**Retention Mechanisms of Microplastics in Soil Environments During Saturation-Desaturation Cycles: Impact of Hydrophobicity and Pore Geometry**

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# Appendix

|  |  |  |
| --- | --- | --- |
| Flow Direction (Saturation) | | |
|  |  |  |
| Pore Volume = 0.89 | Pore Volume = 1.78 | Pore Volume = 2.67 |
|  |  |  |
| Pore Volume = 3.56 | Pore Volume = 4.44 | Pore Volume = 5.33 |
|  |  |  |
| Pore Volume = 6.22 | Pore Volume = 7.11 | Pore Volume = 8 |
|  | | |

Figure 1A: Experimental segmented images from the saturation stage in Geo-B with hydrophobic MPs.

|  |  |  |
| --- | --- | --- |
| Flow Direction (Desaturation) | | |
|  |  |  |
| Pore Volume = 0.89 | Pore Volume = 1.78 | Pore Volume = 2.67 |
|  |  |  |
| Pore Volume = 3.56 | Pore Volume = 4.44 | Pore Volume = 5.33 |
|  |  |  |
| Pore Volume = 6.22 | Pore Volume = 7.11 | Pore Volume = 8 |
| A collage of different colored patterns  Description automatically generated | | |

Figure 2A: Experimental segmented images from the desaturation stage in Geo-B with hydrophobic MPs.

|  |  |  |
| --- | --- | --- |
| Flow Direction (Saturation) | | |
| A green and black pattern  Description automatically generated | A green and black spotted pattern  Description automatically generated | A green and black pattern  Description automatically generated |
| Pore Volume = 0.89 | Pore Volume = 1.78 | Pore Volume = 2.67 |
| A blue and green pattern  Description automatically generated | A blue and green pattern  Description automatically generated | A blue and green pattern  Description automatically generated with medium confidence |
| Pore Volume = 3.56 | Pore Volume = 4.44 | Pore Volume = 5.33 |
| A blue and green pattern with black spots  Description automatically generated | A blue and black pattern  Description automatically generated with medium confidence | A blue and black pattern  Description automatically generated with medium confidence |
| Pore Volume = 6.22 | Pore Volume = 7.11 | Pore Volume = 8 |
| A collage of different colored patterns  Description automatically generated | | |

Figure 3A: Experimental segmented images from the saturation stage in Geo-C with hydrophilic MPs.

|  |  |  |
| --- | --- | --- |
| Flow Direction (Desaturation) | | |
| A black and blue pattern with red and green spots  Description automatically generated | A colorful pattern with black and green spots  Description automatically generated with medium confidence | A colorful pattern with black and green spots  Description automatically generated with medium confidence |
| Pore Volume = 0.89 | Pore Volume = 1.78 | Pore Volume = 2.67 |
| A colorful pattern with black and blue spots  Description automatically generated | A colorful pattern with black and blue spots  Description automatically generated | A colorful pattern with black and green spots  Description automatically generated |
| Pore Volume = 3.56 | Pore Volume = 4.44 | Pore Volume = 5.33 |
| A colorful pattern with black spots  Description automatically generated with medium confidence | A colorful pattern with black and blue spots  Description automatically generated | A colorful pattern with black and blue spots  Description automatically generated |
| Pore Volume = 6.22 | Pore Volume = 7.11 | Pore Volume = 8 |
| A collage of different colored patterns  Description automatically generated | | |

Figure 4A: Experimental segmented images from the desaturation stage in Geo-C with hydrophilic MPs.