**S2** **Table. Microfiber release data – North America liquid fabric conditioner testing.** The table shows measured mass of the wash load used (kg) and microfibers collected (mg) for microfiber release down the drain (cycles 1 and 4), collected on the dryer lint filter (cycles 1-4) and released from dryer exhaust (cycles 1-4). These data are used to calculate quantity of microfibers at these three stages in terms of ppm (parts per million, i.e. mg microfiber released per kg dry wash load).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Nil fabric conditioner** | | | |  |  |  |  |
|  | **Load mass**  **(kg)** | **Microfiber mass**  **(mg)** | | | **Microfiber release**  **(ppm)\*** | | |
|  |  | Down the drain | Lint filter | Dryer Exhaust | Down the drain | Lint filter | Dryer Exhaust |
| Cycle 1 – Load 1 | 2.970 | 298.90 | 577.50 | 178.30 | 100.64 | 194.44 | 60.03 |
| Cycle 1 – Load 2 | 3.010 | 199.70 | 519.00 | 234.60 | 66.35 | 172.43 | 77.94 |
| Cycle 1 – Load 3 | 2.960 | 300.50 | 570.60 | 235.00 | 101.52 | 192.77 | 79.39 |
| **Cycle 1 - Mean** | **2.980** | **266.37** | **555.70** | **215.97** | **89.50** | **186.55** | **72.46** |
| **Cycle 1 – Std Dev** | **0.026** | **57.74** | **31.97** | **32.62** | **20.06** | **12.26** | **10.78** |
| Cycle 2 – Load 1 | 2.970 | - | 314.90 | 181.10 | - | 106.03 | 60.98 |
| Cycle 2 – Load 2 | 3.010 | - | 392.40 | 154.90 | - | 130.37 | 51.46 |
| Cycle 2 – Load 3 | 2.960 | - | 274.30 | 180.40 | - | 92.67 | 60.95 |
| **Cycle 2 - Mean** | **2.980** | - | **327.20** | **172.13** | - | **109.69** | **57.79** |
| **Cycle 2 – Std Dev** | **0.026** | **-** | **60.00** | **14.93** | **-** | **19.11** | **5.48** |
| Cycle 3 – Load 1 | 2.970 | - | 190.00 | 90.10 | - | 63.97 | 30.34 |
| Cycle 3 – Load 2 | 3.010 | - | 246.40 | 88.80 | - | 81.86 | 29.50 |
| Cycle 3 – Load 3 | 2.960 | - | 209.00 | 120.00 | - | 70.61 | 40.54 |
| **Cycle 3 - Mean** | **2.980** | - | **215.13** | **99.63** | - | **72.15** | **33.46** |
| **Cycle 3 – Std Dev** | **0.026** | **-** | **28.70** | **17.65** | **-** | **9.04** | **6.15** |
| Cycle 4 – Load 1 | 2.970 | 122.60 | 176.50 | 116.30 | 41.28 | 59.43 | 39.16 |
| Cycle 4 – Load 2 | 3.010 | 115.50 | 173.00 | 99.10 | 38.37 | 57.48 | 32.92 |
| Cycle 4 – Load 3 | 2.960 | 102.60 | 149.30 | 117.70 | 34.66 | 50.44 | 39.76 |
| **Cycle 4 - Mean** | **2.980** | **113.57** | **166.27** | **111.03** | **38.10** | **55.78** | **37.28** |
| **Cycle 4 – Std Dev** | **0.026** | **10.14** | **14.80** | **10.36** | **3.32** | **4.73** | **3.79** |
| **Single dose fabric conditioner** | | | | | | | |
|  | **Load mass**  **(kg)** | **Microfiber mass**  **(mg)** | | | **Microfiber release**  **(ppm)\*** | | |
|  |  | Down the drain | Lint filter | Dryer Exhaust | Down the drain | Lint filter | Dryer Exhaust |
| Cycle 1 – Load 1 | 2.970 | 242.00 | 715.40 | 153.60 | 81.48 | 240.88 | 51.72 |
| Cycle 1 – Load 2 | 3.030 | 182.50 | 714.60 | 198.00 | 60.23 | 235.84 | 65.35 |
| Cycle 1 – Load 3 | 2.970 | 314.50 | 627.80 | 221.50 | 105.89 | 211.38 | 74.58 |
| **Cycle 1 - Mean** | **2.990** | **246.33** | **685.93** | **191.03** | **82.53** | **229.37** | **63.88** |
| **Cycle 1 – Std Dev** | **0.035** | **66.11** | **50.35** | **34.48** | **22.85** | **15.78** | **11.50** |
| Cycle 2 – Load 1 | 2.970 | - | 371.20 | 171.90 | - | 124.98 | 57.88 |
| Cycle 2 – Load 2 | 3.030 | - | 469.90 | 216.90 | - | 155.08 | 71.58 |
| Cycle 2 – Load 3 | 2.970 | - | 390.30 | 191.90 | - | 131.41 | 64.61 |
| **Cycle 2 - Mean** | **2.990** | - | **410.47** | **193.57** | - | **137.16** | **64.69** |
| **Cycle 2 – Std Dev** | **0.035** | **-** | **52.35** | **22.55** | **-** | **15.85** | **6.85** |
| Cycle 3 – Load 1 | 2.970 | - | 237.80 | 92.90 | - | 80.07 | 31.28 |
| Cycle 3 – Load 2 | 3.030 | - | 219.30 | 139.70 | - | 72.38 | 46.11 |
| Cycle 3 – Load 3 | 2.970 | - | 246.20 | 110.50 | - | 82.90 | 37.21 |
| **Cycle 3 - Mean** | **2.990** | - | **234.43** | **114.37** | - | **78.45** | **38.20** |
| **Cycle 3 – Std Dev** | **0.035** | **-** | **13.76** | **23.64** | **-** | **5.44** | **7.46** |
| Cycle 4 – Load 1 | 2.970 | 128.90 | 201.90 | 144.80 | 43.40 | 67.98 | 48.75 |
| Cycle 4 – Load 2 | 3.030 | 114.40 | 168.90 | 101.20 | 37.76 | 55.74 | 33.40 |
| Cycle 4 – Load 3 | 2.970 | 75.40 | 202.50 | 112.80 | 25.39 | 68.18 | 37.98 |
| **Cycle 4 - Mean** | **2.990** | **106.23** | **191.10** | **119.60** | **35.51** | **63.97** | **40.04** |
| **Cycle 4 – Std Dev** | **0.035** | **27.67** | **19.23** | **22.58** | **9.21** | **7.12** | **7.88** |
| **1.5 dose fabric conditioner** | | | | | | | |
|  | **Load mass**  **(kg)** | **Microfiber mass**  **(mg)** | | | **Microfiber release**  **(ppm)\*** | | |
|  |  | Down the drain | Lint filter | Dryer Exhaust | Down the drain | Lint filter | Dryer Exhaust |
| Cycle 1 – Load 1 | 2.970 | 261.3 | 737.7 | 199.5 | 87.98 | 248.38 | 67.17 |
| Cycle 1 – Load 2 | 3.030 | 180.5 | 700.6 | 181.4 | 59.57 | 231.22 | 59.87 |
| Cycle 1 – Load 3 | 2.99 | 204.5 | 805.5 | 128.2 | 68.39 | 269.40 | 42.88 |
| **Cycle 1 - Mean** | **2.997** | **215.43** | **747.93** | **169.70** | **71.98** | **249.67** | **56.64** |
| **Cycle 1 – Std Dev** | **0.030** | **41.49** | **53.19** | **37.06** | **14.54** | **19.12** | **12.47** |
| Cycle 2 – Load 1 | 2.970 | - | 414.2 | 140 | - | 139.46 | 47.14 |
| Cycle 2 – Load 2 | 3.030 | - | 440.1 | 139.2 | - | 145.25 | 45.94 |
| Cycle 2 – Load 3 | 2.990 | - | 377.9 | 151 | - | 126.39 | 50.50 |
| **Cycle 2 - Mean** | **2.997** | - | **410.73** | **143.40** | - | **137.03** | **47.86** |
| **Cycle 2 – Std Dev** | **0.030** | **-** | **31.24** | **6.59** | **-** | **9.66** | **2.36** |
| Cycle 3 – Load 1 | 2.970 | - | 253.2 | 83.2 | - | 85.25 | 28.01 |
| Cycle 3 – Load 2 | 3.030 | - | 276.8 | 105.4 | - | 91.35 | 34.79 |
| Cycle 3 – Load 3 | 2.990 | - | 271.7 | 107.9 | - | 90.87 | 36.09 |
| **Cycle 3 - Mean** | **2.997** | - | **267.23** | **98.83** | - | **89.16** | **32.96** |
| **Cycle 3 – Std Dev** | **0.030** | **-** | **12.42** | **13.60** | **-** | **3.39** | **4.33** |
| Cycle 4 – Load 1 | 2.970 | 190.6 | 258.3 | 115.8 | 64.18 | 86.97 | 38.99 |
| Cycle 4 – Load 2 | 3.030 | 92.6 | 225.0 | 122.9 | 30.56 | 74.26 | 40.56 |
| Cycle 4 – Load 3 | 2.990 | 126.6 | 217.0 | 112.1 | 42.34 | 72.58 | 37.48 |
| **Cycle 4 - Mean** | **2.997** | **136.6** | **233.43** | **116.93** | **45.69** | **77.93** | **39.01** |
| **Cycle 4 – Std Dev** | **0.030** | **69.30** | **23.55** | **5.02** | **17.06** | **7.87** | **1.54** |
| **Double dose fabric conditioner** | | | | | | | |
|  | **Load mass**  **(kg)** | **Microfiber mass**  **(mg)** | | | **Microfiber release**  **(ppm)\*** | | |
|  |  | Down the drain | Lint filter | Dryer Exhaust | Down the drain | Lint filter | Dryer Exhaust |
| Cycle 1 – Load 1 | 2.980 | 255.10 | 698.40 | 194.00 | 85.60 | 234.36 | 65.10 |
| Cycle 1 – Load 2 | 3.030 | 233.80 | 684.20 | 225.60 | 77.16 | 225.81 | 74.46 |
| Cycle 1 – Load 3 | 2.990 | 334.30 | 849.30 | 155.30 | 111.81 | 284.05 | 51.94 |
| **Cycle 1 - Mean** | **3.000** | **274.40** | **743.97** | **191.63** | **91.52** | **248.07** | **63.83** |
| **Cycle 1 – Std Dev** | **0.027** | **52.96** | **91.50** | **35.21** | **18.06** | **31.45** | **11.31** |
| Cycle 2 – Load 1 | 2.980 | - | 377.40 | 116.30 | - | 126.64 | 39.03 |
| Cycle 2 – Load 2 | 3.030 | - | 372.20 | 123.70 | - | 122.84 | 40.83 |
| Cycle 2 – Load 3 | 2.990 | - | 377.20 | 155.30 | - | 126.15 | 51.94 |
| **Cycle 2 - Mean** | **3.000** | - | **375.60** | **131.77** | - | **125.21** | **43.93** |
| **Cycle 2 – Std Dev** | **0.027** | **-** | **2.95** | **20.71** | **-** | **2.07** | **6.99** |
| Cycle 3 – Load 1 | 2.980 | - | 237.70 | 62.10 | - | 79.77 | 20.84 |
| Cycle 3 – Load 2 | 3.030 | - | 339.10 | 62.80 | - | 111.91 | 20.73 |
| Cycle 3 – Load 3 | 2.990 | - | 279.80 | 64.50 | - | 93.58 | 21.57 |
| **Cycle 3 - Mean** | **3.000** | - | **285.53** | **63.13** | - | **95.09** | **21.05** |
| **Cycle 3 – Std Dev** | **0.027** | **-** | **50.94** | **1.23** | **-** | **16.13** | **0.46** |
| Cycle 4 – Load 1 | 2.980 | 175.70 | 268.90 | 79.30 | 58.96 | 90.23 | 26.61 |
| Cycle 4 – Load 2 | 3.030 | 220.80 | 225.30 | 107.20 | 72.87 | 74.36 | 35.38 |
| Cycle 4 – Load 3 | 2.990 | 156.30 | 248.90 | 72.20 | 52.27 | 83.24 | 24.15 |
| **Cycle 4 - Mean** | **3.000** | **184.27** | **247.70** | **86.23** | **61.37** | **82.61** | **28.71** |
| **Cycle 4 – Std Dev** | **0.027** | **33.09** | **21.82** | **18.50** | **10.51** | **7.96** | **5.90** |

**\*Microfiber release (ppm) = Microfiber mass (mg) / Load mass (kg)**