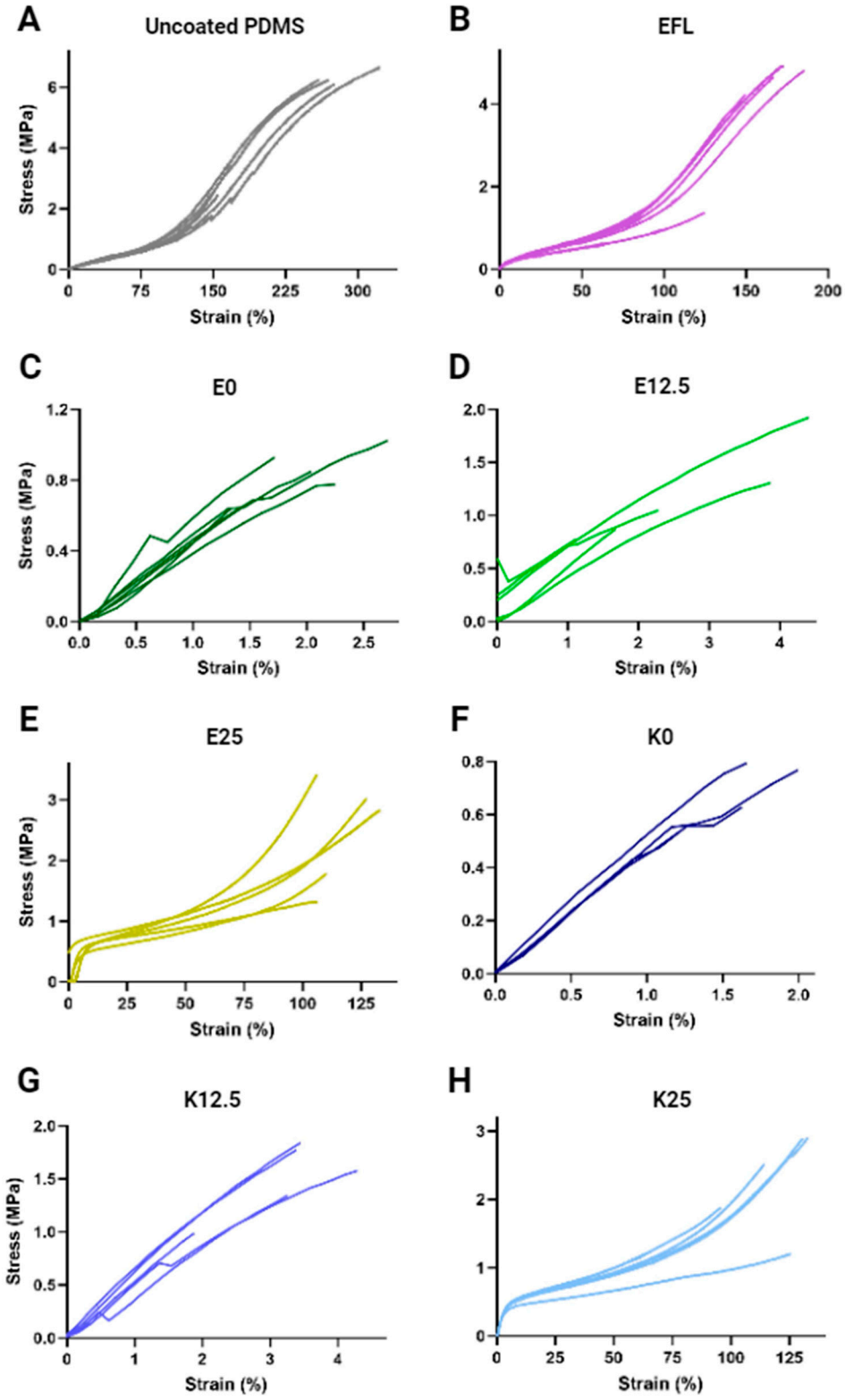


**Figure S2.** Individual stress-strain curves of (**A**) uncoated PDMS as a reference and PDMS spray coated with (**B**) EFL, (**C**) E0, (**D**) E12.5, (**E**) E25, (**F**) K0, (**G**) K12.5 and (**H**) E25 polymeric mixtures. The measurements were performed within a total of n = 4-5 replicates.

Figure S2 shows the individual stress-strain curves of the enteric mixtures spray coated onto surface treated PDMS dogbones. The measurements were performed by using a Texture Analyzer (TA.XTplusC Texture Analyzer, Stable Micro Systems, Godalming, England). A 10 kg load cell and a A/TG screw-initiated vice clamp operating on knurled jaw faces (35 mm × 35 mm) was used to carry out the pull test at a constant rate of 1 mm/s. Each type of sample was measured with 4-5 replicates.