Physical structure determines compression of membrane biofilms
during Gravity Driven Membrane (GDM) ultrafiltration

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Compression and relaxation of membrane biofilms—controlled TMP:

1. Nutrient enriched biofilms

**Figure 1** Selection of images for nutrient enriched biofilms exposed to increasing and decreasing transmembrane pressure steps. Images enhanced for brightness for purpose of presentation only. (Image size 1 x 2 mm (MFS 2, 3) 1.5 x 2 mm (MFS 1))
2. P limiting biofilms

Figure 2 Selection of images for P limiting biofilms exposed to increasing and decreasing transmembrane pressure steps. Images enhanced for brightness for purpose of presentation only (Image size 1 x 2 mm)
3. River water biofilms

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**Figure 3** Selection of images for river water biofilms exposed to increasing and decreasing transmembrane pressure steps. Images enhanced for brightness for purpose of presentation only (Image size (Image size 1 x 2 mm (MFS 1, 2 L1) 1.5 x 2 mm (MFS 2 L2)).
Supplementary information (SI)

Compression and relaxation of membrane biofilms—controlled flux:

1. Nutrient enriched

**Figure 4** Selection of images for nutrient enriched biofilms exposed to increasing and decreasing permeate flux. Images enhanced for brightness for purpose of presentation only. (Image size 1 x 2 mm (MFS 2 L1/2- 1.5 x 2 mm (MFS 1))
2. **P limiting**

**Figure 5** Selection of images P limiting biofilms exposed to increasing and decreasing permeate flux. Images enhanced for brightness for purpose of presentation only. (Image size 1 x 2 mm)
Figure 6 Selection of images of river water biofilms exposed to increasing and decreasing permeate flux. Images enhanced for brightness for purpose of presentation only. (Image size 1 x 2 mm)
Compositional analysis

Figure 7 LC-OCD profile of extracellular fraction of nutrient enriched and P limiting biofilms showing exclusive accumulation of endogenously produced polymers: