**S4** **Table. Microfiber release data – Europe 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 | 2.930 | 537.40 | 721.40 | 237.20 | 183.41 | 246.21 | 80.96 |
| Cycle 1 – Load 2 | 2.980 | 290.90 | 525.70 | 186.00 | 97.62 | 176.41 | 62.42 |
| Cycle 1 – Load 3 | 3.050 | 224.50 | 531.10 | 193.00 | 73.61 | 174.13 | 63.28 |
| **Cycle 1 - Mean** | **2.986** | **350.93** | **592.73** | **205.40** | **118.21** | **198.92** | **68.88** |
| **Cycle 1 – Std Dev** | **0.060** | **164.86** | **111.46** | **27.76** | **57.73** | **40.97** | **10.46** |
| Cycle 2 – Load 1 | 2.930 | - | 278.70 | 157.50 | - | 95.12 | 53.75 |
| Cycle 2 – Load 2 | 2.980 | - | 355.30 | 163.60 | - | 119.23 | 54.90 |
| Cycle 2 – Load 3 | 3.050 | - | 357.00 | 147.50 | - | 117.05 | 48.36 |
| **Cycle 2 - Mean** | **2.986** | - | **330.33** | **156.20** | - | **110.47** | **52.34** |
| **Cycle 2 – Std Dev** | **0.060** | **-** | **44.72** | **8.13** | **-** | **13.33** | **3.49** |
| Cycle 3 – Load 1 | 2.930 | - | 205.70 | 105.60 | - | 70.20 | 36.04 |
| Cycle 3 – Load 2 | 2.980 | - | 174.80 | 110.90 | - | 58.66 | 37.21 |
| Cycle 3 – Load 3 | 3.050 | - | 216.70 | 126.10 | - | 71.05 | 41.34 |
| **Cycle 3 - Mean** | **2.986** | - | **199.07** | **114.20** | - | **66.64** | **38.20** |
| **Cycle 3 – Std Dev** | **0.060** | **-** | **21.72** | **10.64** | **-** | **6.92** | **2.79** |
| Cycle 4 – Load 1 | 2.930 | 132.30 | 162.60 | 110.60 | 45.15 | 55.49 | 37.75 |
| Cycle 4 – Load 2 | 2.980 | 130.10 | 174.90 | 120.60 | 43.66 | 58.69 | 40.47 |
| Cycle 4 – Load 3 | 3.050 | 96.50 | 132.10 | 86.20 | 31.64 | 43.31 | 28.26 |
| **Cycle 4 - Mean** | **2.986** | **119.63** | **156.53** | **105.80** | **40.15** | **52.50** | **35.49** |
| **Cycle 4 – Std Dev** | **0.060** | **20.06** | **22.04** | **17.70** | **7.41** | **8.12** | **6.41** |
| **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 | 2.920 | 290.90 | 799.90 | 198.60 | 99.62 | 273.94 | 68.01 |
| Cycle 1 – Load 2 | 2.970 | 284.60 | 934.10 | 194.40 | 95.82 | 314.51 | 65.45 |
| Cycle 1 – Load 3 | 2.990 | 287.60 | 680.30 | 219.80 | 96.19 | 227.53 | 73.51 |
| **Cycle 1 - Mean** | **2.960** | **287.70** | **804.77** | **204.27** | **97.21** | **271.99** | **68.99** |
| **Cycle 1 – Std Dev** | **0.036** | **3.15** | **126.97** | **13.62** | **2.10** | **43.53** | **4.12** |
| Cycle 2 – Load 1 | 2.920 | - | 441.30 | 185.90 | - | 151.13 | 63.66 |
| Cycle 2 – Load 2 | 2.970 | - | 351.00 | 175.10 | - | 118.18 | 58.96 |
| Cycle 2 – Load 3 | 2.990 | - | 440.80 | 199.80 | - | 147.42 | 66.82 |
| **Cycle 2 - Mean** | **2.960** | - | **411.03** | **186.93** | - | **138.91** | **63.15** |
| **Cycle 2 – Std Dev** | **0.036** | **-** | **51.99** | **12.38** | **-** | **18.05** | **3.96** |
| Cycle 3 – Load 1 | 2.920 | - | 253.10 | 125.40 | - | 86.68 | 42.95 |
| Cycle 3 – Load 2 | 2.970 | - | 242.50 | 115.00 | - | 81.65 | 38.72 |
| Cycle 3 – Load 3 | 2.990 | - | 254.20 | 98.90 | - | 85.02 | 33.08 |
| **Cycle 3 - Mean** | **2.960** | - | **249.93** | **113.10** | - | **84.45** | **38.25** |
| **Cycle 3 – Std Dev** | **0.036** | **-** | **6.46** | **13.35** | **-** | **2.56** | **4.95** |
| Cycle 4 – Load 1 | 2.920 | 103.10 | 272.40 | 129.90 | 35.31 | 93.29 | 44.49 |
| Cycle 4 – Load 2 | 2.970 | 146.10 | 211.60 | 139.00 | 49.19 | 71.25 | 46.80 |
| Cycle 4 – Load 3 | 2.990 | 70.70 | 231.60 | 101.70 | 23.65 | 77.46 | 34.01 |
| **Cycle 4 - Mean** | **2.960** | **106.63** | **238.53** | **123.53** | **36.05** | **80.66** | **41.77** |
| **Cycle 4 – Std Dev** | **0.036** | **37.82** | **30.99** | **19.45** | **12.79** | **11.37** | **6.81** |
| **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 | 2.930 | 343.30 | 862.00 | 238.10 | 117.17 | 294.20 | 81.26 |
| Cycle 1 – Load 2 | 2.950 | 388.30 | 725.10 | 195.50 | 131.63 | 245.80 | 66.27 |
| Cycle 1 – Load 3 | 2.970 | 291.80 | 925.10 | 151.70 | 98.25 | 311.48 | 51.08 |
| **Cycle 1 - Mean** | **2.950** | **341.13** | **837.40** | **195.10** | **115.68** | **283.83** | **66.20** |
| **Cycle 1 – Std Dev** | **0.020** | **48.29** | **102.24** | **43.20** | **16.74** | **34.05** | **15.09** |
| Cycle 2 – Load 1 | 2.930 | - | 431.20 | 153.30 | - | 147.17 | 52.32 |
| Cycle 2 – Load 2 | 2.950 | - | 480.90 | 159.50 | - | 163.02 | 54.07 |
| Cycle 2 – Load 3 | 2.970 | - | 378.90 | 130.75 | - | 127.58 | 44.02 |
| **Cycle 2 - Mean** | **2.950** | - | **430.33** | **147.85** | - | **145.92** | **50.14** |
| **Cycle 2 – Std Dev** | **0.020** | **-** | **51.01** | **15.13** | **-** | **17.75** | **5.37** |
| Cycle 3 – Load 1 | 2.930 | - | 304.00 | 124.30 | - | 103.75 | 42.42 |
| Cycle 3 – Load 2 | 2.950 | - | 289.10 | 129.00 | - | 98.00 | 43.73 |
| Cycle 3 – Load 3 | 2.970 | - | 295.80 | 122.30 | - | 99.60 | 41.18 |
| **Cycle 3 - Mean** | **2.950** | - | **296.30** | **125.20** | - | **100.45** | **42.44** |
| **Cycle 3 – Std Dev** | **0.020** | **-** | **7.46** | **3.44** | **-** | **2.97** | **1.28** |
| Cycle 4 – Load 1 | 2.930 | 116.00 | 311.10 | 109.80 | 39.59 | 106.18 | 37.47 |
| Cycle 4 – Load 2 | 2.950 | 104.70 | 261.80 | 101.60 | 35.49 | 88.75 | 34.44 |
| Cycle 4 – Load 3 | 2.970 | 86.30 | 274.40 | 106.90 | 29.06 | 92.39 | 35.99 |
| **Cycle 4 - Mean** | **2.950** | **102.33** | **282.43** | **106.10** | **34.71** | **95.77** | **35.97** |
| **Cycle 4 – Std Dev** | **0.020** | **14.99** | **25.61** | **4.16** | **5.31** | **9.19** | **1.52** |
| **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 | 2.940 | 454.40 | 901.70 | 197.90 | 154.56 | 306.70 | 67.31 |
| Cycle 1 – Load 2 | 2.980 | 355.40 | 931.40 | 172.90 | 119.26 | 312.55 | 58.02 |
| Cycle 1 – Load 3 | 2.980 | 317.30 | 909.80 | 107.50 | 106.48 | 305.30 | 36.07 |
| **Cycle 1 - Mean** | **2.967** | **375.70** | **914.30** | **159.43** | **126.77** | **308.18** | **53.80** |
| **Cycle 1 – Std Dev** | **0.023** | **70.77** | **15.35** | **46.68** | **24.90** | **3.85** | **16.04** |
| Cycle 2 – Load 1 | 2.940 | - | 513.40 | 143.80 | - | 174.63 | 48.91 |
| Cycle 2 – Load 2 | 2.980 | - | 454.60 | 131.80 | - | 152.55 | 44.23 |
| Cycle 2 – Load 3 | 2.980 | - | 504.50 | 155.50 | - | 169.30 | 52.18 |
| **Cycle 2 - Mean** | **2.967** | - | **490.83** | **143.70** | - | **165.49** | **48.44** |
| **Cycle 2 – Std Dev** | **0.023** | **-** | **31.69** | **11.85** | **-** | **11.52** | **4.00** |
| Cycle 3 – Load 1 | 2.940 | - | 325.20 | 88.70 | - | 110.61 | 30.17 |
| Cycle 3 – Load 2 | 2.980 | - | 313.80 | 94.40 | - | 105.30 | 31.68 |
| Cycle 3 – Load 3 | 2.980 | - | 293.00 | 107.20 | - | 98.32 | 35.97 |
| **Cycle 3 - Mean** | **2.967** | - | **310.67** | **96.77** | - | **104.75** | **32.61** |
| **Cycle 3 – Std Dev** | **0.023** | **-** | **16.33** | **9.47** | **-** | **6.16** | **3.01** |
| Cycle 4 – Load 1 | 2.940 | 127.70 | 274.50 | 107.90 | 43.44 | 93.37 | 36.70 |
| Cycle 4 – Load 2 | 2.980 | 130.10 | 303.60 | 96.70 | 43.66 | 101.88 | 32.45 |
| Cycle 4 – Load 3 | 2.980 | 112.30 | 214.60 | 83.40 | 37.68 | 72.01 | 27.99 |
| **Cycle 4 - Mean** | **2.967** | **123.37** | **264.23** | **96.00** | **41.59** | **89.09** | **32.38** |
| **Cycle 4 – Std Dev** | **0.023** | **9.66** | **45.38** | **12.26** | **3.39** | **15.39** | **4.36** |

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