

Supplementary Materials for

# UV-Curable Silicone-Modified Polyurethane Acrylates for Food Freshness Monitoring

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Table S1 Feed ratios for preparation PUAs

| Name of PUAs | Molar ratio of DMBA to PEG-600 | Amount of DMBA/g | Amount of PEG-600/g | Amount of TMP/g | Amount of IPDI/g | Amount of HPA/g |
|--------------|--------------------------------|------------------|---------------------|-----------------|------------------|-----------------|
| PUA-1        | 5:95                           | 0.3704           | 28.5                |                 |                  |                 |
| PUA-2        | 10:90                          | 3.180            | 9.37                |                 |                  |                 |
| PUA-3        | 15:85                          | 4.770            | 8.85 g              | ↑<br>0.4025     | ↑<br>24.937      | ↑<br>14.185     |
| PUA-4        | 20:80                          | 6.370            | 8.33 g              | ↓               | ↓                | ↓               |
| PUA-5        | 25:75                          | 7.960            | 7.81 g              |                 |                  |                 |

The amounts of acetone and DBTDL were the total mass and 0.4 wt% of the reaction raw materials, respectively.

Table S2 Feed ratios for preparation NR-PUAs

| Name of NR-PUAs | Molar ratio of DMBA to PEG-600 | PUAs  | Amount of PUAs/g | Amount of EDC·HCl /g | Amount of NHS/g | Amount of NR/g | Acrylate content calculated by <sup>1</sup> H-NMR (mmol/g) |
|-----------------|--------------------------------|-------|------------------|----------------------|-----------------|----------------|--|
| NR-PUA-1        | 5:95                           | PUA-1 |                  | 0.0690               | 0.0420          | 0.1050         | 4.69   |
| NR-PUA-2        | 10:90                          | PUA-2 |                  | 0.1132               | 0.0680          | 0.1706         | 4.37   |
| NR-PUA-3        | 15:85                          | PUA-3 | ↑<br>10.0        | 0.1420               | 0.08550         | 0.2150         | 4.16   |
| NR-PUA-4        | 20:80                          | PUA-4 | ↓                | 0.2170               | 0.1300          | 0.3260         | 3.95   |
| NR-PUA-5        | 25:75                          | PUA-5 |                  | 0.4580               | 0.2750          | 0.6900         | 3.74   |

The amounts of mixture solvent of THF and ethanol (m:m=1:4) was two fold of the mass of reaction raw materials.