

7. LAMPIRAN

7.1. *Recovery Rate*

Hasil *recovery rate* (%) dari setiap jenis standar internal dapat dilihat pada Lampiran 1.

Lampiran 1. Hasil *recovery rate* (%) setiap jenis standar internal

| Standar Internal | Ulangan | Jumlah partikel sebelum digesti | Jumlah partikel setelah digesti | % <i>Recovery</i> |
|------------------|---------|---------------------------------|---------------------------------|-------------------|
| PE | 1 | 10 | 10 | 100 |
| | 2 | 10 | 10 | 100 |
| | 3 | 10 | 10 | 100 |
| | 4 | 10 | 7 | 70 |
| | 5 | 10 | 8 | 80 |
| PP | 1 | 10 | 3 | 30 |
| | 2 | 10 | 9 | 90 |
| | 3 | 10 | 5 | 50 |
| | 4 | 10 | 9 | 90 |
| | 5 | 10 | 9 | 90 |
| PS | 1 | 10 | 10 | 100 |
| | 2 | 10 | 10 | 100 |
| | 3 | 10 | 10 | 100 |
| | 4 | 10 | 10 | 100 |
| | 5 | 10 | 8 | 80 |
| PVC | 1 | 10 | 10 | 100 |
| | 2 | 10 | 10 | 100 |
| | 3 | 10 | 10 | 100 |
| | 4 | 10 | 10 | 100 |
| | 5 | 10 | 10 | 100 |

7.2. **Ukuran Panjang Standar Internal Sebelum dan Setelah Digesti**

Ukuran panjang standar internal sebelum dan setelah digesti dapat dilihat pada Lampiran 2.

Lampiran 2. Ukuran panjang standar internal sebelum dan setelah digesti

| Standar Internal | Ulangan | Partikel ke- | Panjang sebelum digesti (μm) | Panjang setelah digesti (μm) |
|------------------|---------|--------------|---|---|
| PE | 1 | 1 | 380,16 | 329,57 |
| | | 2 | 499,38 | 293,6 |
| | | 3 | 398,44 | 252,46 |
| | | 4 | 246,37 | 297,79 |
| | | 5 | 273,48 | 278,5 |
| | | 6 | 262,39 | 319,21 |
| | | 7 | 383,09 | 262,39 |

| Standar Internal | Ulangan | Partikel ke- | Panjang sebelum digesti (μm) | Panjang setelah digesti (μm) |
|------------------|---------|--------------|---|---|
| | | 8 | 314,79 | 325,78 |
| | | 9 | 286,41 | 253,24 |
| | | 10 | 282,87 | 272,99 |
| | 2 | 1 | 206,39 | 432,23 |
| | | 2 | 258,24 | 371,51 |
| | | 3 | 381,22 | 537,39 |
| | | 4 | 383,87 | 304,09 |
| | | 5 | 366,05 | 354,12 |
| | | 6 | 292,67 | 279,23 |
| | | 7 | 420,31 | 250,18 |
| | | 8 | 285,7 | 326,41 |
| | | 9 | 245,08 | 299,56 |
| | | 10 | 351,63 | 286,38 |
| | 3 | 1 | 145,62 | 141,23 |
| | | 2 | 284,89 | 133,4 |
| | | 3 | 289,27 | 166,77 |
| | | 4 | 270,35 | 181,23 |
| | | 5 | 275,7 | 266,66 |
| | | 6 | 259,8 | 192,71 |
| | | 7 | 295,82 | 182,81 |
| | | 8 | 190,47 | 200,39 |
| | | 9 | 280,31 | 212,39 |
| | | 10 | 244,83 | 183,12 |
| | 4 | 1 | 281,2 | 275,71 |
| | | 2 | 197,91 | 212,39 |
| | | 3 | 139,92 | 202,7 |
| | | 4 | 166,29 | 137,46 |
| | | 5 | 242,25 | 129,8 |
| | | 6 | 295,32 | 117,67 |
| | | 7 | 206,61 | 228,33 |
| | | 8 | 177,33 | |
| | | 9 | 285,36 | |
| | | 10 | 343,24 | |
| | 5 | 1 | 262,53 | 290,93 |
| | | 2 | 277,63 | 174,48 |
| | | 3 | 385,06 | 204,11 |
| | | 4 | 406,64 | 160,84 |
| | | 5 | 364,33 | 414,31 |
| | | 6 | 515,86 | 291,37 |
| | | 7 | 311,07 | 193,76 |
| | | 8 | 364,62 | 167,11 |
| | | 9 | 237,69 | |
| | | 10 | 328,36 | |
| PP | 1 | 1 | 636,26 | 522,92 |
| | | 2 | 598,73 | 695,04 |

| Standar Internal | Ulangan | Partikel ke- | Panjang sebelum digesti (μm) | Panjang setelah digesti (μm) |
|------------------|---------|--------------|---|---|
| | | 3 | 514,9 | 802,5 |
| | | 4 | 768,48 | |
| | | 5 | 537,45 | |
| | | 6 | 864,83 | |
| | | 7 | 675,31 | |
| | | 8 | 844,09 | |
| | | 9 | 612,38 | |
| | | 10 | 721,94 | |
| | 2 | 1 | 428,21 | 720,1 |
| | | 2 | 436,85 | 733,3 |
| | | 3 | 663,51 | 496,75 |
| | | 4 | 800,9 | 490,58 |
| | | 5 | 667,08 | 273,81 |
| | | 6 | 904,33 | 279,71 |
| | | 7 | 540,3 | 327,09 |
| | | 8 | 855,71 | 507,07 |
| | | 9 | 457,6 | 278,65 |
| | | 10 | 617,16 | |
| | 3 | 1 | 1111,95 | 908,71 |
| | | 2 | 1234,91 | 755,71 |
| | | 3 | 780,21 | 733,25 |
| | | 4 | 845,12 | 402,14 |
| | | 5 | 857,94 | 537,25 |
| | | 6 | 797,31 | |
| | | 7 | 835,2 | |
| | | 8 | 709,72 | |
| | | 9 | 807,39 | |
| | | 10 | 770,75 | |
| | 4 | 1 | 665,48 | 753,84 |
| | | 2 | 622,33 | 713,32 |
| | | 3 | 756,93 | 643,73 |
| | | 4 | 656,67 | 595,84 |
| | | 5 | 708,23 | 1066,02 |
| | | 6 | 1036,43 | 767,48 |
| | | 7 | 986,04 | 117,68 |
| | | 8 | 1035,51 | 601,92 |
| | | 9 | 729,65 | 372,94 |
| | | 10 | 763,95 | |
| | 5 | 1 | 919,13 | 943,49 |
| | | 2 | 954,97 | 664,36 |
| | | 3 | 1065,03 | 660,93 |
| | | 4 | 1067,3 | 1365,77 |
| | | 5 | 1210,2 | 869,84 |
| | | 6 | 838,33 | 1150,26 |
| | | 7 | 1116,67 | 940,73 |

| Standar Internal | Ulangan | Partikel ke- | Panjang sebelum digesti (μm) | Panjang setelah digesti (μm) |
|------------------|---------|--------------|---|---|
| PS | 1 | 8 | 736,93 | 1040,13 |
| | | 9 | 740,78 | 716,27 |
| | | 10 | 1131,06 | |
| | | 1 | 1250,59 | 794,25 |
| | | 2 | 1243,63 | 843,92 |
| | | 3 | 1035,46 | 779,34 |
| | | 4 | 1393,62 | 879,28 |
| | | 5 | 994,64 | 813,21 |
| | | 6 | 1214,58 | 723,77 |
| | | 7 | 1422,02 | 686,4 |
| | 2 | 8 | 1049,03 | 776,73 |
| | | 9 | 777,02 | 1403,2 |
| | | 10 | 1204,26 | 779,7 |
| | | 1 | 1956,47 | 1852,87 |
| | | 2 | 2185,18 | 1505,29 |
| | | 3 | 1368,5 | 1209,84 |
| | | 4 | 1619,96 | 1612,91 |
| | | 5 | 1730,27 | 1386,99 |
| | | 6 | 2091,33 | 1437,87 |
| | | 7 | 1468,64 | 1886,46 |
| | 3 | 8 | 2092,89 | 1013,77 |
| | | 9 | 1679,98 | 1441,76 |
| | | 10 | 2061,93 | 1499,95 |
| | | 1 | 1717,27 | 728,25 |
| | | 2 | 1409,25 | 1066,89 |
| | | 3 | 1703,16 | 1010,32 |
| | | 4 | 1574,63 | 1601,02 |
| | | 5 | 1806,16 | 904,63 |
| | | 6 | 1803,88 | 1088,75 |
| | | 7 | 1742,36 | 776,73 |
| | 4 | 8 | 1480,66 | 827,72 |
| | | 9 | 1449,95 | 1034,41 |
| | | 10 | 1610,24 | 1453,49 |
| | | 1 | 1602,62 | 836,42 |
| | | 2 | 1301,43 | 688,52 |
| | | 3 | 1435,39 | 1450,68 |
| | | 4 | 1360,69 | 1220,36 |
| | | 5 | 1495,63 | 666,73 |
| | | 6 | 1460,72 | 709,28 |
| | | 7 | 1830,53 | 961,74 |
| 5 | 8 | 1830,53 | 1167,23 | |
| | 9 | 1408,94 | 811,32 | |
| | 10 | 1315,11 | 955,2 | |
| | 1 | 1275,1 | 1228,26 | |
| | | 2 | 1291,19 | 951,15 |

| Standar Internal | Ulangan | Partikel ke- | Panjang sebelum digesti (μm) | Panjang setelah digesti (μm) |
|------------------|---------|--------------|---|---|
| PVC | 1 | 3 | 1552,19 | 888,82 |
| | | 4 | 1480,3 | 1016,7 |
| | | 5 | 1351,83 | 1059,72 |
| | | 6 | 1486,64 | 1163,28 |
| | | 7 | 1189,63 | 1297,99 |
| | | 8 | 1165,7 | 1018,64 |
| | | 9 | 1149,62 | |
| | | 10 | 1414,26 | |
| | | 1 | 642,71 | 843,09 |
| | | 2 | 1135,59 | 977,99 |
| | 2 | 3 | 1123,86 | 985,13 |
| | | 4 | 966,17 | 847,86 |
| | | 5 | 1111,63 | 937,81 |
| | | 6 | 1036,47 | 1069,83 |
| | | 7 | 837,31 | 1150,98 |
| | | 8 | 992,55 | 633,55 |
| | | 9 | 871,18 | 1105,58 |
| | | 10 | 942,9 | 1053,09 |
| | | 1 | 2011,56 | 1348,86 |
| | | 2 | 1945,16 | 1467,58 |
| | 3 | 3 | 1461,25 | 1499,38 |
| | | 4 | 1626,85 | 1509,03 |
| | | 5 | 1380,01 | 1576,29 |
| | | 6 | 1549,86 | 1660,22 |
| | | 7 | 1857,16 | 1662,44 |
| | | 8 | 1587,86 | 1814,33 |
| | | 9 | 1665,15 | 1945,88 |
| | | 10 | 1370,22 | 1980,46 |
| | | 1 | 1738,96 | 1759,8 |
| | | 2 | 1316,45 | 2013,19 |
| | 4 | 3 | 2003,15 | 1794,92 |
| | | 4 | 1791,98 | 1778,06 |
| | | 5 | 1970,26 | 1622,56 |
| | | 6 | 1426,2 | 2030,71 |
| | | 7 | 1804,85 | 1651,71 |
| | | 8 | 1834,61 | 1232,95 |
| | | 9 | 1821,79 | 1923,48 |
| | | 10 | 2150,33 | 2036,75 |
| | | 1 | 1667,14 | 1691,97 |
| | | 2 | 1908,96 | 2559,45 |
| 4 | 3 | 1516,3 | 1953,81 | |
| | 4 | 1633,56 | 1578,16 | |
| | 5 | 1761,66 | 1913,79 | |
| | 6 | 1587,81 | 1476,78 | |
| | 7 | 1922,44 | 1909,22 | |

| Standar Internal | Ulangan | Partikel ke- | Panjang sebelum digesti (μm) | Panjang setelah digesti (μm) |
|------------------|---------|--------------|---|---|
| | | 8 | 1796,12 | 1812,33 |
| | | 9 | 2203,39 | 2269,51 |
| | | 10 | 2576,47 | 1836,03 |
| | 5 | 1 | 1074,6 | 972,7 |
| | | 2 | 971,99 | 1024,76 |
| | | 3 | 916,94 | 1103,01 |
| | | 4 | 984,48 | 924,51 |
| | | 5 | 984,5 | 996 |
| | | 6 | 1078,06 | 1076,44 |
| | | 7 | 805,79 | 1048,52 |
| | | 8 | 868,09 | 859,58 |
| | | 9 | 931,05 | 852,3 |
| | | 10 | 926,58 | 992 |

7.3. Ukuran Keliling Standar Internal Sebelum dan Setelah Digesti

Ukuran keliling standar internal sebelum dan setelah digesti dapat dilihat pada Lampiran 3.

Lampiran 3. Ukuran keliling standar internal sebelum dan setelah digesti

| Standar Internal | Ulangan | Partikel ke- | Keliling sebelum digesti (μm) | Keliling setelah digesti (μm) |
|------------------|---------|--------------|--|--|
| PE | 1 | 1 | 1363,33 | 976,37 |
| | | 2 | 1496,68 | 833,9 |
| | | 3 | 1176,11 | 810,43 |
| | | 4 | 787,01 | 1084,75 |
| | | 5 | 807,38 | 757,22 |
| | | 6 | 781,49 | 1047,64 |
| | | 7 | 1257,14 | 980,02 |
| | | 8 | 895,21 | 925,98 |
| | | 9 | 865,07 | 683,03 |
| | | 10 | 820,78 | 818,72 |
| | 2 | 1 | 672,48 | 1247,86 |
| | | 2 | 739,17 | 967,6 |
| | | 3 | 1025,49 | 1598,66 |
| | | 4 | 1024,63 | 860,36 |
| | | 5 | 931,85 | 960,12 |
| | | 6 | 824,09 | 921,98 |
| | | 7 | 1114,98 | 686,92 |
| | | 8 | 851,88 | 1095,49 |
| | | 9 | 821,83 | 876,62 |
| | | 10 | 1039,68 | 854 |
| | 3 | 1 | 397,45 | 453,41 |

| Standar Internal | Ulangan | Partikel ke- | Keliling sebelum digesti (μm) | Keliling setelah digesti (μm) |
|------------------|---------|--------------|--|--|
| | | 2 | 758,27 | 430,9 |
| | | 3 | 817,72 | 541,93 |
| | | 4 | 713,68 | 607,03 |
| | | 5 | 783 | 826,47 |
| | | 6 | 772,16 | 554,14 |
| | | 7 | 855,06 | 521,44 |
| | | 8 | 604,69 | 704,75 |
| | | 9 | 741,05 | 685,76 |
| | | 10 | 709,77 | 599,81 |
| | 4 | 1 | 896,52 | 830,59 |
| | | 2 | 596,21 | 590,42 |
| | | 3 | 464,67 | 624,41 |
| | | 4 | 500,07 | 425,91 |
| | | 5 | 821,83 | 430,96 |
| | | 6 | 773,98 | 324,38 |
| | | 7 | 747,33 | 824,3 |
| | | 8 | 604,23 | |
| | | 9 | 735,7 | |
| | | 10 | 1012,13 | |
| | 5 | 1 | 743,76 | 839,9 |
| | | 2 | 780,21 | 523,71 |
| | | 3 | 1199,03 | 697,05 |
| | | 4 | 1342,66 | 465,28 |
| | | 5 | 1070,66 | 1284,94 |
| | | 6 | 1386,77 | 855,66 |
| | | 7 | 868,08 | 756,66 |
| | | 8 | 981,91 | 554,48 |
| | | 9 | 741,4 | |
| | | 10 | 924,98 | |
| PP | 1 | 1 | 1787,71 | 1788,89 |
| | | 2 | 2026,82 | 2844,03 |
| | | 3 | 1415,59 | 2098,3 |
| | | 4 | 2270,48 | |
| | | 5 | 1506,55 | |
| | | 6 | 2271,19 | |
| | | 7 | 2213,65 | |
| | | 8 | 1988,13 | |
| | | 9 | 1998,45 | |
| | | 10 | 2071,69 | |
| | 2 | 1 | 1205,86 | 2484,12 |
| | | 2 | 1051,84 | 3363,72 |
| | | 3 | 2283,93 | 1361,29 |
| | | 4 | 2078,48 | 2124,22 |
| | | 5 | 2025,49 | 805,46 |
| | | 6 | 2549,61 | 756,86 |

| Standar Internal | Ulangan | Partikel ke- | Keliling sebelum digesti (μm) | Keliling setelah digesti (μm) |
|------------------|---------|--------------|--|--|
| | | 7 | 1437,51 | 934,96 |
| | | 8 | 2489,6 | 1378,1 |
| | | 9 | 1748,41 | 749,21 |
| | | 10 | 1748,8 | |
| | 3 | 1 | 3552,31 | 2295,13 |
| | | 2 | 3567,91 | 1684,44 |
| | | 3 | 2460,27 | 2195,08 |
| | | 4 | 2939,87 | 995,96 |
| | | 5 | 3278,18 | 1635,15 |
| | | 6 | 2676,96 | |
| | | 7 | 2661,66 | |
| | | 8 | 2155,68 | |
| | | 9 | 2697,95 | |
| | | 10 | 2343,56 | |
| | 4 | 1 | 2201,78 | 2811,63 |
| | | 2 | 2425,5 | 1865,28 |
| | | 3 | 2237,28 | 2194,72 |
| | | 4 | 2849,45 | 1890,88 |
| | | 5 | 2650,13 | 3941,21 |
| | | 6 | 3159,72 | 2492,94 |
| | | 7 | 3581,57 | 3665,98 |
| | | 8 | 3830,97 | 1464,96 |
| | | 9 | 1917,48 | 909,85 |
| | | 10 | 2069,7 | |
| | 5 | 1 | 3094,67 | 3336,61 |
| | | 2 | 3421,37 | 2188,29 |
| | | 3 | 4257,44 | 2144,94 |
| | | 4 | 3707,16 | 3650,41 |
| | | 5 | 4678,03 | 2930,99 |
| | | 6 | 2804,44 | 4598,55 |
| | | 7 | 3437,2 | 3672,02 |
| | | 8 | 2191,13 | 3793,54 |
| | | 9 | 2792,23 | 2380,35 |
| | | 10 | 4625,95 | |
| PS | 1 | 1 | 4017,44 | 3009,54 |
| | | 2 | 3366,3 | 2703,18 |
| | | 3 | 4663,56 | 2300,47 |
| | | 4 | 4110,98 | 2715,1 |
| | | 5 | 2534,03 | 2510,56 |
| | | 6 | 3866,61 | 2061,41 |
| | | 7 | 4022,79 | 2023,53 |
| | | 8 | 3193,17 | 2595,39 |
| | | 9 | 2733,58 | 4500,76 |
| | | 10 | 3597,24 | 2976,97 |
| | 2 | 1 | 5302,99 | 5270,86 |

| Standar Internal | Ulangan | Partikel ke- | Keliling sebelum digesti (μm) | Keliling setelah digesti (μm) |
|------------------|---------|--------------|--|--|
| | | 2 | 7521,67 | 4004,83 |
| | | 3 | 4820,44 | 4393,78 |
| | | 4 | 6286,72 | 6734,5 |
| | | 5 | 5563,09 | 4259,63 |
| | | 6 | 9032,33 | 5145,83 |
| | | 7 | 4635,74 | 5065,38 |
| | | 8 | 5947,49 | 4351,51 |
| | | 9 | 4471,14 | 4171,34 |
| | | 10 | 6630,08 | 45507 |
| | 3 | 1 | 5656,46 | 1879,29 |
| | | 2 | 5341,08 | 3529,7 |
| | | 3 | 4533,02 | 3163,31 |
| | | 4 | 5915,75 | 5502 |
| | | 5 | 5908,01 | 2963,75 |
| | | 6 | 4955,4 | 3938,91 |
| | | 7 | 6071,81 | 2355,72 |
| | | 8 | 4773,95 | 2819,4 |
| | | 9 | 5526,04 | 2884,43 |
| | | 10 | 6730,97 | 5569,63 |
| | 4 | 1 | 6472,55 | 2474 |
| | | 2 | 4627,26 | 2041,31 |
| | | 3 | 4179,55 | 3686,57 |
| | | 4 | 4858,87 | 4438,86 |
| | | 5 | 4947,36 | 2356,6 |
| | | 6 | 3768,2 | 2158,35 |
| | | 7 | 5394,5 | 2860,1 |
| | | 8 | 5474,04 | 3497,43 |
| | | 9 | 4457,75 | 2739,1 |
| | | 10 | 4296,71 | 2966,73 |
| | 5 | 1 | 3900,87 | 3626,48 |
| | | 2 | 3407,02 | 3606,57 |
| | | 3 | 5180,54 | 2424,79 |
| | | 4 | 4799,82 | 3505,65 |
| | | 5 | 3741,49 | 2815,27 |
| | | 6 | 4086,99 | 3431,26 |
| | | 7 | 3130,88 | 3896,6 |
| | | 8 | 3622,39 | 3290,32 |
| | | 9 | 3854,01 | |
| | | 10 | 3821,53 | |
| PVC | 1 | 1 | 2141,54 | 3240,51 |
| | | 2 | 3168,09 | 2698,79 |
| | | 3 | 3629,69 | 3393,66 |
| | | 4 | 3106,37 | 2613,08 |
| | | 5 | 3609,67 | 3016,36 |
| | | 6 | 3434,44 | 3393,21 |

| Standar Internal | Ulangan | Partikel ke- | Keliling sebelum digesti (μm) | Keliling setelah digesti (μm) |
|------------------|---------|--------------|--|--|
| | | 7 | 2653,34 | 3419,46 |
| | | 8 | 2558,93 | 2083,45 |
| | | 9 | 3061,36 | 3574,73 |
| | | 10 | 2585,64 | 2686,21 |
| | 2 | 1 | 6520,02 | 5725,48 |
| | | 2 | 6257,62 | 7019,75 |
| | | 3 | 4353,41 | 6645,15 |
| | | 4 | 5918,45 | 5890,34 |
| | | 5 | 5268,22 | 5480,98 |
| | | 6 | 6007,28 | 5022,66 |
| | | 7 | 6486,39 | 5647,6 |
| | | 8 | 5696,96 | 5495,24 |
| | | 9 | 5834,32 | 4447,73 |
| | | 10 | 5309,86 | 5156,99 |
| | 3 | 1 | 5936,41 | 6798,26 |
| | | 2 | 5236,05 | 5430,25 |
| | | 3 | 6125,41 | 5488,3 |
| | | 4 | 6747,97 | 5897,18 |
| | | 5 | 6341,91 | 5486,59 |
| | | 6 | 5987,62 | 8064,39 |
| | | 7 | 6779,85 | 4894,99 |
| | | 8 | 6419,8 | 3923,34 |
| | | 9 | 6522,07 | 5872,06 |
| | | 10 | 8657,11 | 6263,67 |
| | 4 | 1 | 6118,82 | 6655,01 |
| | | 2 | 5684,56 | 8098,57 |
| | | 3 | 4874,91 | 6534,48 |
| | | 4 | 5715,24 | 6557,62 |
| | | 5 | 6421,83 | 6347,53 |
| | | 6 | 5150,72 | 5013,12 |
| | | 7 | 6514,48 | 6622,67 |
| | | 8 | 6418,81 | 6478,05 |
| | | 9 | 6747,67 | 7694,58 |
| | | 10 | 8090,36 | 6247,78 |
| | 5 | 1 | 3232,75 | 2894,48 |
| | | 2 | 3044,99 | 3777,81 |
| | | 3 | 2448,92 | 3078,35 |
| | | 4 | 3387,71 | 2543,67 |
| | | 5 | 3011,37 | 3259,17 |
| | | 6 | 2839,79 | 2910,48 |
| | | 7 | 2797,16 | 3034,88 |
| | | 8 | 2631,3 | 3132,2 |
| | | 9 | 3192,09 | 2745,76 |
| | | 10 | 2984,96 | 3193,22 |

7.4. Ukuran Luas Standar Internal Sebelum dan Setelah Digesti

Ukuran luas standar internal sebelum dan setelah digesti dapat dilihat pada Lampiran 4.

Lampiran 4. Ukuran luas standar internal sebelum dan setelah digesti

| Standar Internal | Ulangan | Partikel ke- | Luas sebelum digesti (μm^2) | Luas setelah digesti (μm^2) |
|------------------|---------|--------------|--|--|
| PE | 1 | 1 | 117670,08 | 70407,48 |
| | | 2 | 85764,8 | 41440,08 |
| | | 3 | 80014,88 | 42117,68 |
| | | 4 | 47940,2 | 57276,56 |
| | | 5 | 52228,44 | 36972,76 |
| | | 6 | 53525,56 | 59715,92 |
| | | 7 | 98745,68 | 60074,08 |
| | | 8 | 56148,84 | 62905,48 |
| | | 9 | 55534,16 | 31823 |
| | | 10 | 45133 | 47930,52 |
| | 2 | 1 | 29199,72 | 101388,32 |
| | | 2 | 39426,64 | 58796,32 |
| | | 3 | 71210,92 | 149314 |
| | | 4 | 51594,4 | 55398,64 |
| | | 5 | 57954,16 | 64957,64 |
| | | 6 | 51560,52 | 54217,68 |
| | | 7 | 77759,44 | 29916,04 |
| | | 8 | 43211,52 | 60185,4 |
| | | 9 | 51139,44 | 56560,24 |
| | | 10 | 57610,52 | 45621,84 |
| | 3 | 1 | 11320,76 | 16397,92 |
| | | 2 | 31605,2 | 13823,04 |
| | | 3 | 37166,36 | 21901 |
| | | 4 | 31605,2 | 27834,84 |
| | | 5 | 41764,36 | 38681,28 |
| | | 6 | 42693,64 | 21925,2 |
| | | 7 | 37263,16 | 23164,24 |
| | | 8 | 26639,36 | 33768,68 |
| | | 9 | 36503,28 | 35830,52 |
| | | 10 | 33434,72 | 21625,12 |
| | 4 | 1 | 51575,04 | 43889,12 |
| | | 2 | 26198,92 | 21049,16 |
| | | 3 | 15337,96 | 27244,36 |
| | | 4 | 18333,92 | 12637,24 |
| | | 5 | 47010,92 | 13697,2 |
| | | 6 | 26116,64 | 8944,32 |
| | | 7 | 32089,2 | 44552,2 |
| | | 8 | 29654,68 | |
| | | 9 | 27878,4 | |

| Standar Internal | Ulangan | Partikel ke- | Luas sebelum digesti (μm^2) | Luas setelah digesti (μm^2) |
|------------------|---------|--------------|--|--|
| | | 10 | 77696,52 | |
| | 5 | 1 | 37882,68 | 52567,24 |
| | | 2 | 43056,64 | 22578,6 |
| | | 3 | 71467,44 | 26150,52 |
| | | 4 | 101635,16 | 16678,64 |
| | | 5 | 79027,52 | 95406,08 |
| | | 6 | 123981,44 | 53530,4 |
| | | 7 | 46449,48 | 32839,4 |
| | | 8 | 67261,48 | 17908 |
| | | 9 | 42224,16 | |
| | | 10 | 63128,12 | |
| PP | 1 | 1 | 137635,08 | 176611,6 |
| | | 2 | 161481,76 | 189655,4 |
| | | 3 | 110293,92 | 159061,76 |
| | | 4 | 167284,92 | |
| | | 5 | 128361,64 | |
| | | 6 | 235078,8 | |
| | | 7 | 181906,56 | |
| | | 8 | 130108,88 | |
| | | 9 | 104858,6 | |
| | | 10 | 142010,44 | |
| | 2 | 1 | 109626 | 289427,16 |
| | | 2 | 46367,2 | 283701,44 |
| | | 3 | 189679,6 | 106934,96 |
| | | 4 | 144062,6 | 142300,84 |
| | | 5 | 152469,68 | 42161,24 |
| | | 6 | 230219,44 | 29403 |
| | | 7 | 125404,4 | 33947,76 |
| | | 8 | 194732,56 | 112346,08 |
| | | 9 | 150707,92 | 30056,4 |
| | | 10 | 111813,68 | |
| | 3 | 1 | 188566,4 | 181775,88 |
| | | 2 | 307959,52 | 67140,48 |
| | | 3 | 287950,96 | 236400,12 |
| | | 4 | 188939,08 | 32723,24 |
| | | 5 | 415102,6 | 86640,84 |
| | | 6 | 362598,28 | |
| | | 7 | 380385,28 | |
| | | 8 | 185918,92 | |
| | | 9 | 368798,32 | |
| | | 10 | 206595,4 | |
| | 4 | 1 | 250387,72 | 204102,8 |
| | | 2 | 205424,12 | 201324,64 |
| | | 3 | 332667,72 | 178174,92 |
| | | 4 | 212204,96 | 182506,72 |

| Standar Internal | Ulangan | Partikel ke- | Luas sebelum digesti (μm^2) | Luas setelah digesti (μm^2) |
|------------------|---------|--------------|--|--|
| PS | 5 | 5 | 264462,44 | 245363,8 |
| | | 6 | 357782,48 | 336651,04 |
| | | 7 | 242188,76 | 302742 |
| | | 8 | 344119,16 | 62348,88 |
| | | 9 | 124968,8 | 38724,84 |
| | | 10 | 218042 | |
| | | 1 | 317634,68 | 464489,96 |
| | | 2 | 253940,28 | 183547,32 |
| | | 3 | 347444,24 | 116281 |
| | | 4 | 469513,88 | 636745,56 |
| | 1 | 5 | 288991,56 | 284398,4 |
| | | 6 | 235204,64 | 352540,76 |
| | | 7 | 298947,44 | 353266,76 |
| | | 8 | 220089,32 | 227325,12 |
| | | 9 | 226841,12 | 222494,8 |
| | | 10 | 375738,88 | |
| | | 1 | 545438,96 | 391686,68 |
| | | 2 | 678998,76 | 313791,72 |
| | | 3 | 734997,56 | 274519,96 |
| | | 4 | 683732,28 | 443828 |
| | 2 | 5 | 318321,96 | 342231,56 |
| | | 6 | 789099,08 | 208947,64 |
| | | 7 | 602236,36 | 263145,96 |
| | | 8 | 679748,96 | 406845,56 |
| | | 9 | 306028,36 | 640956,36 |
| | | 10 | 669076,76 | 315979,4 |
| | | 1 | 1504968,96 | 904078,12 |
| | | 2 | 1741935,36 | 826991,44 |
| | | 3 | 890071,16 | 715013,2 |
| | | 4 | 1661446,16 | 1595452,76 |
| | 3 | 5 | 1453684,32 | 854414,88 |
| | | 6 | 1646558,32 | 1058643,52 |
| | | 7 | 1013970,32 | 1168535,72 |
| | | 8 | 1152423,36 | 757430,96 |
| | | 9 | 1336812,84 | 773698,2 |
| | | 10 | 1684165,12 | 893943,16 |
| | | 1 | 1406460,44 | 204073,76 |
| | | 2 | 972994,88 | 724102,72 |
| | | 3 | 975337,44 | 619089,24 |
| 4 | | 1052288,6 | 854671,4 | |
| | 5 | 1139244,04 | 376711,72 | |
| | 6 | 903865,16 | 418403,48 | |
| | 7 | 1068115,4 | 303622,88 | |
| | 8 | 973648,28 | 413955,52 | |
| | 9 | 1299002,76 | 344036,88 | |

| Standar Internal | Ulangan | Partikel ke- | Luas sebelum digesti (μm^2) | Luas setelah digesti (μm^2) |
|------------------|---------|--------------|--|--|
| PVC | 4 | 10 | 1284816,72 | 853998,64 |
| | | 1 | 1041674,48 | 271601,44 |
| | | 2 | 929115,44 | 260145,16 |
| | | 3 | 755209,4 | 777226,56 |
| | | 4 | 892133 | 549838,52 |
| | | 5 | 1005442,24 | 273556,8 |
| | | 6 | 704210,32 | 170847,16 |
| | | 7 | 1329727,08 | 312368,76 |
| | | 8 | 1336285,28 | 651178,44 |
| | | 9 | 1400976,72 | 374572,44 |
| | 5 | 10 | 875885,12 | 53018,12 |
| | | 1 | 732374,28 | 574164,36 |
| | | 2 | 572939,84 | 490287,16 |
| | | 3 | 752620 | 371184,44 |
| | | 4 | 678742,24 | 504100,52 |
| | | 5 | 679787,68 | 351146,84 |
| | | 6 | 785091,56 | 656323,36 |
| | | 7 | 442172,72 | 487426,72 |
| | | 8 | 639155,88 | 433509,12 |
| | | 9 | 497702,04 | |
| | 1 | 10 | 439534,92 | |
| | | 1 | 279364,8 | 350067,52 |
| | | 2 | 522652,24 | 447056,28 |
| | | 3 | 433078,36 | 578491,32 |
| | | 4 | 430116,28 | 460927,72 |
| | | 5 | 559383 | 388787,52 |
| | | 6 | 582247,16 | 528082,72 |
| | | 7 | 461411,72 | 465419,24 |
| | | 8 | 312862,44 | 273764,92 |
| | | 9 | 369292 | 576729,56 |
| 2 | 10 | 411061,2 | 317818,6 | |
| | 1 | 1781618,52 | 1276443,52 | |
| | 2 | 1583047,84 | 1740517,24 | |
| | 3 | 989934,88 | 1735498,16 | |
| | 4 | 1017208,28 | 1397254,76 | |
| | 5 | 1209787,04 | 1245022,24 | |
| | 6 | 1393131,08 | 1190102,76 | |
| | 7 | 1428095,24 | 1288800,04 | |
| | 8 | 1208397,96 | 1095945,4 | |
| | 9 | 1278844,16 | 996372,08 | |
| 3 | 10 | 1267881,56 | 1370145,92 | |
| | 1 | 1365107,48 | 1519648,88 | |
| | 2 | 1129772,16 | 1146920,28 | |
| | 3 | 1393135,92 | 1155061,16 | |
| | 4 | 1268776,96 | 1314432,68 | |

| Standar Internal | Ulangan | Partikel ke- | Luas sebelum digesti (μm^2) | Luas setelah digesti (μm^2) |
|------------------|---------|--------------|--|--|
| | | 5 | 1731074,4 | 1469317,52 |
| | | 6 | 1302569,84 | 1629594,12 |
| | | 7 | 1656204,44 | 1051693,28 |
| | | 8 | 1377323,64 | 883338,72 |
| | | 9 | 1488735,6 | 1476001,56 |
| | | 10 | 1506072,48 | 1696686,2 |
| | 4 | 1 | 1263796,6 | 1618675,08 |
| | | 2 | 1639733,92 | 1670666,36 |
| | | 3 | 1063861,04 | 1256183,28 |
| | | 4 | 1391277,36 | 935112,2 |
| | | 5 | 1631815,68 | 1555837,36 |
| | | 6 | 914363,12 | 1063096,32 |
| | | 7 | 1323009,16 | 1345665,2 |
| | | 8 | 1116738,04 | 1381500,56 |
| | | 9 | 1735033,52 | 1862320,68 |
| | | 10 | 1555092 | 1231581,56 |
| | 5 | 1 | 452554,52 | 360158,92 |
| | | 2 | 367046,24 | 413471,52 |
| | | 3 | 339709,92 | 451755,92 |
| | | 4 | 424013,04 | 346181 |
| | | 5 | 399929,2 | 416172,24 |
| | | 6 | 452472,24 | 455100,36 |
| | | 7 | 418543,84 | 396284,68 |
| | | 8 | 280027,88 | 443440,8 |
| | | 9 | 410059,32 | 406806,84 |
| | | 10 | 391522,12 | 430706,76 |

7.5. Analisa Data

Analisa data perubahan panjang, keliling, dan luas standar internal secara statistik dapat dilihat pada Lampiran 5.

Lampiran 5. Analisa data perubahan panjang, keliling, dan luas standar internal

- **Polimer PE**

Uji Normalitas

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------|---------------------------------|----|------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Panjang | ,099 | 95 | ,023 | ,969 | 95 | ,024 |
| Luas | ,112 | 95 | ,005 | ,913 | 95 | ,000 |
| Keliling | ,108 | 95 | ,008 | ,966 | 95 | ,015 |

a. Lilliefors Significance Correction

Uji Beda

Test Statistics^a

| | Panjang | Luas | Keliling |
|------------------------|----------|----------|----------|
| Mann-Whitney U | 797,500 | 871,000 | 892,000 |
| Wilcoxon W | 1832,500 | 1906,000 | 1927,000 |
| Z | -2,441 | -1,893 | -1,737 |
| Asymp. Sig. (2-tailed) | ,015 | ,058 | ,082 |

a. Grouping Variable: Perlakuan

Panjang : beda nyata

Luas : tidak beda nyata

Keliling : Tidak beda nyata

- **Polimer PP**

Uji Normalitas

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------|---------------------------------|----|-------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Panjang | ,064 | 85 | ,200* | ,991 | 85 | ,851 |
| Luas | ,082 | 85 | ,200* | ,960 | 85 | ,011 |
| Keliling | ,094 | 85 | ,059 | ,974 | 85 | ,084 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Uji Beda

Test Statistics^a

| | Luas |
|------------------------|----------|
| Mann-Whitney U | 675,000 |
| Wilcoxon W | 1305,000 |
| Z | -1,786 |
| Asymp. Sig. (2-tailed) | ,074 |

a. Grouping Variable: Perlakuan

Luas : tidak beda nyata

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|----------|-----------------------------|---|------|------------------------------|--------|-----------------|-----------------|-----------------------|---|-----------|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Panjang | Equal variances assumed | 2,615 | ,110 | 2,416 | 83 | ,018 | 122,78766 | 50,82310 | 21,70256 | 223,87275 |
| | Equal variances not assumed | | | 2,288 | 58,499 | ,026 | 122,78766 | 53,66107 | 15,39287 | 230,18245 |
| Keliling | Equal variances assumed | 1,761 | ,188 | 1,488 | 83 | ,141 | 299,37337 | 201,21292 | -100,831 | 699,57777 |
| | Equal variances not assumed | | | 1,434 | 63,241 | ,156 | 299,37337 | 208,75951 | -117,768 | 716,51483 |

Panjang : tidak beda nyata

Keliling : tidak beda nyata

• Polimer PS

Uji Normalitas

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------|---------------------------------|----|-------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Panjang | ,063 | 98 | ,200* | ,973 | 98 | ,041 |
| Luas | ,083 | 98 | ,094 | ,951 | 98 | ,001 |
| Keliling | ,284 | 98 | ,000 | ,304 | 98 | ,000 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Uji Beda

Test Statistics^a

| | Panjang | Luas | Keliling |
|------------------------|----------|----------|----------|
| Mann-Whitney U | 441,000 | 438,000 | 506,000 |
| Wilcoxon W | 1617,000 | 1614,000 | 1682,000 |
| Z | -5,394 | -5,415 | -4,932 |
| Asymp. Sig. (2-tailed) | ,000 | ,000 | ,000 |

a. Grouping Variable: Perlakuan

Panjang : beda nyata

Luas : beda nyata

Keliling : beda nyata

• Polimer PVC

Uji Normalitas

Tests of Normality

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|----------|---------------------------------|----|-------|--------------|----|------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Panjang | ,063 | 98 | ,200* | ,973 | 98 | ,041 |
| Luas | ,083 | 98 | ,094 | ,951 | 98 | ,001 |
| Keliling | ,284 | 98 | ,000 | ,304 | 98 | ,000 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Uji Beda

Test Statistics^a

| | Panjang | Luas | Keliling |
|------------------------|----------|----------|----------|
| Mann-Whitney U | 441,000 | 438,000 | 506,000 |
| Wilcoxon W | 1617,000 | 1614,000 | 1682,000 |
| Z | -5,394 | -5,415 | -4,932 |
| Asymp. Sig. (2-tailed) | ,000 | ,000 | ,000 |

a. Grouping Variable: Perlakuan

Panjang : beda nyata

Luas : beda nyata

Keliling : beda nyata

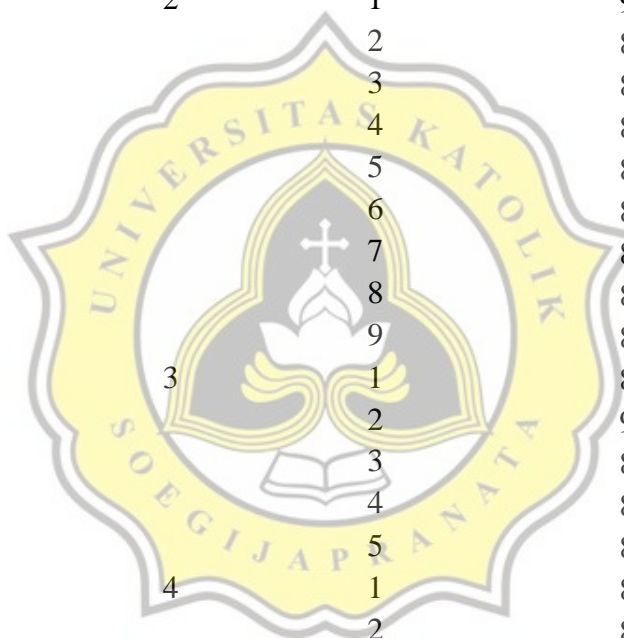
7.6. Identifikasi dengan FTIR

Identifikasi standar internal setelah digesti dengan FTIR dapat dilihat pada Lampiran 6.

Lampiran 6. Identifikasi standar internal setelah digesti dengan FTIR

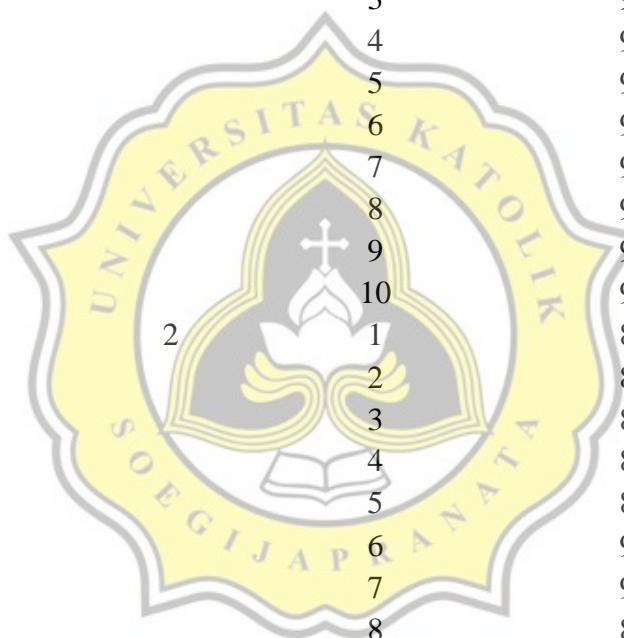
| Polimer | Ulangan | Partikel ke- | Skor |
|---------|---------|--------------|------|
| PE | 1 | 1 | 902 |
| | | 2 | 921 |
| | | 3 | 900 |
| | | 4 | 877 |
| | | 5 | 877 |
| | | 6 | 894 |
| | | 7 | 901 |
| | | 8 | 910 |
| | | 9 | 868 |
| | | 10 | 911 |
| | 2 | 1 | 898 |
| | | 2 | 890 |
| | | 3 | 867 |
| | | 4 | 862 |
| | | 5 | 857 |
| | | 6 | 910 |
| | | 7 | 889 |
| | | 8 | 910 |
| | | 9 | 904 |
| | | 10 | 901 |
| | 3 | 1 | 903 |
| | | 2 | 913 |
| | | 3 | 897 |
| | | 4 | 869 |
| | | 5 | 903 |
| | | 6 | 890 |
| | | 7 | 886 |
| | | 8 | 871 |
| | | 9 | 895 |
| | | 10 | 895 |
| | 4 | 1 | 902 |
| | | 2 | 902 |
| | | 3 | 909 |
| | | 4 | 908 |
| | | 5 | 894 |
| | | 6 | 891 |

| Polimer | Ulangan | Partikel ke- | Skor |
|---------|---------|--------------|------|
| | | 7 | 894 |
| | 5 | 1 | 843 |
| | | 2 | 863 |
| | | 3 | 908 |
| | | 4 | 894 |
| | | 5 | 900 |
| | | 6 | 912 |
| | | 7 | 903 |
| | | 8 | 874 |
| PP | 1 | 1 | 883 |
| | | 2 | 902 |
| | | 3 | 899 |
| | 2 | 1 | 906 |
| | | 2 | 869 |
| | | 3 | 873 |
| | | 4 | 877 |
| | | 5 | 876 |
| | | 6 | 876 |
| | | 7 | 860 |
| | | 8 | 865 |
| | | 9 | 842 |
| | 3 | 1 | 851 |
| | | 2 | 928 |
| | | 3 | 883 |
| | | 4 | 870 |
| | 4 | 5 | 876 |
| | | 1 | 851 |
| | | 2 | 863 |
| | | 3 | 869 |
| | | 4 | 839 |
| | | 5 | 849 |
| | | 6 | 822 |
| | | 7 | 884 |
| | | 8 | 855 |
| | | 9 | 843 |
| | 5 | 1 | 878 |
| | | 2 | 900 |
| | | 3 | 861 |
| | | 4 | 863 |
| | | 5 | 896 |
| | | 6 | 858 |



| Polimer | Ulangan | Partikel ke- | Skor |
|---------|---------|--------------|------|
| | | 7 | 862 |
| | | 8 | 858 |
| | | 9 | 871 |
| PS | 1 | 1 | 851 |
| | | 2 | 838 |
| | | 3 | 845 |
| | | 4 | 873 |
| | | 5 | 836 |
| | | 6 | 823 |
| | | 7 | 852 |
| | | 8 | 888 |
| | | 9 | 848 |
| | | 10 | 841 |
| | 2 | 1 | 867 |
| | | 2 | 941 |
| | | 3 | 933 |
| | | 4 | 934 |
| | | 5 | 935 |
| | | 6 | 931 |
| | | 7 | 932 |
| | | 8 | 926 |
| | | 9 | 905 |
| | | 10 | 940 |
| | 3 | 1 | 931 |
| | | 2 | 910 |
| | | 3 | 905 |
| | | 4 | 910 |
| | | 5 | 911 |
| | | 6 | 907 |
| | | 7 | 911 |
| | | 8 | 917 |
| | | 9 | 922 |
| | | 10 | 891 |
| | 4 | 1 | 857 |
| | | 2 | 881 |
| | | 3 | 931 |
| | | 4 | 913 |
| | | 5 | 914 |
| | | 6 | 928 |
| | | 7 | 925 |
| | | 8 | 877 |

| Polimer | Ulangan | Partikel ke- | Skor |
|---------|---------|--------------|------|
| | | 9 | 939 |
| | | 10 | 879 |
| | 5 | 1 | 917 |
| | | 2 | 916 |
| | | 3 | 920 |
| | | 4 | 923 |
| | | 5 | 919 |
| | | 6 | 905 |
| | | 7 | 934 |
| | | 8 | 922 |
| PVC | 1 | 1 | 927 |
| | | 2 | 893 |
| | | 3 | 907 |
| | | 4 | 915 |
| | | 5 | 901 |
| | | 6 | 915 |
| | | 7 | 919 |
| | | 8 | 920 |
| | | 9 | 901 |
| | | 10 | 920 |
| | 2 | 1 | 853 |
| | | 2 | 858 |
| | | 3 | 899 |
| | | 4 | 885 |
| | | 5 | 888 |
| | | 6 | 910 |
| | | 7 | 902 |
| | | 8 | 899 |
| | | 9 | 878 |
| | | 10 | 868 |
| | 3 | 1 | 895 |
| | | 2 | 892 |
| | | 3 | 868 |
| | | 4 | 869 |
| | | 5 | 907 |
| | | 6 | 895 |
| | | 7 | 873 |
| | | 8 | 866 |
| | | 9 | 871 |
| | | 10 | 886 |
| | 4 | 1 | 903 |



| Polimer | Ulangan | Partikel ke- | Skor |
|---------|---------|--------------|------|
| | | 2 | 905 |
| | | 3 | 907 |
| | | 4 | 883 |
| | | 5 | 879 |
| | | 6 | 910 |
| | | 7 | 866 |
| | | 8 | 897 |
| | | 9 | 876 |
| | | 10 | 892 |
| | 5 | 1 | 909 |
| | | 2 | 894 |
| | | 3 | 897 |
| | | 4 | 901 |
| | | 5 | 902 |
| | | 6 | 910 |
| | | 7 | 905 |
| | | 8 | 894 |
| | | 9 | 910 |
| | | 10 | 903 |

7.7. PSM pada Blanko Udara Ruang Asam

Particle Suspected as Microplastic (PSM) pada blanko udara ruang asam dapat dilihat pada Lampiran 7.

Lampiran 7. PSM pada blanko udara ruang asam

| Tanggal | Sampel | Ulangan | Bentuk partikel | |
|-------------------|-----------|---------|-----------------|-------|
| | | | Fragmen | Fiber |
| 29 Agustus 2019 | Ulangan 1 | 1 | 0 | 2 |
| | | 2 | 1 | 0 |
| 30 Agustus 2019 | Ulangan 1 | 1 | 0 | 1 |
| | | 2 | 0 | 0 |
| 4 September 2019 | Ulangan 2 | 1 | 0 | 0 |
| | | 2 | 0 | 2 |
| 5 September 2019 | Ulangan 2 | 1 | 2 | 1 |
| | | 2 | 0 | 0 |
| 9 September 2019 | Ulangan 3 | 1 | 0 | 1 |
| | | 2 | 0 | 0 |
| 10 September 2019 | Ulangan 3 | 1 | 1 | 2 |
| | | 2 | 0 | 0 |
| 11 September 2019 | Ulangan 4 | 1 | 1 | 1 |
| | | 2 | 1 | 1 |

| Tanggal | Sampel | Ulangan | Bentuk partikel | |
|--------------------|-----------|---------|-----------------|-------|
| | | | Fragmen | Fiber |
| 12 September 2019 | Ulangan 4 | 1 | 0 | 0 |
| | | 2 | 0 | 1 |
| 16 September 2019 | Ulangan 5 | 1 | 0 | 2 |
| | | 2 | 1 | 0 |
| 17 September 2019 | Ulangan 5 | 1 | 0 | 1 |
| | | 2 | 0 | 0 |
| Total Partikel | | | 7 | 15 |
| Rata-rata Partikel | | | 0,7 | 1,5 |

7.8. PSM pada Blanko Udara Ruang Mikroskop

Particle Suspected as Microplastic (PSM) pada blanko udara ruang mikroskop dapat dilihat pada Lampiran 8.

Lampiran 8. PSM pada blanko udara ruang mikroskop

| Tanggal | Sampel | Ulangan | Bentuk partikel | |
|--------------------|-----------|---------|-----------------|-------|
| | | | Fragmen | Fiber |
| 25 September 2019 | Ulangan 1 | 1 | 0 | 1 |
| | | 2 | 0 | 2 |
| 30 September 2019 | Ulangan 2 | 1 | 1 | 1 |
| | | 2 | 0 | 0 |
| 7 Oktober 2019 | Ulangan 3 | 1 | 0 | 2 |
| | | 2 | 0 | 0 |
| 12 Oktober 2019 | Ulangan 4 | 1 | 1 | 1 |
| | | 2 | 0 | 1 |
| 18 Oktober 2019 | Ulangan 5 | 1 | 0 | 0 |
| | | 2 | 0 | 1 |
| Total Partikel | | | 2 | 9 |
| Rata-rata Partikel | | | 0,4 | 1,8 |

7.9. PSM pada Sampel Ikan Bandeng

Particle Suspected as Microplastic (PSM) pada sampel ikan bandeng dapat dilihat pada Lampiran 9.

Lampiran 9. PSM pada sampel ikan bandeng

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|---------|
| Blanko | 1 | 144,15 | Fragmen |
| | | 198,31 | Fragmen |
| | | 457,79 | Fragmen |
| | | 266,65 | Fragmen |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|---------|---------|---------------------------|--------------|
| | 2 | 468,27 | <i>Fiber</i> |
| | | 711,37 | <i>Fiber</i> |
| | | 998,85 | <i>Fiber</i> |
| | 3 | 89,88 | Fragmen |
| | | 1953,04 | <i>Fiber</i> |
| | | 132,91 | Fragmen |
| | 4 | 407,95 | Fragmen |
| | | 199,53 | Fragmen |
| | 5 | 580,67 | <i>Fiber</i> |
| | | 493,12 | <i>Fiber</i> |
| | | 185,24 | Fragmen |
| Kontrol | 1 | 195,85 | <i>Fiber</i> |
| | | 251,32 | Fragmen |
| | | 286,86 | Fragmen |
| | | 605,52 | Fragmen |
| | | 278,37 | Fragmen |
| | | 323,39 | Fragmen |
| | | 327,98 | Fragmen |
| | | 224,57 | Fragmen |
| | | 328,38 | Fragmen |
| | | 212,08 | Fragmen |
| | | 406,15 | Fragmen |
| | | 92,64 | Fragmen |
| | 2 | 93,60 | <i>Fiber</i> |
| | | 3518,34 | <i>Fiber</i> |
| | | 1098,54 | <i>Fiber</i> |
| | | 1444,21 | <i>Fiber</i> |
| | | 1504,83 | <i>Fiber</i> |
| | | 1623,30 | <i>Fiber</i> |
| | | 606,36 | <i>Fiber</i> |
| | | 2498,67 | <i>Fiber</i> |
| | | 111,40 | Fragmen |
| | | 451,26 | Fragmen |
| | | 135,42 | Fragmen |
| | | 446,80 | Fragmen |
| | | 99,39 | Fragmen |
| | | 47,08 | Fragmen |
| | | 496,10 | Fragmen |
| | | 397,82 | Fragmen |
| | | 93,80 | Fragmen |
| | | 37,40 | Fragmen |
| | | 110,09 | Fragmen |
| | 3 | 344,65 | <i>Fiber</i> |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|--------------|
| | | 181,32 | <i>Fiber</i> |
| | | 1110,29 | <i>Fiber</i> |
| | | 2242,87 | <i>Fiber</i> |
| | | 1568,81 | <i>Fiber</i> |
| | | 2142,70 | <i>Fiber</i> |
| | | 130,99 | Fragmen |
| | | 240,86 | Fragmen |
| | | 146,61 | Fragmen |
| | | 162,64 | Fragmen |
| | | 296,63 | Fragmen |
| | | 101,51 | Fragmen |
| | | 118,88 | Fragmen |
| | | 166,81 | Fragmen |
| | 4 | 948,46 | <i>Fiber</i> |
| | | 1447,32 | <i>Fiber</i> |
| | | 113,57 | <i>Fiber</i> |
| | | 1834,43 | <i>Fiber</i> |
| | | 1386,73 | <i>Fiber</i> |
| | | 1836,81 | <i>Fiber</i> |
| | | 246,16 | <i>Fiber</i> |
| | | 194,92 | Fragmen |
| | | 92,14 | Fragmen |
| | | 179,07 | Fragmen |
| | | 150,50 | Fragmen |
| | | 152,82 | Fragmen |
| | | 171,20 | Fragmen |
| | | 208,86 | Fragmen |
| | | 240,29 | Fragmen |
| | | 183,67 | Fragmen |
| | | 159,63 | Fragmen |
| | 5 | 1513,07 | <i>Fiber</i> |
| | | 943,89 | <i>Fiber</i> |
| | | 145,42 | <i>Fiber</i> |
| | | 246,88 | <i>Fiber</i> |
| | | 364,30 | <i>Fiber</i> |
| | | 897,48 | <i>Fiber</i> |
| | | 633,39 | <i>Fiber</i> |
| | | 2954,63 | <i>Fiber</i> |
| | | 143,00 | Fragmen |
| | | 186,39 | Fragmen |
| | | 88,05 | Fragmen |
| | | 42,03 | Fragmen |
| | | 174,30 | Fragmen |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|---------|--------------|---------------------------|--------------|
| PE | 1 | 1256,04 | <i>Fiber</i> |
| | | 915,71 | <i>Fiber</i> |
| | | 526,76 | <i>Fiber</i> |
| | | 1458,65 | <i>Fiber</i> |
| | | 605,06 | <i>Fiber</i> |
| | | 120,04 | <i>Fiber</i> |
| | | 385,90 | <i>Fiber</i> |
| | | 899,22 | <i>Fiber</i> |
| | | 94,63 | Fragmen |
| | | 102,37 | Fragmen |
| | | 447,99 | Fragmen |
| | | 141,84 | Fragmen |
| | | 288,33 | Fragmen |
| | | 213,67 | Fragmen |
| | | 778,45 | Fragmen |
| | 2 | 525,87 | <i>Fiber</i> |
| | 1422,23 | <i>Fiber</i> | |
| | 212,39 | <i>Fiber</i> | |
| | 965,25 | <i>Fiber</i> | |
| | 1026,67 | <i>Fiber</i> | |
| | 552,24 | <i>Fiber</i> | |
| | 300,44 | <i>Fiber</i> | |
| | 2045,83 | <i>Fiber</i> | |
| | 558,84 | <i>Fiber</i> | |
| | 967,40 | <i>Fiber</i> | |
| | 1115,96 | <i>Fiber</i> | |
| | 1638,62 | <i>Fiber</i> | |
| | 1355,31 | <i>Fiber</i> | |
| | 359,11 | <i>Fiber</i> | |
| | 275,00 | <i>Fiber</i> | |
| | 1011,44 | <i>Fiber</i> | |
| | 361,83 | Fragmen | |
| | 189,83 | Fragmen | |
| 137,35 | Fragmen | | |
| 3 | 156,06 | <i>Fiber</i> | |
| 385,00 | <i>Fiber</i> | | |
| 2461,56 | <i>Fiber</i> | | |
| 742,13 | <i>Fiber</i> | | |
| 1006,04 | <i>Fiber</i> | | |
| 121,00 | <i>Fiber</i> | | |
| 1728,60 | <i>Fiber</i> | | |
| 2694,97 | <i>Fiber</i> | | |
| 896,24 | <i>Fiber</i> | | |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|--------------|
| | | 1284,10 | <i>Fiber</i> |
| | | 126,48 | Fragmen |
| | | 251,42 | Fragmen |
| | | 81,46 | Fragmen |
| | | 65,63 | Fragmen |
| | | 143,42 | Fragmen |
| | 4 | 2618,41 | <i>Fiber</i> |
| | | 1202,95 | <i>Fiber</i> |
| | | 140,01 | <i>Fiber</i> |
| | | 801,31 | <i>Fiber</i> |
| | | 922,80 | <i>Fiber</i> |
| | | 256,31 | <i>Fiber</i> |
| | | 227,87 | <i>Fiber</i> |
| | | 349,27 | Fragmen |
| | | 186,70 | Fragmen |
| | | 319,03 | Fragmen |
| | | 500,16 | Fragmen |
| | | 739,89 | Fragmen |
| | | 295,32 | Fragmen |
| | | 54,42 | Fragmen |
| | | 633,15 | Fragmen |
| | | 184,08 | Fragmen |
| | | 675,27 | Fragmen |
| | 5 | 160,60 | <i>Fiber</i> |
| | | 272,84 | <i>Fiber</i> |
| | | 326,20 | <i>Fiber</i> |
| | | 415,21 | <i>Fiber</i> |
| | | 521,90 | <i>Fiber</i> |
| | | 594,33 | <i>Fiber</i> |
| | | 645,68 | <i>Fiber</i> |
| | | 675,79 | <i>Fiber</i> |
| | | 731,68 | <i>Fiber</i> |
| | | 1175,23 | <i>Fiber</i> |
| | | 1411,06 | <i>Fiber</i> |
| | | 1451,49 | <i>Fiber</i> |
| | | 1547,89 | <i>Fiber</i> |
| | | 2481,46 | <i>Fiber</i> |
| PP | 1 | 983,88 | <i>Fiber</i> |
| | | 160,48 | <i>Fiber</i> |
| | | 876,78 | <i>Fiber</i> |
| | | 181,48 | <i>Fiber</i> |
| | | 405,24 | <i>Fiber</i> |
| | | 904,01 | <i>Fiber</i> |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|--------------|
| | | 1188,40 | <i>Fiber</i> |
| | | 1682,45 | <i>Fiber</i> |
| | | 816,16 | <i>Fiber</i> |
| | | 2443,51 | <i>Fiber</i> |
| | | 579,15 | <i>Fiber</i> |
| | | 1589,87 | <i>Fiber</i> |
| | | 546,67 | <i>Fiber</i> |
| | | 128,92 | Fragmen |
| | | 131,58 | Fragmen |
| | | 411,80 | Fragmen |
| | | 157,05 | Fragmen |
| | | 939,52 | Fragmen |
| | | 239,96 | Fragmen |
| | | 63,50 | Fragmen |
| | 2 | 1442,53 | <i>Fiber</i> |
| | | 1053,03 | <i>Fiber</i> |
| | | 187,16 | <i>Fiber</i> |
| | | 57,37 | <i>Fiber</i> |
| | | 301,41 | <i>Fiber</i> |
| | | 368,20 | <i>Fiber</i> |
| | | 755,41 | <i>Fiber</i> |
| | | 1460,23 | <i>Fiber</i> |
| | | 1030,23 | <i>Fiber</i> |
| | | 2604,02 | <i>Fiber</i> |
| | | 681,28 | <i>Fiber</i> |
| | | 2015,56 | <i>Fiber</i> |
| | | 118,27 | Fragmen |
| | | 99,49 | Fragmen |
| | | 151,72 | Fragmen |
| | | 295,24 | Fragmen |
| | | 226,50 | Fragmen |
| | 3 | 816,42 | <i>Fiber</i> |
| | | 225,56 | <i>Fiber</i> |
| | | 512,00 | <i>Fiber</i> |
| | | 646,71 | <i>Fiber</i> |
| | | 3441,02 | <i>Fiber</i> |
| | | 422,47 | <i>Fiber</i> |
| | | 173,93 | <i>Fiber</i> |
| | | 942,03 | <i>Fiber</i> |
| | | 1513,12 | <i>Fiber</i> |
| | | 145,27 | Fragmen |
| | 4 | 764,11 | <i>Fiber</i> |
| | | 2056,43 | <i>Fiber</i> |

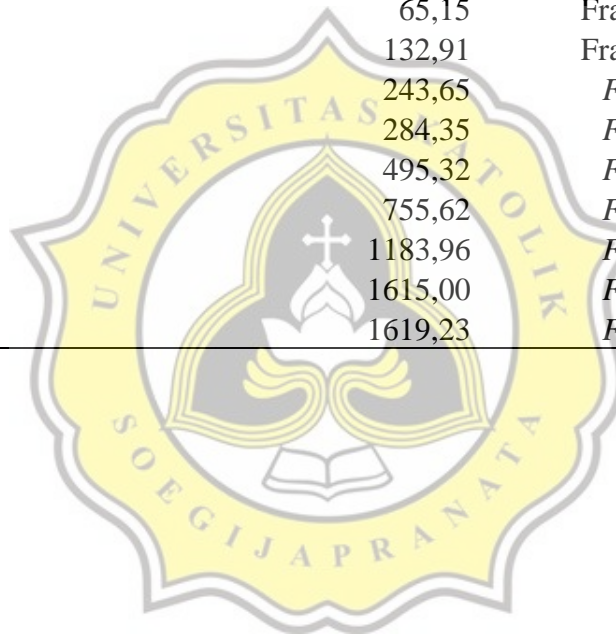
| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|--------------|
| | | 182,65 | <i>Fiber</i> |
| | | 1449,72 | <i>Fiber</i> |
| | | 1341,40 | <i>Fiber</i> |
| | | 155,77 | Fragmen |
| | | 629,80 | Fragmen |
| | | 163,69 | Fragmen |
| | | 154,47 | Fragmen |
| | | 226,50 | Fragmen |
| | | 151,05 | Fragmen |
| | | 113,57 | Fragmen |
| | | 112,97 | Fragmen |
| | | 125,71 | Fragmen |
| | | 291,64 | Fragmen |
| | | 66,91 | Fragmen |
| | 5 | 660,41 | <i>Fiber</i> |
| | | 380,45 | <i>Fiber</i> |
| | | 394,32 | <i>Fiber</i> |
| | | 372,12 | <i>Fiber</i> |
| | | 1016,26 | <i>Fiber</i> |
| | | 715,16 | <i>Fiber</i> |
| | | 382,22 | <i>Fiber</i> |
| | | 764,32 | <i>Fiber</i> |
| | | 201,87 | <i>Fiber</i> |
| | | 206,39 | <i>Fiber</i> |
| | | 442,35 | <i>Fiber</i> |
| PS | 1 | 486,17 | <i>Fiber</i> |
| | | 619,71 | <i>Fiber</i> |
| | | 453,06 | <i>Fiber</i> |
| | | 507,80 | <i>Fiber</i> |
| | | 405,59 | <i>Fiber</i> |
| | | 313,86 | <i>Fiber</i> |
| | | 670,14 | <i>Fiber</i> |
| | | 294,14 | <i>Fiber</i> |
| | | 858,99 | <i>Fiber</i> |
| | | 1717,05 | <i>Fiber</i> |
| | | 1784,61 | <i>Fiber</i> |
| | | 359,52 | <i>Fiber</i> |
| | | 312,78 | <i>Fiber</i> |
| | | 169,96 | <i>Fiber</i> |
| | | 768,64 | <i>Fiber</i> |
| | | 1556,74 | <i>Fiber</i> |
| | | 368,11 | <i>Fiber</i> |
| | | 1107,24 | <i>Fiber</i> |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|--------------|
| | | 517,12 | <i>Fiber</i> |
| | | 809,80 | <i>Fiber</i> |
| | | 170,21 | <i>Fiber</i> |
| | | 356,33 | Fragmen |
| | 2 | 1374,57 | <i>Fiber</i> |
| | | 292,94 | <i>Fiber</i> |
| | | 599,77 | <i>Fiber</i> |
| | | 901,76 | <i>Fiber</i> |
| | | 1601,29 | <i>Fiber</i> |
| | | 72,60 | <i>Fiber</i> |
| | | 2321,04 | <i>Fiber</i> |
| | | 1314,74 | <i>Fiber</i> |
| | | 2300,05 | <i>Fiber</i> |
| | | 1236,71 | <i>Fiber</i> |
| | | 658,48 | <i>Fiber</i> |
| | | 486,04 | <i>Fiber</i> |
| | | 504,38 | <i>Fiber</i> |
| | | 141,69 | Fragmen |
| | | 472,88 | Fragmen |
| | | 37,40 | Fragmen |
| | | 569,37 | Fragmen |
| | | 69,47 | Fragmen |
| | | 97,40 | Fragmen |
| | | 212,08 | Fragmen |
| | | 269,67 | Fragmen |
| | | 38,42 | Fragmen |
| | | 35,54 | Fragmen |
| | 3 | 435,81 | <i>Fiber</i> |
| | | 212,14 | <i>Fiber</i> |
| | | 1561,10 | <i>Fiber</i> |
| | | 189,20 | <i>Fiber</i> |
| | | 350,14 | <i>Fiber</i> |
| | | 2232,68 | <i>Fiber</i> |
| | | 184,92 | <i>Fiber</i> |
| | | 171,80 | Fragmen |
| | | 192,81 | Fragmen |
| | | 174,34 | Fragmen |
| | | 129,52 | Fragmen |
| | | 321,27 | Fragmen |
| | | 360,62 | Fragmen |
| | | 115,18 | Fragmen |
| | 4 | 846,61 | <i>Fiber</i> |
| | | 1522,92 | <i>Fiber</i> |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|--------------|
| | | 1861,69 | <i>Fiber</i> |
| | | 324,48 | <i>Fiber</i> |
| | | 343,44 | <i>Fiber</i> |
| | | 867,64 | <i>Fiber</i> |
| | | 286,46 | <i>Fiber</i> |
| | | 470,64 | <i>Fiber</i> |
| | | 255,24 | Fragmen |
| | | 1519,34 | Fragmen |
| | | 156,76 | Fragmen |
| | | 95,24 | Fragmen |
| | | 127,90 | Fragmen |
| | | 571,14 | Fragmen |
| | | 140,97 | Fragmen |
| | | 227,50 | Fragmen |
| | | 233,09 | Fragmen |
| | 5 | 1185,27 | <i>Fiber</i> |
| | | 145,88 | <i>Fiber</i> |
| | | 143,00 | <i>Fiber</i> |
| | | 263,68 | <i>Fiber</i> |
| | | 2652,33 | <i>Fiber</i> |
| | | 316,87 | <i>Fiber</i> |
| | | 497,89 | <i>Fiber</i> |
| | | 1234,34 | <i>Fiber</i> |
| | | 804,67 | <i>Fiber</i> |
| | | 367,00 | <i>Fiber</i> |
| | | 1294,47 | <i>Fiber</i> |
| | | 182,61 | <i>Fiber</i> |
| | | 253,98 | <i>Fiber</i> |
| | | 1827,75 | <i>Fiber</i> |
| | | 433,91 | <i>Fiber</i> |
| | | 456,64 | Fragmen |
| PVC | 1 | 272,94 | <i>Fiber</i> |
| | | 286,59 | <i>Fiber</i> |
| | | 1768,52 | <i>Fiber</i> |
| | | 378,35 | <i>Fiber</i> |
| | | 605,04 | <i>Fiber</i> |
| | | 319,00 | <i>Fiber</i> |
| | | 1284,05 | <i>Fiber</i> |
| | | 1130,94 | <i>Fiber</i> |
| | | 495,24 | <i>Fiber</i> |
| | | 940,33 | <i>Fiber</i> |
| | | 1405,59 | <i>Fiber</i> |
| | | 701,75 | <i>Fiber</i> |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|--------------|
| | | 2128,84 | <i>Fiber</i> |
| | | 972,31 | <i>Fiber</i> |
| | | 1804,40 | <i>Fiber</i> |
| | | 181,90 | Fragmen |
| | | 377,09 | Fragmen |
| | | 200,67 | Fragmen |
| | | 224,32 | Fragmen |
| | 2 | 412,39 | <i>Fiber</i> |
| | | 780,48 | <i>Fiber</i> |
| | | 1777,00 | <i>Fiber</i> |
| | | 1686,4 | <i>Fiber</i> |
| | | 1835,84 | <i>Fiber</i> |
| | | 1488,04 | <i>Fiber</i> |
| | | 232,87 | <i>Fiber</i> |
| | | 117,10 | Fragmen |
| | | 44,55 | Fragmen |
| | | 78,03 | Fragmen |
| | | 108,85 | Fragmen |
| | | 46,20 | Fragmen |
| | | 77,50 | Fragmen |
| | | 202,23 | Fragmen |
| | | 43,39 | Fragmen |
| | | 39,66 | Fragmen |
| | | 169,76 | Fragmen |
| | | 60,09 | Fragmen |
| | 3 | 1699,14 | <i>Fiber</i> |
| | | 2396,87 | <i>Fiber</i> |
| | | 290,62 | <i>Fiber</i> |
| | | 471,58 | <i>Fiber</i> |
| | | 640,65 | <i>Fiber</i> |
| | | 1247,56 | <i>Fiber</i> |
| | | 220,49 | <i>Fiber</i> |
| | | 905,30 | <i>Fiber</i> |
| | | 339,63 | <i>Fiber</i> |
| | | 209,42 | Fragmen |
| | | 196,23 | Fragmen |
| | | 221,85 | Fragmen |
| | | 421,60 | Fragmen |
| | 4 | 335,35 | <i>Fiber</i> |
| | | 1023,15 | <i>Fiber</i> |
| | | 393,82 | <i>Fiber</i> |
| | | 969,31 | <i>Fiber</i> |
| | | 473,54 | <i>Fiber</i> |

| Sampel | Ulangan | Panjang (μm) | Bentuk |
|--------|---------|---------------------------|--------------|
| | | 3595,58 | <i>Fiber</i> |
| | | 416,22 | <i>Fiber</i> |
| | | 895,17 | <i>Fiber</i> |
| | | 735,75 | <i>Fiber</i> |
| | | 138,76 | Fragmen |
| | | 162,41 | Fragmen |
| | | 245,97 | Fragmen |
| | | 185,27 | Fragmen |
| | | 200,68 | Fragmen |
| | 5 | 46,20 | Fragmen |
| | | 50,65 | Fragmen |
| | | 58,08 | Fragmen |
| | | 58,12 | Fragmen |
| | | 65,15 | Fragmen |
| | | 132,91 | Fragmen |
| | | 243,65 | <i>Fiber</i> |
| | | 284,35 | <i>Fiber</i> |
| | | 495,32 | <i>Fiber</i> |
| | | 755,62 | <i>Fiber</i> |
| | | 1183,96 | <i>Fiber</i> |
| | | 1615,00 | <i>Fiber</i> |
| | | 1619,23 | <i>Fiber</i> |





6.03% PLAGIARISM
APPROXIMATELY

Report #10136718

PENDAHULUAN Latar Belakang Ikan bandeng (*Chanos chanos*) merupakan salah satu jenis ikan hasil budidaya yang berperan penting untuk masyarakat Jawa Tengah khususnya di Kota Semarang. Ikan ini memiliki kandungan protein yang tinggi dan harga yang terjangkau sehingga banyak dikonsumsi untuk memenuhi kebutuhan gizi. Seiring dengan berjalannya waktu, banyak isu tentang pencemaran mikroplastik pada hasil perikanan di wilayah Pantai Utara Jawa Tengah. **1 2** Tingginya aktivitas manusia di daerah pantai utara Jawa Tengah memicu tingginya sampah plastik yang dibuang ke laut. Penelitian yang dilakukan oleh ADDIN Widianarko & Hantoro (2018), menemukan sebanyak 20-30% ikan bandeng telah tercemar mikroplastik, dengan rata-rata $3,36 \pm 1,02$ partikel mikroplastik pada setiap sampel ikan bandeng. **1 2 3** Mikroplastik yang ditemukan dalam saluran pencernaan ikan ini memiliki bentuk fragmen, film, dan fiber dengan warna yang bervariasi. Berbagai penelitian mengenai mikroplastik juga telah dilakukan. Namun, banyaknya temuan mikroplastik pada sampel dari biota laut masih menyisakan permasalahan validitas karena belum adanya metode analisis yang standar. Perbedaan dalam metode ekstraksi untuk memisahkan partikel mikroplastik, metode deteksi dan identifikasi mikroplastik bahkan penggunaan unit pengukuran yang tidak konsisten membuat data yang