**Table S5** Statistical model fit summary

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fit summary statistics: Vesicle Size (Y1) | | | | | | | | |
| Source (Models) | Sequential p-value | Lack of Fit p-value | Adjusted R² | Predicted R² | R2 value | Std. Dev. | PRESS |  |
| Linear | <0.0001 | 0.0202 | 0.9677 | 0.9580 | 0.9728 | 7.63 | 1437.14 |  |
| 2FI | 0.1288 | 0.0287 | 0.9739 | 0.9579 | 0.9821 | 6.85 | 1439.42 |  |
| Quadratic | 0.0002 | 0.6756 | 0.9950 | 0.9892 | 0.9973 | 3.01 | 368.84 | Suggested |
| Cubic | 0.5261 | 0.6788 | 0.9947 | 0.9840 | 0.9983 | 3.08 | 546.14 | Aliased |
| Fit summary statistics: Entrapment Efficiency (Y2) | | | | | | | | |
| Source (Models) | Sequential p-value | Lack of Fit p-value | Adjusted R² | Predicted R² | R2 value | Std. Dev. | PRESS |  |
| Linear | 0.0005 | 0.0001 | 0.6006 | 0.3786 | 0.6636 | 9.05 | 2419.08 |  |
| 2FI | <0.0001 | 0.0049 | 0.9174 | 0.8887 | 0.9435 | 4.11 | 433.45 |  |
| Quadratic | <0.0001 | 0.6796 | 0.9925 | 0.9847 | 0.9961 | 1.24 | 59.41 | Suggested |
| Cubic | 0.4899 | 0.9719 | 0.9924 | 0.9964 | 0.9976 | 1.25 | 13.98 | Aliased |
| Model summary statistics: Flexibility (Y3) | | | | | | | | |
| Source | Sequential p-value | Lack of Fit p-value | Adjusted R² | Predicted R² | R2 value | Std. Dev. | PRESS |  |
| Linear | 0.2254 | < 0.0001 | 0.0884 | -0.3209 | 0.2324 | 3.89 | 416.53 |  |
| 2FI | 0.0410 | 0.0001 | 0.3925 | 0.1731 | 0.5843 | 3.18 | 260.75 |  |
| Quadratic | <0.0001 | 0.1805 | 0.9766 | 0.9275 | 0.9877 | 0.6226 | 22.86 | Suggested |
| Cubic | 0.3877 | 0.0931 | 0.9787 | 0.3092 | 0.9933 | 0.5950 | 217.84 | Aliased |