

## Supporting Information

# Organocatalytic Peptide Coacervates as Microreactors for Aqueous Aldol Additions

*Zhen Dai<sup>a</sup>, Malcolm Meyn, and Lucas Caire da Silva<sup>a</sup>*

a. Department of Chemistry, McGill University, Montreal, H3A 0B8, Canada. E-mail: [lucas.cairedasilva@mcgill.ca](mailto:lucas.cairedasilva@mcgill.ca)

## Materials

Materials in this study were synthesized from previous reports or were commercially available. Boc-L-phenylalanine (98%, Oakwood Chemicals), Boc-L-proline (99%, Oakwood Chemicals), phenylalanine methyl ester hydrochloride (98%, Oakwood Chemicals), EDC hydrochloride (99%, Oakwood Chemicals), 1-hydroxybenzotriazole (97%, Sigma-Aldrich), N,N-diisopropylethylamine (99%, Oakwood Chemicals), hydrogen chloride solution 4.0 M in dioxane (Oakwood Chemicals), HEPES (99%, Oakwood Chemicals), CHES (98%, Oakwood Chemicals), Pluronic F-108 (Sigma-Aldrich), urea (>99%, Oakwood Chemicals), 1,6-hexanediol (99%, Sigma-Aldrich), Nile red (Sigma-Aldrich), fluorescein sodium salt (Sigma-Aldrich), calcein (Sigma-Aldrich), Prodan (98%, TCI America), rhodamine B (Sigma-Aldrich), cyclohexanone (99%, Oakwood Chemicals), 4-nitrobenzaldehyde (98%, Oakwood Chemicals), L-proline methyl ester hydrochloride (90%, Oakwood Chemicals), cyclopentanone (99%, Sigma-Aldrich), 3-nitrobenzaldehyde (99%, Sigma-Aldrich), 2-nitrobenzaldehyde (98%, Sigma-Aldrich), 3-cyanobenzaldehyde (98%, Sigma-Aldrich) and 4-chlorobenzaldehyde (98%, Oakwood Chemicals) were purchased and used without further purification.

8-formyl-2,6-diethyl-1,3,5,7-tetramethyl pyrromethene fluoroborate was obtained from the Cosa Group and used without further purification.

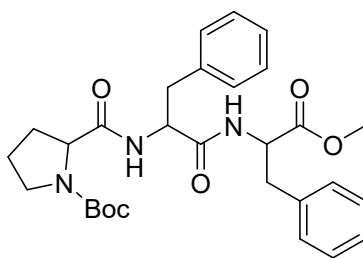
## Instrumentation

<sup>1</sup>H NMR measurements were performed on a Bruker Avance III HD 400 MHz, Bruker Avance III HD 500 MHz, Varian Mercury 400 MHz or Varian Inova 500 MHz spectrometer. <sup>13</sup>C NMR measurements were performed on a Bruker Avance III HD 500 MHz. CDCl<sub>3</sub> or DMSO-d<sub>6</sub> were used as solvent and the residual solvent peak was used as reference. High-resolution mass spectrometry (HRMS) measurements were performed on a Bruker Maxis Impact LC-MS Q-TOF

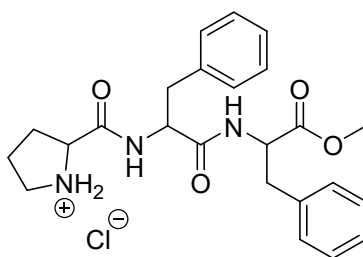
or Thermo LCQ Duo LC-MS Ion Trap with an ESI source. Chiral HPLC was performed on an Agilent 1260 Infinity II. Detection was carried out at 254 nm unless otherwise noted. Column model and conditions are as described for each molecule. pH was measured on a Mettler Toledo FiveEasy benchtop pH meter. Absorbance measurements for large samples were performed on a Agilent Cary UV-Vis Multicell Pelltier spectrometer, and microplate absorbance and fluorescence measurements were performed on a Biotek Synergy HT or Biotek Synergy H1 microplate reader. For absorbance measurements, samples were loaded into clear 96-well plates and readings were taken at 630 nm for turbidity measurements. For fluorescence measurements, samples were loaded into black V-bottom 96-well plates, and the spectrum was acquired from 410 nm to 700 nm with excitation at 390 nm. All measurements were taken at room temperature unless otherwise specified. Brightfield microscopy images were obtained using a Zeiss Axio Imager M2 or Zeiss Axio Observer. Confocal microscopy imaging was performed on a Zeiss LSM 900. Raman spectra of bulk samples were obtained using a custom setup reported by Logozzo et al. with the cell exchanged for a cuvette.<sup>1</sup> Raman confocal microscopy spectra were acquired using a WITec Alpha 300R confocal Raman microscope with a laser excitation wavelength of 532 nm. Objective magnification was 50x or 100x and spectral resolution was approximately 3 cm<sup>-1</sup>. Data was collected over the range of 50 to 3656 cm<sup>-1</sup>.

## Peptide Synthesis

**FF-OMe:** FF-OMe was synthesized using the previously reported procedure<sup>2</sup>.



**Boc-PFF-OMe:** In a round-bottom flask was added Boc-Proline (118.4 mg, 0.55 mmol, 1.1 eq.), EDC hydrochloride (105.4 mg, 0.55 mmol, 1.1 eq.) and HOBt hydrate (84.2 mg, 0.55 mmol, 1.1 eq.). 0.75 mL of DMF was added and the reaction was stirred at RT. FF-OMe hydrochloride (181.0 mg, 0.5 mmol, 1 eq.) and DIPEA (261  $\mu$ L, 1.5 mmol, 3 eq.) were added in quick succession. The reaction was left to stir at RT overnight. Upon completion of the reaction, the mixture was diluted with EtOAc and washed with 5% citric acid 3 times, saturated sodium bicarbonate and brine. The organic layer was dried over MgSO<sub>4</sub> and concentrated in vacuo. The crude product was purified via column chromatography in 1:4 EtOAc/DCM to afford the product as a white solid (240.5 mg, 92% yield). <sup>1</sup>H NMR (500 MHz, CDCl<sub>3</sub>)  $\delta$  7.40 – 6.95 (m, 11H), 6.70 – 6.05 (m, 1H), 4.76 (d, J = 7.2 Hz, 1H), 4.70 – 4.50 (m, 1H), 4.20 (s, 1H), 3.66 (s, 3H), 3.25 (s, 2H), 3.15 – 2.95 (m, 4H), 2.20 – 1.60 (m, 4H), 1.42 (s, 9H).



**PFF-OMe:** To a vial was added Boc-PFF-OMe (166.5 mg, 0.318 mmol, 1 eq.). HCl 4 M in dioxane (0.477 mL, 1.91 mmol, 6 eq.) was added, and the reaction was left to stir at RT for 3 hours. If needed, the reaction mixture was concentrated in vacuo and diethyl ether was added to precipitate the product. The product was then filtered and washed with diethyl ether to afford the HCl salt of PFF-OMe as a white powder (135.1 mg, 92% yield). <sup>1</sup>H NMR (400 MHz, D<sub>2</sub>O)  $\delta$  7.34 – 7.06 (m, 10H), 4.64 – 4.57 (m, 1H), 4.51 (t, J = 7.8 Hz, 1H), 4.25 – 4.12 (m, 1H), 3.60 (s, 3H), 3.30 (q, J = 6.8 Hz, 2H), 3.11 (dd, J = 13.9, 5.6 Hz, 1H), 3.03 – 2.80 (m, 3H), 2.27 (dd, J = 13.6, 7.4 Hz, 1H), 1.92 (tt, J = 13.6, 6.6 Hz, 2H), 1.74 (dt, J = 13.6, 6.9 Hz, 1H). <sup>13</sup>C NMR (126 MHz,

D<sub>2</sub>O)  $\delta$  172.9, 172.1, 168.9, 136.3, 136.0, 129.2, 129.1, 128.7, 128.7, 127.2, 127.1, 59.3, 55.2, 53.9, 52.9, 46.6, 37.1, 36.7, 29.8, 23.7. ESI-HRMS calcd for C<sub>24</sub>H<sub>30</sub>N<sub>3</sub>O<sub>4</sub> m/z: 424.2231 [M+H]<sup>+</sup>; found 424.2250.

### **Formation of PFF-OMe Coacervates via Liquid-Liquid Phase Separation**

Solutions of PFF-OMe were prepared, then 1M pH 8.5 HEPES buffer was added to induce coacervation to a final HEPES concentration of 0.1M and PFF-OMe concentration of 9.2 mg/mL (0.02M) unless stated otherwise. If required, a 1 wt% stock solution of Pluronic F-108 may be added prior to the addition of buffer to reach a final concentration of 0.5mg·mL<sup>-1</sup>.

### **General Procedure for Turbidity Measurements**

50  $\mu$ L of a prepared sample was added to a Fisherbrand 96 well tissue culture plate. The turbidity of the samples was determined by measuring the absorbance at 630 nm with 30 seconds of shaking beforehand to avoid coacervate settling with no plate lid. The absorbance was then corrected using an appropriate blank sample.

### **PFF-OMe Phase Diagram**

A 23mg/mL PFF-OMe solution containing 1.25mg/mL Pluronic F-108 was first prepared. Samples were prepared in a 96 well microplate by combining the PFF-OMe/Pluronic F-108 stock solution, 5 M NaCl solution, Milli-Q water and 1 M buffer such that samples had final concentrations of 9.2 mg/mL for PFF-OMe and 0.5 mg/mL for Pluronic F-108 while representing every combination of pH 6, 6.5, 7, 7.5, 8, 8.5, 9 or 10 buffer with final NaCl concentrations of 0.25, 0.50, 0.75, 1.00, 1.25, 1.50, 1.75 or 2.00 M. Buffers between 6 and 8.5 pH were HEPES buffers and those at pH 9 and 10 were CHES buffers. In the end, 72 samples were made at a final

PFF-OMe concentration of 9.2 mg/mL with different pH and ionic strength conditions. The turbidity of samples on the microplate was then measured using the general method.

### **Reversibility of Coacervation**

3 50  $\mu$ L samples were prepared in a 96 well microplate with concentrations of 9.2 mg/mL PFF-OMe, 0.5 mg/mL Pluronic F-108 and 0.1 M pH 7 HEPES buffer. 2.2  $\mu$ L of 1 M NaOH was added to each sample to bring the pH up to around 9. The plate was read using the general procedure and an equivalent amount of 1 M HCl was added to bring the pH back down to 7 and the plate was read again. This was repeated for 3 acid-base cycles. The turbidity values for each sample were first normalized to the highest value of that sample, then the average and standard deviation (error bars) was determined.

### **Coacervate Stability in the Presence of 1,6-Hexanediol and Urea**

For the experiment involving 1,6-hexanediol, 50  $\mu$ L samples were prepared in a 96-well microplate with final concentrations of 9.2 mg/mL PFF-OMe, 0.5 mg/mL Pluronic F-108, 0.1 M pH 8.5 HEPES buffer and either 0, 0.5, 1.0, or 1.5 M 1,6-hexanediol. Buffer was added last to trigger coacervation and the plate was read on the microplate reader. This was done in triplicates and the turbidity was blank corrected using a peptide and 1,6-hexanediol-free sample. This procedure was repeated for urea with samples at final concentrations of 9.2 mg/mL PFF-OMe, 0.5 mg/mL Pluronic F-108, 0.1 M pH 8.5 HEPES buffer and either 0, 1.0, 2.5, or 5.0 M urea.

### **Time-Dependent Coacervate Stability**

10 100  $\mu$ L PFF-OMe samples containing Pluronic F-108 were prepared in Eppendorf tubes using buffers of pH 7, 7.5, 8, 8.3, 8.7, 9, 9.5, 10, 11, or 12 respectively. Buffers between pH 7 and 8.3 use HEPES, the pH 8.7 buffer uses Tris, those between pH 9 and 10 use CHES and the pH 11 and

12 buffers are carbonate buffers. Buffers were added last once all other components were prepared such that the time difference between the preparation of the first and last samples is negligible. The time of the preparation of the last sample was recorded, and the actual pH of each sample was measured. The samples were transferred to wells on a 96 well microplate and the plate was read according to the general method. The plate was then read again 40 minutes after the first read and 30 minutes after the second read. All intensity values were normalized to the highest value in the experiment.

### **Turbidity in the Presence of Cyclohexanone**

2 400  $\mu$ L PFF-OMe samples containing Pluronic F-108 were prepared in Eppendorf tubes. In one sample, 17  $\mu$ L of cyclohexanone was added prior to the 1 M HEPES pH 8.5 buffer. 50  $\mu$ L of each sample were transferred in a 96 well plate and the plate was read using the general procedure. This was repeated at 30-minute intervals for 2 hours. The intensity values for both samples were corrected using a sample of 0.1 M HEPES pH 8.5 buffer containing 0.5 mg/mL Pluronic F-108, then normalized to the highest value in the experiment.

### **Temperature Stability of PFF-OMe Coacervates**

A 600  $\mu$ L coacervate sample was prepared with concentrations of 9.2 mg/mL PFF-OMe, 0.5 mg/mL of Pluronic F-108, and 0.1 M pH 8.5 HEPES buffer. The absorbance of the sample was measured at 630 nm on an Agilent Cary UV-Vis Multicell Peltier using glass cuvettes at temperatures from 20 to 80°C at increments of 5°C. The temperature was increased by 3°C per minute. The absorbance was corrected using a peptide-free blank.

### **General Microscopy Procedure**

Glass microscopy slides were first cleaned by rinsing with water, drying with a flow of air, then rising in ethanol and drying again. An 8 well Grace Biolabs reusable CultureWell™ gasket was placed on the slide and 10  $\mu$ L of the prepared sample was pipetted inside a well. The well was then covered and sealed with a pre-cleaned coverslip, and the slide was imaged under brightfield or fluorescence microscopy.

### **Brightfield Imaging of Coacervates**

A PFF-OMe sample containing Pluronic F-108 was prepared, then imaged using the general procedure. Image was taken after leaving the slide on the microscope for around 15 minutes to allow droplets to settle towards the bottom. To observe liquid-like behaviors, the sample was prepared without Pluronic F-108 and images were recorded after leaving the sample for around 15 minutes to allow for the initial wetting and merging of droplets.

### **Dye Encapsulation Inside Coacervates**

3 sample were prepared in Eppendorf tubes by combining 80  $\mu$ L of 11.5 mg/mL PFF-OMe stock solution, 2.5  $\mu$ L of MilliQ water, 5  $\mu$ L of 1 wt% Pluronic F-108 and 10  $\mu$ L of HEPES pH 8.5 buffer. 2.5  $\mu$ L of 0.4 mM Nile red, fluorescein or calcein in DMSO were added to each samples respectively. The samples were imaged via confocal microscopy using the general procedure.

### **Fluorescence Recovery After Photobleaching (FRAP)**

A 100  $\mu$ L sample was prepared with concentrations of 9.2 mg/mL PFF-OMe, 4  $\mu$ M rhodamine B and 0.1 M HEPES pH 8.5 buffer. Pluronic F-108 is not used to allow droplets to wet the glass surface, immobilizing them and making accurate measurements possible. The sample was transferred to a microscopy slide following the general procedure. Under confocal microscopy, coacervates were bleached at 100% laser power using 5 circular areas and 1 circular area was left

unbleached. The fluorescence recovery in these areas was followed by taking regular images at around 1 second intervals. This was done four times with area diameters of 1.0, 1.2, 1.4 and 1.6  $\mu\text{m}$ . Using Python, the fluorescence recovery profile was then normalized, corrected using the control and fitted to an exponential function to determine the half-life, which was averaged over the 5 areas. The viscosity was determined using the Stokes-Einstein equation.

$$D = \frac{k_B T}{6\pi\eta r} \#(1)$$

Where  $D$  is the diffusion coefficient  $k_B$  and  $T$  are the Boltzmann constant and temperature,  $\eta$  is the viscosity and  $r$  is the radius of the particle. The diffusion could then be related to the half-life of recovery as reported by Axelrod et al.<sup>3</sup>

$$D = \gamma_d \frac{w^2}{4\tau_{\frac{1}{2}}} \#(2)$$

Where  $\gamma_d$  is 0.88 for circular bleached areas,  $w$  is the actual width of the bleached area and  $\tau_{1/2}$  is the half-life of recovery. Combining the two equations, the half-life can be related to the viscosity.

$$\tau_{\frac{1}{2}} = aw^2\eta \#(3)$$

Where  $a$  is:

$$a = \frac{6\pi R_h \gamma_d}{4k_B T} \#(4)$$

The viscosity was then determined by plotting half-life as a function of  $aw^2$  and taking the slope.

For cyclohexanone-containing coacervates, a 50  $\mu\text{L}$  sample was made with concentrations of 9.2 mg/mL PFF-OMe, 10  $\mu\text{M}$  rhodamine B and 0.1 M pH 8.5 HEPES buffer. 3.1  $\mu\text{L}$  of cyclohexanone

was added and the sample was inverted a few times to ensure proper mixing. FRAP and fitting was performed as above using an area size of 1.0  $\mu\text{m}$  to obtain the recovery half-life.

### **Size Distribution**

A sample was prepared by combining 160  $\mu\text{L}$  of 11.5 mg/mL PFF-OMe stock solution, 10  $\mu\text{L}$  of 1 wt% Pluronic F-108, 5  $\mu\text{L}$  of 0.2 mM Nile Red in DMSO, 5  $\mu\text{L}$  of MilliQ water and 20  $\mu\text{L}$  of 1 M HEPES pH 8.5 buffer. 50  $\mu\text{L}$  of the sample was transferred to 3 wells in an 18 well microscopy slide. The slide was left on the microscope for 30 minutes to let the droplets settle to the bottom of the slide. 3 images were taken for each well under confocal microscopy and the size of the droplets was determined using ImageJ. For the experiment in the presence of cyclohexanone, 12  $\mu\text{L}$  of cyclohexanone was added to the sample and the same procedure was followed.

### **Stability of Coacervates Under Stirring**

A 1 mL PFF-OMe sample with Pluronic was prepared and transferred to a vial. 41  $\mu\text{L}$  of cyclohexanone was added and the mixture was stirred using a stir bar at RT. After 1 day and after 1 week, aliquots of the sample were imaged under brightfield microscopy following the general procedure.

### **Aldol Reaction of Fluorogenic Substrate**

A sample was prepared by combining 80  $\mu\text{L}$  of 0.025 M PFF-OMe solution, 1  $\mu\text{L}$  of 1 wt% Pluronic F-108, 6  $\mu\text{L}$  of cyclohexanone and 10  $\mu\text{L}$  of 1 M HEPES pH 8.5 buffer. 5  $\mu\text{L}$  of 0.1 mM formyl-bodipy substrate (8-formyl-2,6-diethyl-1,3,5,7-tetramethyl pyrromethene fluoroborate) in DMSO was added and the sample was imaged via confocal fluorescence microscopy using the general procedure. Images were taken initially and after 6.5 and 22.5 hours.

### **Raman Spectroscopy of Aqueous Cyclohexanone Solution**

A 1 mL sample was prepared with concentrations of 0.5 mg/mL of Pluronic F-108 and 0.1 M HEPES pH 8.5 buffer. 62.7  $\mu$ L of cyclohexanone was added and the sample was vortexed to ensure dissolution. The sample was transferred to a glass cuvette and the Raman spectrum was measured using the custom Raman spectrometer where only the backscattered light was collected. The spectrum was recorded over 30 frames of 2000 ms each then averaged and background corrected.

### **Confocal Raman Microscopy**

The sample of cyclohexanone-containing coacervates was prepared by combining 40  $\mu$ L of 11.5 mg/mL PFF-OMe solution, 2.5  $\mu$ L of Milli-Q water, 2.5  $\mu$ L of 1 wt% Pluronic F-108, 5  $\mu$ L of 1 M HEPES pH 8.5 buffer and 3  $\mu$ L of cyclohexanone. The sample of PFF-OMe coacervates was prepared by combining 40  $\mu$ L of 11.5 mg/mL PFF-OMe solution, 4.5  $\mu$ L of Milli-Q water, 0.5  $\mu$ L of 1 wt% Pluronic F-108 and 5  $\mu$ L of 1 M HEPES pH 8.5 buffer. The samples were transferred to microscopy slides following the general procedure for microscopy. The slides were then imaged using confocal Raman microscopy and the Raman spectrum was measured by finding larger droplets and focusing the beam at their center. To obtain the spectrum of cyclohexanone, a drop of pure cyclohexanone was placed on a microscopy slide and the spectrum was obtained by focusing the beam on the liquid. To measure the spectrum of an aqueous solution of PFF-OMe, a drop of a 46 mg/mL solution of PFF-OMe in water was placed onto a slide and the Raman spectrum was measured by focusing the beam on the liquid.

### **Partitioning Coefficient of Aldol Reagents**

For cyclohexanone: A sample was prepared by combining 9.2 mg of PFF-OMe, 900  $\mu$ L of Milli-Q water and 100  $\mu$ L of 1 M pH 8.5 HEPES buffer in an Eppendorf tube. 62.7  $\mu$ L of cyclohexanone was added and the Eppendorf tube was inverted a few times to ensure proper dissolution. The

sample was centrifuged at 6000 rpm for 20 minutes and 10  $\mu\text{L}$  of the supernatant was dissolved in 480  $\mu\text{L}$  of  $\text{D}_2\text{O}$  in a new Eppendorf tube . 10  $\mu\text{L}$  of 0.5 M potassium hydrogen phthalate was added as internal standard and this sample was analyzed via  $^1\text{H}$  NMR. The supernatant was then removed from the Eppendorf tube and the approximate volume of the coacervate phase was noted.  $\sim 450$   $\mu\text{L}$  of  $\text{D}_2\text{O}$  and 50  $\mu\text{L}$  of 2M HCl was added to dissolve the coacervate phase. 10  $\mu\text{L}$  of 0.5 M potassium hydrogen phthalate was added as internal standard and the sample was analyzed via  $^1\text{H}$  NMR.

For 4-nitrobenzaldehyde: A sample was prepared by combining 27.6 mg of PFF-OMe, 800  $\mu\text{L}$  of Milli-Q water and 100  $\mu\text{L}$  of 1 M pH 8.5 HEPES buffer in an Eppendorf tube. 100  $\mu\text{L}$  of 0.1 M 4-nitrobenzaldehyde in DMSO was added and the Eppendorf tube was inverted a few time to ensure proper mixing. The sample was centrifuged at 6000 rpm for 20 minutes and 450  $\mu\text{L}$  of the supernatant was added to 50  $\mu\text{L}$  of  $\text{D}_2\text{O}$  in a new Eppendorf tube. 10  $\mu\text{L}$  of 0.5 M potassium hydrogen phthalate was added as internal standard and this sample was analyzed via  $^1\text{H}$  NMR. The remaining supernatant was then removed from the Eppendorf tube and the approximate volume of the coacervate phase was noted.  $\sim 450$   $\mu\text{L}$  of  $\text{D}_2\text{O}$  and 50  $\mu\text{L}$  of 2M HCl was added to dissolve the coacervate phase. 10  $\mu\text{L}$  of 0.5 M potassium hydrogen phthalate was added as internal standard and the sample was analyzed via  $^1\text{H}$  NMR.

The integration of the reagent peaks was corrected based on the internal standard peaks and the partitioning coefficient was estimated by comparing the integrations in both phases and taking into account the volume of supernatant/coacervate phase in the sample.

### **Fluorescence of Prodan Inside Coacervates**

A 100  $\mu\text{L}$  sample was prepared with concentrations of 9.2 mg/mL PFF-OMe solution, 0.5 mg/mL of Pluronic F-108, 0.1 mM of Prodan and 0.1M CHES pH 9 buffer. 50  $\mu\text{L}$  of the sample was

transferred to a conical bottom 96 well plate and the fluorescence spectrum was measured on a microplate reader. For the fluorescence spectrum of Prodan in water, a similar peptide-free sample was prepared. Its fluorescence spectrum was measured in the same manner and blank corrected.

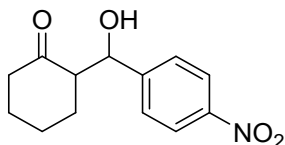
### **Aldol Catalysis Using PFF-OMe Coacervates**

A general procedure goes as follows. In a vial was added 4-nitrobenzaldehyde (30.8 mg, 0.2 mmol, 1 eq.). In an Eppendorf tube, PFF-OMe (9.2 mg, 0.02 mmol, 0.1 eq.) was added and dissolved in 850  $\mu$ L of Milli-Q water. 50  $\mu$ L of 1 wt% Pluronic F-108 was added. 100  $\mu$ L of 1 M HEPES pH 8.5 buffer was added to trigger coacervation. The solution was transferred to the vial. Cyclohexanone (62.5  $\mu$ L, 0.6 mmol, 3 eq.) was added and the reaction was stirred at RT for 2 hours. Upon completion, the reaction was extracted 3 times with chloroform and the combine organic layer was concentrated in vacuo. The crude product was analyzed using  $^1\text{H}$  NMR to determine conversion and anti:syn ratio with mesitylene as an internal standard. Modifications are as described in the table. For the reaction without buffer (homogenous PFF-OMe solution at low pH), 950  $\mu$ L of Milli-Q water was used to keep the total volume constant.

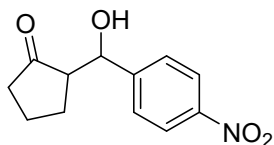
### **Scope of the PFF-OMe Coacervate Catalyzed Aldol Addition**

**General procedure:** In a vial was added aldehyde (0.2 mmol, 1 eq.). In an Eppendorf tube, PFF-OMe (9.2 mg, 0.02 mmol, 0.1 eq.) was added and dissolved in 850  $\mu$ L of Milli-Q water. 50  $\mu$ L of 1 wt% Pluronic F-108 was added. 100  $\mu$ L of 1 M HEPES pH 8.5 buffer was added to trigger coacervation. The solution was transferred to the vial. Ketone (0.6 mmol, 3 eq.) was added and the reaction was stirred at RT for the described reaction time. Upon completion, the reaction was extracted 3 times with chloroform and the combine organic layer was concentrated in vacuo. The crude product was purified via column chromatography on silica gel using EtOAc/DCM or EtOAc/Hexanes as solvent. Products were obtained as a mixture of anti and syn products. Anti:syn

ratios were obtained via  $^1\text{H}$  NMR and enantiometric excess was obtained via chiral HPLC. Spectroscopic data is provided for the major product and is in agreement with reported data.

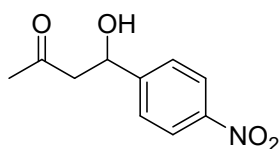


**2-(hydroxy(4-nitrophenyl)methyl)cyclohexan-1-one:** Obtained from cyclohexanone and 4-nitrobenzaldehyde following the general procedure as a yellowish solid (44.2 mg, 89% yield, 86:14 anti:syn). For the anti product:  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ )  $\delta$  8.32 – 8.14 (m, 2H), 7.60 – 7.41 (m, 2H), 4.90 (dd,  $J$  = 8.4, 3.1 Hz, 1H), 4.06 (d,  $J$  = 3.2 Hz, 1H), 2.67 – 2.45 (m, 2H), 2.45 – 2.30 (m, 1H), 2.12 (ddt,  $J$  = 12.2, 5.8, 2.9 Hz, 1H), 1.83 (d,  $J$  = 13.1 Hz, 1H), 1.76 – 1.49 (m, 3H), 1.47 – 1.33 (m, 1H).  $^{13}\text{C}$  NMR (126 MHz,  $\text{CDCl}_3$ )  $\delta$  214.9, 148.5, 147.7, 128.0, 123.7, 74.2, 57.3, 42.8, 30.9, 27.8, 24.8. 71% e.e. was found via chiral HPLC analysis: Chiralpak AD, 80/20 Hexane/IPA, 0.5 mL/min, retention time (min): 22.51 (minor) and 28.98 (major). ESI-HRMS calcd for  $\text{C}_{13}\text{H}_{15}\text{NNaO}_4$   $m/z$ : 272.0893  $[\text{M}+\text{Na}]^+$ ; found 272.0886.

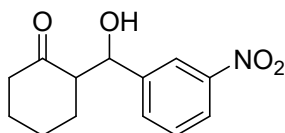


**2-(hydroxy(4-nitrophenyl)methyl)cyclopentan-1-one:** Obtained from cyclopentanone and 4-nitrobenzaldehyde following the general procedure as a yellow solid (40.9 mg, 87% yield, 14:86 anti:syn). For the syn product:  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ )  $\delta$  8.23 (d,  $J$  = 8.9, 2H), 7.56 – 7.51 (m, 2H), 5.44 (dd,  $J$  = 4.8, 3.1 Hz, 1H), 2.56 – 2.36 (m, 3H), 2.24 – 2.11 (m, 1H), 2.09 – 1.91 (m, 2H), 1.82 – 1.67 (m, 2H).  $^{13}\text{C}$  NMR (126 MHz,  $\text{CDCl}_3$ )  $\delta$  219.4, 150.1, 127.4, 126.4, 123.7, 70.5, 56.1,

38.9, 22.4, 20.3. 45% e.e. was found for the anti diastereomer and 6% e.e. was found for the syn diastereomer via chiral HPLC analysis: Chiralpak AD, 95/5 Hexane/IPA, 0.75 mL/min, retention time (min): 29.12 (syn, major), 40.88 (syn, minor), 52.71 (anti, minor), 52.75 (anti, major). ESI-HRMS calcd for  $C_{12}H_{12}NO_4$  m/z: 234.07718  $[M-H]^-$ ; found 234.07723.

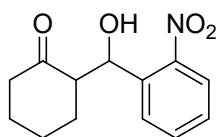


**4-hydroxy-4-(4-nitrophenyl)butan-2-one:** Obtained from acetone and 4-nitrobenzaldehyde following the general procedure as a yellowish solid (19.2 mg, 46% yield).  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  8.35 – 8.09 (m, 2H), 7.63 – 7.50 (m, 2H), 5.27 (dt,  $J$  = 7.6, 3.6 Hz, 1H), 3.56 (d,  $J$  = 3.2 Hz, 1H), 2.92 – 2.77 (m, 2H), 2.23 (s, 3H).  $^{13}C$  NMR (126 MHz,  $CDCl_3$ )  $\delta$  208.5, 149.9, 147.4, 126.4, 123.8, 68.9, 51.5, 30.7. 11% e.e. was found via chiral HPLC analysis: Chiralpak OJ-H, 90/10 Hexane/IPA, 1.0 mL/min, retention time (min): 29.64 (major) and 34.01 (minor). ESI-HRMS calcd for  $C_{10}H_{11}NNaO_4$  m/z: 232.0580  $[M+Na]^+$ ; found 232.0580.

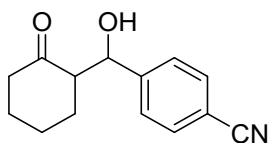


**2-(hydroxy(3-nitrophenyl)methyl)cyclohexan-1-one:** Obtained from cyclohexanone and 3-nitrobenzaldehyde following the general procedure as a white solid (45.8 mg, 92% yield, 83:17 anti:syn). For the anti product:  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  8.31 – 8.08 (m, 2H), 7.70 (d,  $J$  = 7.7 Hz, 1H), 7.60 – 7.51 (m, 1H), 4.92 (dd,  $J$  = 8.5, 3.1 Hz, 1H), 4.13 (d,  $J$  = 3.1 Hz, 1H), 2.71 – 2.59 (m, 1H), 2.58 – 2.33 (m, 2H), 2.15 (ddd,  $J$  = 12.8, 6.0, 3.0 Hz, 1H), 1.94 – 1.81 (m, 1H), 1.80 – 1.53 (m, 3H), 1.49 – 1.35 (m, 1H).  $^{13}C$  NMR (126 MHz,  $CDCl_3$ )  $\delta$  214.9, 148.3, 143.3, 133.2,

129.3, 122.9, 122.0, 74.1, 57.2, 42.7, 30.8, 27.6, 24.7. 48% e.e. was found via chiral HPLC analysis: Chiralpak OD-H, 80/20 Hexane/IPA, 0.5 mL/min, retention time (min): 15.81 (major) and 20.21 (minor). ESI-HRMS calcd for  $C_{13}H_{15}NNaO_4$  m/z: 272.08933  $[M+Na]^+$ ; found 272.08867.

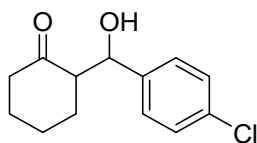


**2-(hydroxy(2-nitrophenyl)methyl)cyclohexan-1-one:** Obtained from cyclohexanone and 2-nitrobenzaldehyde following the general procedure as a white solid (43.7 mg, 88% yield, 82:18 anti:syn). For the anti product:  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  7.93 – 7.84 (m, 1H), 7.80 (d,  $J$  = 8.0 Hz, 1H), 7.73 – 7.61 (m, 1H), 7.52 – 7.40 (m, 1H), 5.47 (d,  $J$  = 7.0 Hz, 1H), 4.19 (s, 1H), 2.84 – 2.72 (m, 1H), 2.55 – 2.43 (m, 1H), 2.36 (td,  $J$  = 13.1, 6.0 Hz, 1H), 2.20 – 2.08 (m, 1H), 1.95 – 1.84 (m, 1H), 1.84 – 1.47 (m, 4H).  $^{13}C$  NMR (126 MHz,  $CDCl_3$ )  $\delta$  215.0, 148.8, 136.6, 133.1, 129.0, 128.4, 124.1, 69.8, 57.3, 42.9, 31.1, 27.8, 25.0. 48% e.e. was found via chiral HPLC analysis: Chiralpak OJ-H, 95/5 Hexane/IPA, 1.0 mL/min, retention time (min): 20.19 (minor) and 22.19 (major). ESI-HRMS calcd for  $C_{13}H_{15}NNaO_4$  m/z: 272.08933  $[M+Na]^+$ ; found 272.08856.



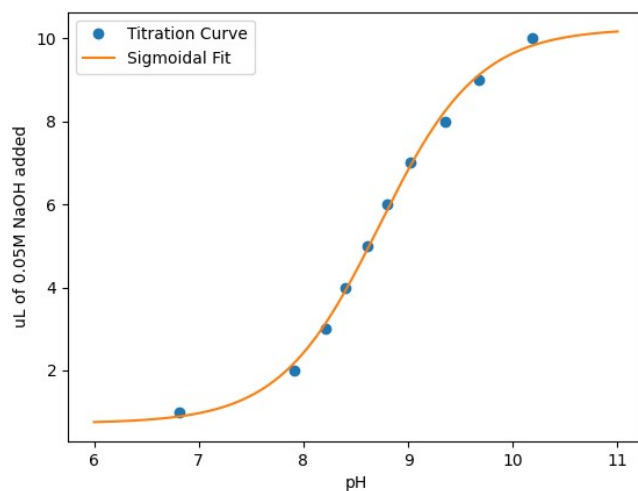
**4-(hydroxy(2-oxocyclohexyl)methyl)benzonitrile:** Obtained from cyclohexanone and 4-cyanobenzaldehyde following the general procedure as a white solid (43.1 mg, 89% yield, 84:16 anti:syn). For the anti product:  $^1H$  NMR (400 MHz,  $CDCl_3$ )  $\delta$  7.70 – 7.63 (m, 2H), 7.50 – 7.42 (m, 2H), 4.86 (dd,  $J$  = 8.5, 3.1 Hz, 1H), 4.06 (d,  $J$  = 3.1 Hz, 1H), 2.67 – 2.31 (m, 3H), 2.14 (ddt,  $J$  =

12.2, 5.8, 2.9 Hz, 1H), 1.93 – 1.80 (m, 1H), 1.78 – 1.50 (m, 3H), 1.45 – 1.32 (m, 1H).  $^{13}\text{C}$  NMR (126 MHz,  $\text{CDCl}_3$ )  $\delta$  214.9, 146.4, 132.2, 127.8, 118.7, 111.7, 74.3, 57.2, 42.7, 30.8, 27.7, 24.7. 44% e.e. was found via chiral HPLC analysis: Chiralpak AD, 80/20 Hexane/IPA, 0.5 mL/min, retention time (min): 20.16 (minor) and 24.73 (major). ESI-HRMS calcd for  $\text{C}_{14}\text{H}_{15}\text{NNaO}_2$  m/z: 252.0995  $[\text{M}+\text{Na}]^+$ ; found 252.0989.

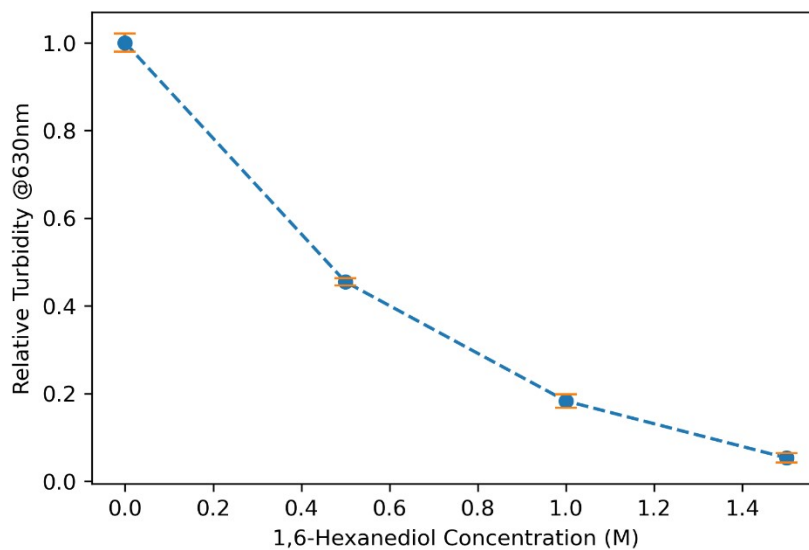


**2-((4-chlorophenyl)(hydroxy)methyl)cyclohexan-1-one:** Obtained from cyclohexanone and 4-chlorobenzaldehyde following the general procedure as a white solid (36.6 mg, 77% yield, 89:11 anti:syn). For the anti product:  $^1\text{H}$  NMR (500 MHz,  $\text{CDCl}_3$ )  $\delta$  7.38 – 7.31 (m, 2H), 7.31 – 7.23 (m, 2H), 4.79 (d,  $J = 8.9$  Hz, 1H), 4.00 (s, 1H), 2.64 – 2.45 (m, 2H), 2.44 – 2.32 (m, 1H), 2.12 (m, 1H), 1.88 – 1.78 (m, 1H), 1.76 – 1.51 (m, 3H), 1.40 – 1.25 (m, 1H).  $^{13}\text{C}$  NMR (126 MHz,  $\text{CDCl}_3$ )  $\delta$  215.3, 139.5, 133.6, 128.6, 128.4, 74.2, 57.4, 42.7, 30.8, 27.7, 24.7. 61% e.e. was found via chiral HPLC analysis: Chiralpak AD, 90/10 Hexane/IPA, 0.5 mL/min,  $\lambda$  220 nm, retention time (min): 23.43 (minor) and 27.29 (major). ESI-HRMS calcd for  $\text{C}_{13}\text{H}_{15}\text{ClNaO}_2$  m/z: 261.0653  $[\text{M}+\text{Na}]^+$ ; found 261.0647.

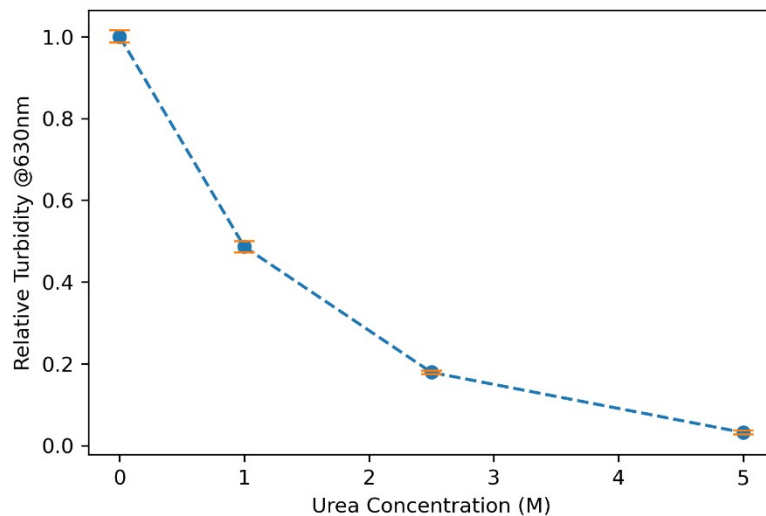
## Supplemental Figures



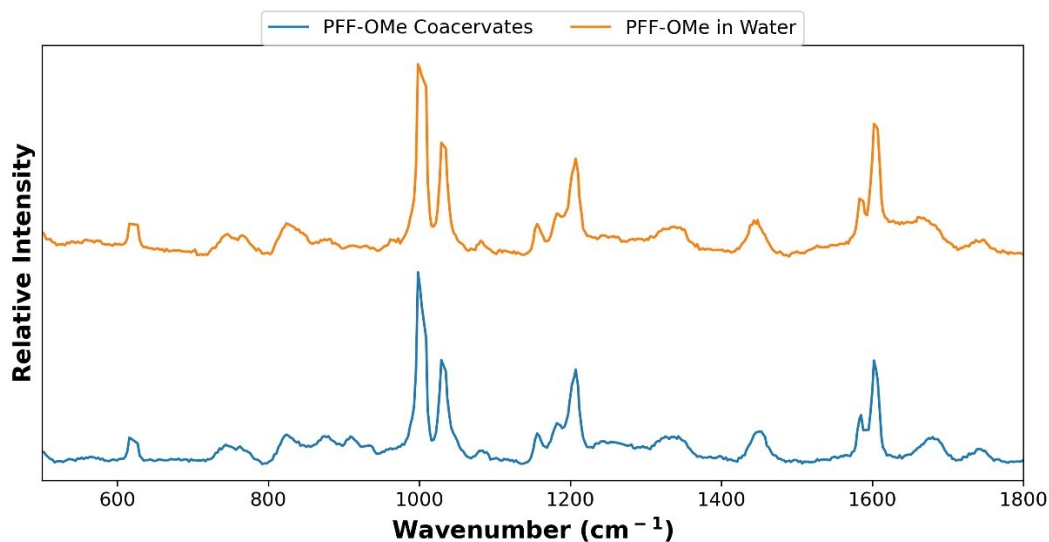
**Figure S1:** Titration curve of the PFF-OMe peptide and fit to a sigmoidal curve. A  $1 \text{ mg} \cdot \text{mL}^{-1}$  solution of PFF-OMe was titrated with 0.05M NaOH. The midpoint of the sigmoidal fit at 8.7 indicates the pKa of the peptide.



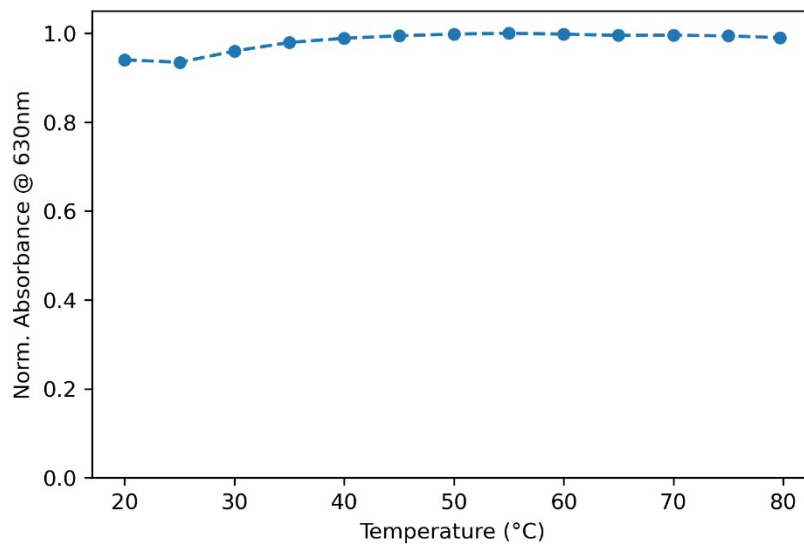
**Figure S2:** Stability of PFF-OMe coacervate samples to 1,6-hexanediol. Experiment performed in triplicate, mean turbidity is shown with standard deviation as error bars. Concentrations: 9.2 mg/mL of PFF-OMe, 0.5 mg/mL Pluronic F-108, 0.1M HEPES buffer.



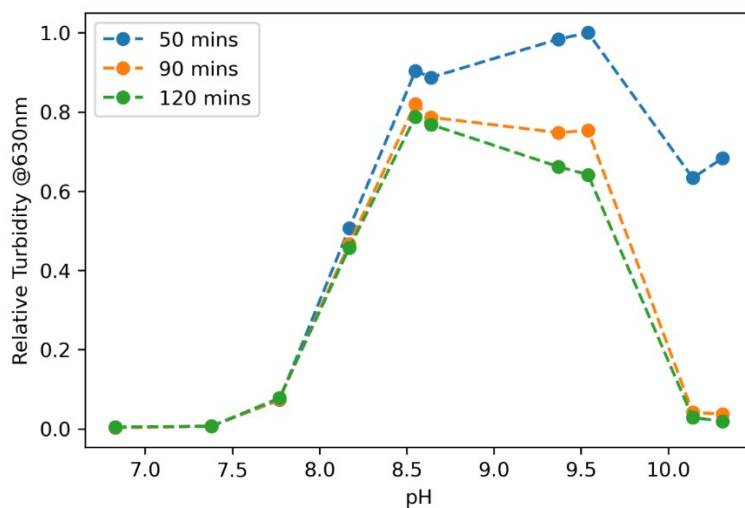
**Figure S3:** Stability of PFF-OMe coacervate samples to urea. Experiment performed in triplicate, mean turbidity is shown with standard deviation as error bars. Concentrations: 9.2 mg/mL of PFF-OMe, 0.5 mg/mL Pluronic F-108, 0.1M HEPES buffer.



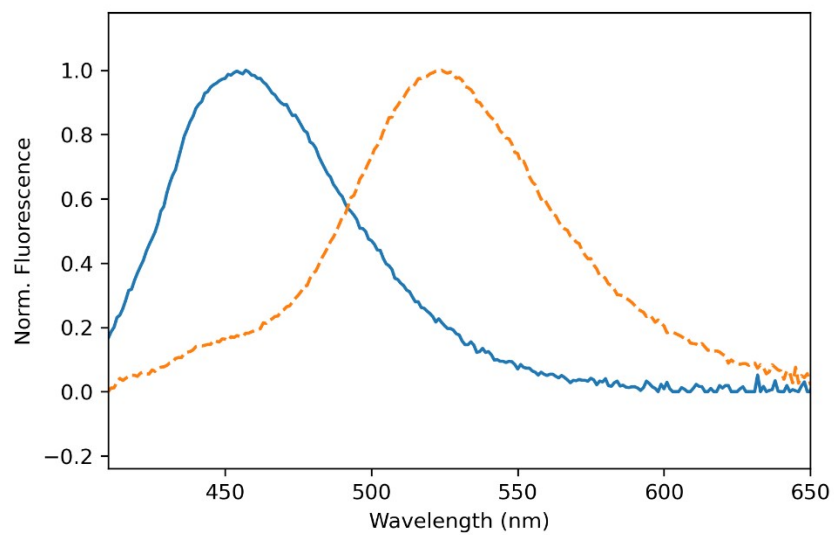
**Figure S4:** Raman spectra of PFF-OMe in an aqueous homogeneous solution (top) and inside coacervates (bottom). Concentrations are 46 mg/mL PFF-OMe for the aqueous solution and 9.2 mg/mL PFF-OMe, 0.1M HEPES and 0.5 mg/mL Pluronic for the coacervate sample.



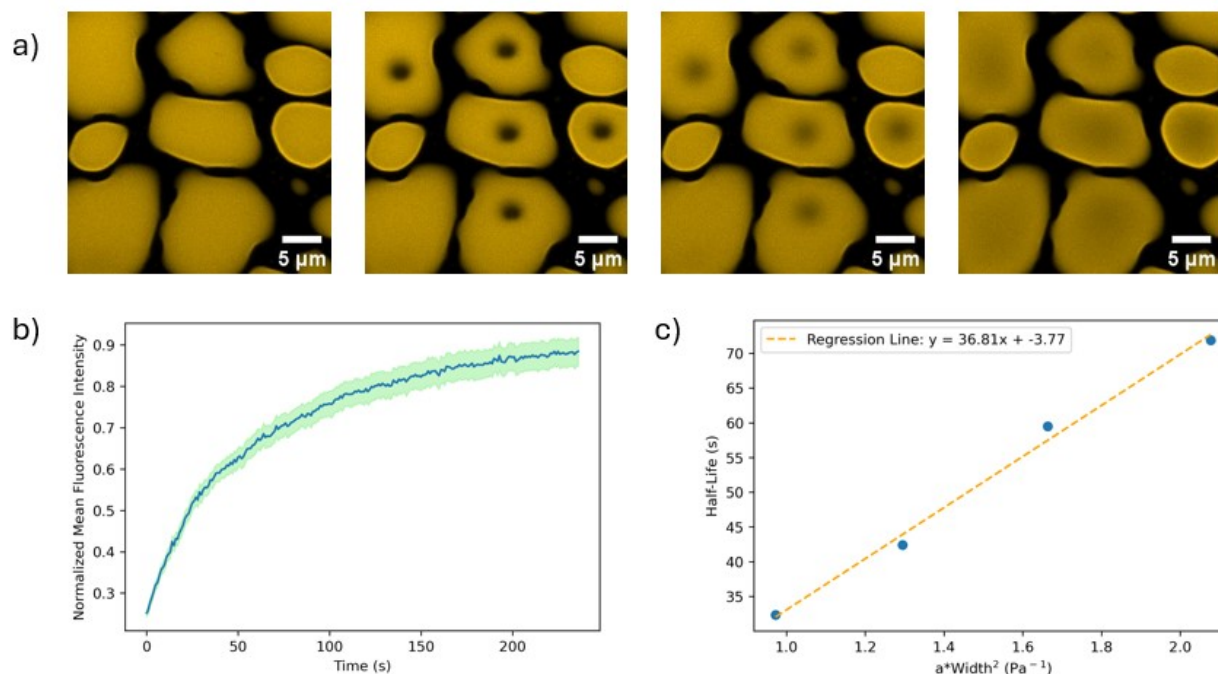
**Figure S5:** Temperature stability of PFF-OMe coacervates. Concentrations are 9.2 mg/mL PFF-OMe, 0.5 mg/mL Pluronic and 0.1M HEPES Buffer.



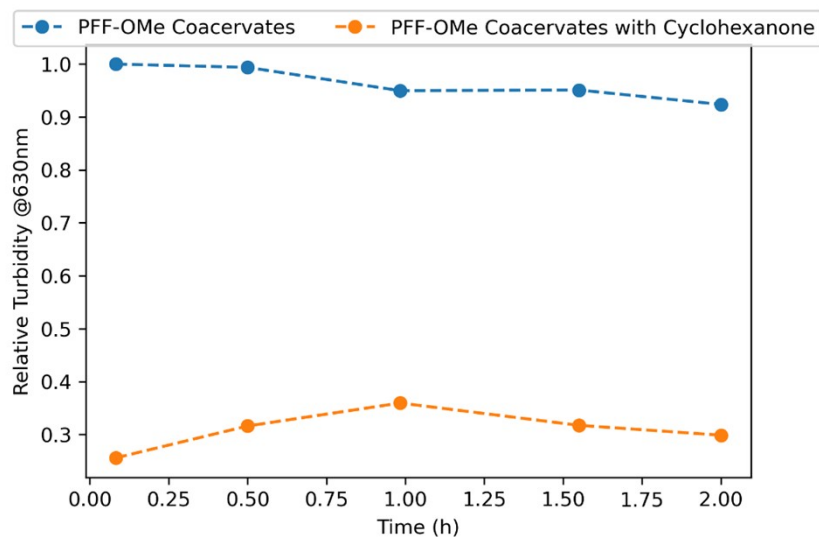
**Figure S6:** Stability of PFF-OMe coacervate over time depending on pH. The indicated time is the time after sample preparation. Samples had concentrations of 9.2 mg·mL<sup>-1</sup> PFF-OMe, 0.5 mg·mL<sup>-1</sup> Pluronic F-108 and 0.1M buffer.



**Figure S7:** Fluorescence spectrum of Prodan in PFF-OMe coacervates (blue) and spectrum of Prodan in HEPES pH 8.5 buffer in the presence of Pluronic F-108 (orange dashed). The Prodan concentration in the sample is 0.1 mM.



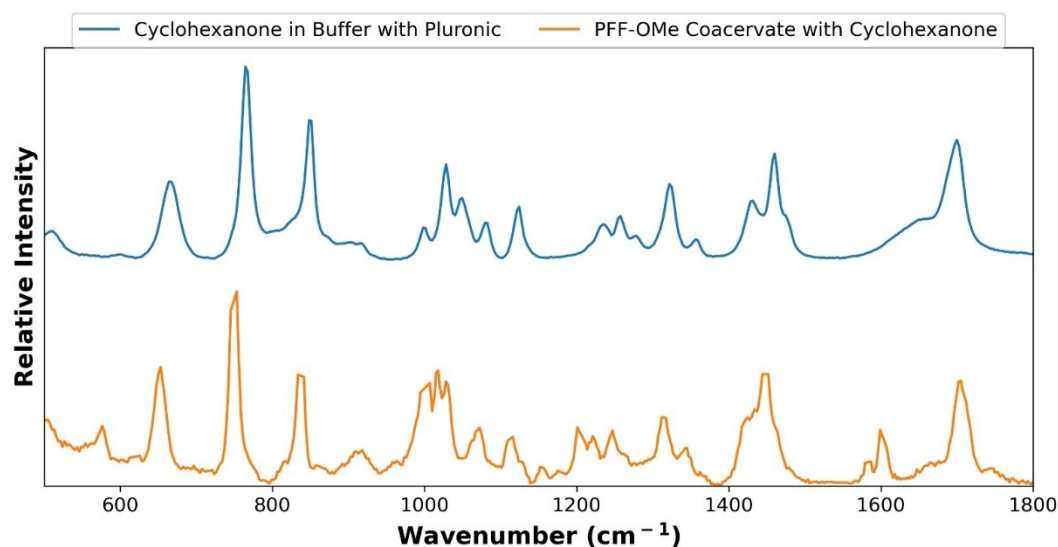
**Figure S8:** Fluorescence after photobleaching experiment on PFF-OMe coacervates. a) Timelapse images of fluorescence recovery for the experiment at 1.2 micron bleaching area width taken at 0 s, 3 s, 60 s, and 239 s. b) Fluorescence recovery profile for the experiment at 1.2 micron bleaching area width. Shaded areas represent 1 standard deviation above and below the average normalized intensity. c) Plot of half-life of recovery as a function of  $a \cdot \text{width}^2$  according to Equation 4 with linear regression line.



**Figure S9:** Sustained increase in turbidity following the addition of cyclohexanone to PFF-OMe coacervates. Samples had concentrations of  $9.2 \text{ mg}\cdot\text{mL}^{-1}$  PFF-OMe,  $0.5 \text{ mg/mL}$  Pluronic F-108,  $0.1\text{M}$  buffer. The sample in the presence of cyclohexanone contained 4% cyclohexanone by volume.

| Coacervate Phase                             | Half-Life of Recovery (s) |
|----------------------------------------------|---------------------------|
| PFF-OMe coacervates                          | 32.3                      |
| PFF-OMe coacervates containing cyclohexanone | 12.6                      |

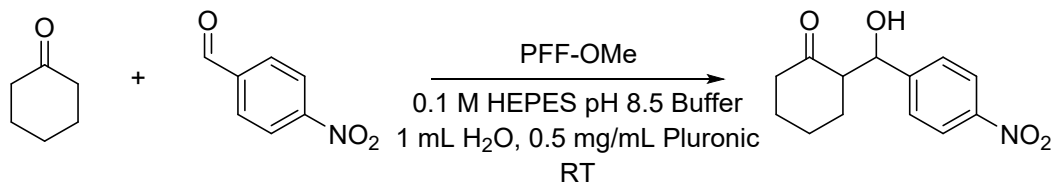
**Table S1:** Effect of cyclohexanone on half-life of fluorescence recovery in FRAP experiments.



**Figure S10:** Spectra of cyclohexanone in aqueous buffer with Pluronic (top) and cyclohexanone-containing PFF-OMe coacervates. Concentrations are 9.2 mg/mL PFF-OMe, 0.1 M HEPES buffer and 0.5 mg/mL Pluronic F-108.

| Reagent             | Partitioning Ratio <sup>a</sup> |
|---------------------|---------------------------------|
| 4-Nitrobenzaldehyde | >100:1 <sup>b</sup>             |
| Cyclohexanone       | 5:1                             |

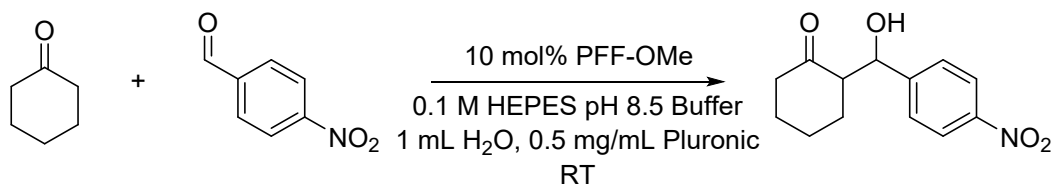
**Table S2:** Estimated partitioning ratio of aldol reagents. <sup>a</sup>Estimated via <sup>1</sup>H NMR. Ratios indicate the concentration of reagent inside the coacervate phase compared to its concentration in the dilute phase. <sup>b</sup>The presence of 4-nitrobenzaldehyde was not detected in the supernatant.



| Catalyst Loading | Conversion <sup>a</sup> |
|------------------|-------------------------|
| 10%              | 45%                     |
| 2.5%             | 13%                     |

Reaction conditions: 0.6 mmol cyclohexanone, 0.2 mmol 4-nitrobenzaldehyde, 2 hours reaction time. <sup>a</sup>Determined via <sup>1</sup>H NMR.

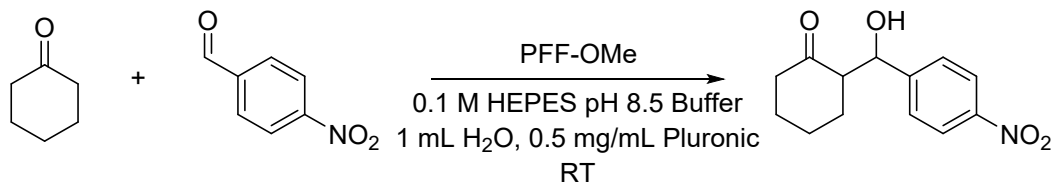
**Table S3:** Aldol reaction catalyzed by PFF-OMe coacervates at lower catalyst loading.



| Stirring Speed (RPM) | Conversion <sup>a</sup> | anti:syn Ratio <sup>a</sup> |
|----------------------|-------------------------|-----------------------------|
| 100                  | 27%                     | 88:12                       |
| 260                  | 33%                     | 89:11                       |
| 1000                 | 43%                     | 89:11                       |

Reaction conditions: 0.6 mmol cyclohexanone, 0.2 mmol 4-nitrobenzaldehyde, 2 hours reaction time. <sup>a</sup>Determined via <sup>1</sup>H NMR.

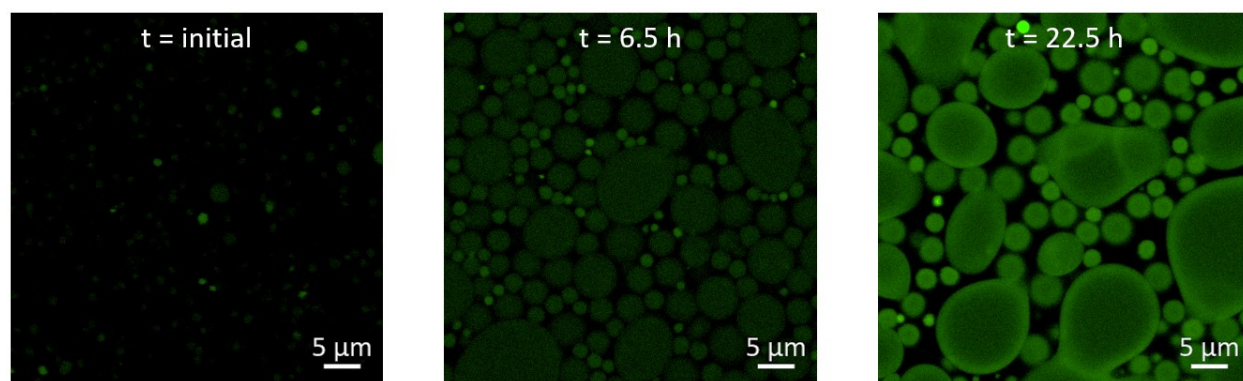
**Table S4:** Aldol catalysis by PFF-OMe coacervates at varying stirring speeds.



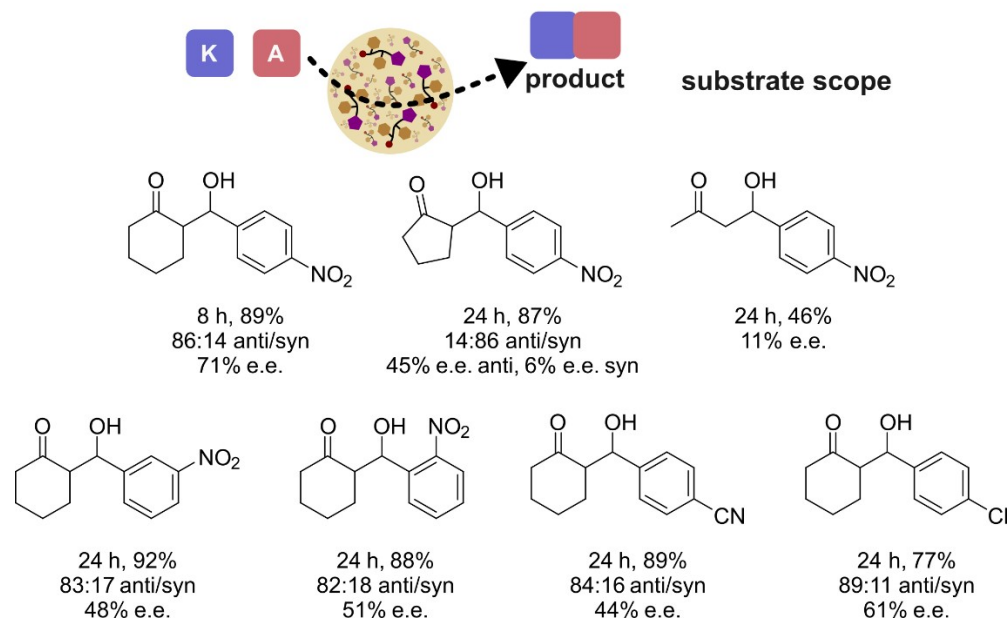
| Catalyst Loading | Conversion <sup>a</sup> | anti:syn Ratio <sup>a</sup> |
|------------------|-------------------------|-----------------------------|
| 10 mol%          | 90%                     | 88:12                       |
| 5 mol%           | 50%                     | 87:13                       |

Reaction conditions: 0.6 mmol cyclohexanone, 0.2 mmol 4-nitrobenzaldehyde, 8 hours reaction time. <sup>a</sup>Determined via <sup>1</sup>H NMR.

**Table S5:** Aldol reaction catalyzed by PFF-OMe coacervates at lower peptide loading.



**Figure S11:** Timelapse confocal laser scanning microscopy images of aldol reaction of formyl-bodipy in PFF-OMe coacervates. Upon nucleophilic attack by cyclohexanone catalyzed by PFF-OMe, the meso-formyl group of the bodipy reagent loses its unsaturation. This prevents intramolecular quenching and restores the fluorescence of the molecule.<sup>4</sup> Settings were kept consistent throughout the experiment, though the position of the slide was changed between images.



**Figure S12:** Scope of the aldol addition catalyzed by PFF-OMe coacervates. Reaction conditions: 0.6 mmol cyclohexanone, 0.2 mmol nitrobenzaldehyde, 0.02 mmol PFF-OMe, 0.1M HEPES pH 8.5 buffer, 0.5 mg/mL Pluronic F-108, 1 mL H<sub>2</sub>O. Yields shown are isolated yields.

**SI References:**

1. A. Logozzo and T. C. Preston, *The Journal of Physical Chemistry A*, 2022, **126**, 109-118.
2. S. Cao, T. Ivanov, J. Heuer, C. T. J. Ferguson, K. Landfester and L. Caire da Silva, *Nature Communications*, 2024, **15**, 39.
3. D. Axelrod, D. E. Koppel, J. Schlessinger, E. Elson and W. W. Webb, *Biophysical Journal*, 1976, **16**, 1055-1069.
4. R. Lincoln, L. E. Greene, C. Bain, J. O. Flores-Rizo, D. S. Bohle and G. Cosa, *The Journal of Physical Chemistry B*, 2015, **119**, 4758-4765.

## Raw Data for Figures

**Figure 1D:**

| Droplet Size ( $\mu\text{m}$ ) | Count |
|--------------------------------|-------|
| < 0.4                          | 10    |
| 0.4 – 0.7                      | 106   |
| 0.7 – 1.0                      | 250   |
| 1.0 – 1.3                      | 195   |
| 1.3 – 1.6                      | 64    |
| 1.6 – 1.9                      | 14    |
| $\geq 1.9$                     | 3     |

**Figure 1E:**

The value inside each box is the turbidity of the sample at 630nm.

| Salt Concentration (M) \ pH | 6.0   | 6.5   | 7.0   | 7.5   | 8.0   | 8.5   | 9.0   | 10.0  |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2                           | 0.230 | 0.225 | 0.382 | 0.692 | 0.910 | 0.965 | 1.000 | 0.969 |
| 1.75                        | 0.115 | 0.147 | 0.285 | 0.671 | 0.885 | 0.963 | 0.983 | 0.983 |
| 1.5                         | 0.090 | 0.079 | 0.158 | 0.465 | 0.841 | 0.948 | 0.993 | 0.983 |
| 1.25                        | 0.055 | 0.033 | 0.086 | 0.308 | 0.763 | 0.916 | 0.984 | 0.957 |
| 1                           | 0.033 | 0.032 | 0.058 | 0.178 | 0.661 | 0.897 | 0.978 | 0.967 |
| 0.75                        | 0.024 | 0.024 | 0.040 | 0.105 | 0.505 | 0.827 | 0.965 | 0.952 |
| 0.5                         | 0.016 | 0.021 | 0.033 | 0.074 | 0.339 | 0.743 | 0.933 | 0.925 |
| 0.25                        | 0.007 | 0.011 | 0.026 | 0.050 | 0.214 | 0.633 | 0.914 | 0.910 |
| 0                           | 0.007 | 0.008 | 0.040 | 0.039 | 0.149 | 0.503 | 0.861 | 0.880 |

**Figure 1F:**

| Cycle # | Solution Added | Average Normalized Turbidity | Std. Dev. |
|---------|----------------|------------------------------|-----------|
| 0       | -              | 0.937684853                  | 0.06147   |
| 1       | +HCl           | 0.009786829                  | 0.00249   |
| 2       | +NaOH          | 0.934169751                  | 0.03544   |
| 3       | +HCl           | 0.011392482                  | 0.00148   |
| 4       | +NaOH          | 0.956636443                  | 0.04718   |
| 5       | +HCl           | 0.010157055                  | 0.0017    |
| 6       | +NaOH          | 0.922626963                  | 0.1157    |

**Figure 2B:**

| Droplet Size ( $\mu\text{m}$ ) | Count |
|--------------------------------|-------|
| < 0.4                          | 34    |
| 0.4 – 0.7                      | 293   |
| 0.7 – 1.0                      | 456   |
| 1.0 – 1.3                      | 523   |
| 1.3 – 1.6                      | 363   |
| 1.6 – 1.9                      | 132   |
| 1.9 – 2.2                      | 74    |
| 2.2 – 2.5                      | 49    |
| 2.5 – 2.8                      | 28    |
| 2.8 – 3.1                      | 29    |
| $\geq 3.1$                     | 59    |

**Figure 2C:**

For PFF-OMe coacervates containing cyclohexanone:

| Wavenumber ( $\text{cm}^{-1}$ ) | Normalized Raman Intensity |
|---------------------------------|----------------------------|
| 499.1                           | 0.333582597                |
| 501.9                           | 0.323317471                |
| 504.6                           | 0.327328348                |
| 507.4                           | 0.308633583                |
| 510.2                           | 0.274235214                |
| 513                             | 0.275186948                |
| 515.7                           | 0.24085656                 |
| 518.5                           | 0.213596193                |
| 521.3                           | 0.215295717                |
| 524                             | 0.184024473                |
| 526.8                           | 0.213596193                |
| 529.6                           | 0.190414684                |
| 532.3                           | 0.19789259                 |
| 535.1                           | 0.18871516                 |
| 537.8                           | 0.176478586                |
| 540.6                           | 0.168048946                |
| 543.4                           | 0.182664854                |
| 546.1                           | 0.16057104                 |
| 548.9                           | 0.185112169                |
| 551.6                           | 0.184092454                |
| 554.4                           | 0.202515296                |
| 557.1                           | 0.18450034                 |

|       |             |
|-------|-------------|
| 559.9 | 0.197824609 |
| 562.7 | 0.202991162 |
| 565.4 | 0.198232495 |
| 568.2 | 0.216655337 |
| 570.9 | 0.242556084 |
| 573.7 | 0.268456832 |
| 576.4 | 0.29435758  |
| 579.2 | 0.258803535 |
| 581.9 | 0.203806934 |
| 584.6 | 0.163426241 |
| 587.4 | 0.119646499 |
| 590.1 | 0.125220938 |
| 592.9 | 0.120190347 |
| 595.6 | 0.115227736 |
| 598.4 | 0.105506458 |
| 601.1 | 0.117471108 |
| 603.8 | 0.113868117 |
| 606.6 | 0.107545887 |
| 609.3 | 0.103263086 |
| 612.1 | 0.126172672 |
| 614.8 | 0.128484024 |
| 617.5 | 0.130795377 |
| 620.3 | 0.13310673  |
| 623   | 0.135486064 |
| 625.7 | 0.137797417 |
| 628.5 | 0.108361659 |
| 631.2 | 0.114343984 |
| 633.9 | 0.138953093 |
| 636.6 | 0.167709041 |
| 639.4 | 0.231407206 |
| 642.1 | 0.302311353 |
| 644.8 | 0.394629504 |
| 647.6 | 0.512780421 |
| 650.3 | 0.567641061 |
| 653   | 0.602855201 |
| 655.7 | 0.527260367 |
| 658.4 | 0.442828008 |
| 661.2 | 0.335010197 |
| 663.9 | 0.244119646 |
| 666.6 | 0.16478586  |

|       |             |
|-------|-------------|
| 669.3 | 0.132019035 |
| 672   | 0.102379334 |
| 674.8 | 0.091026513 |
| 677.5 | 0.07396329  |
| 680.2 | 0.068728756 |
| 682.9 | 0.079197825 |
| 685.6 | 0.068932699 |
| 688.3 | 0.075594833 |
| 691   | 0.071787899 |
| 693.7 | 0.067980965 |
| 696.5 | 0.084568321 |
| 699.2 | 0.066492182 |
| 701.9 | 0.063704963 |
| 704.6 | 0.048008158 |
| 707.3 | 0.067668253 |
| 710   | 0.058436438 |
| 712.7 | 0.054309993 |
| 715.4 | 0.059707682 |
| 718.1 | 0.057287559 |
| 720.8 | 0.063371856 |
| 723.5 | 0.041923861 |
| 726.2 | 0.052433719 |
| 728.9 | 0.076546567 |
| 731.6 | 0.097620666 |
| 734.3 | 0.110129164 |
| 737   | 0.177090415 |
| 739.7 | 0.307953773 |
| 742.4 | 0.531271244 |
| 745.1 | 0.897348742 |
| 747.8 | 0.931339225 |
| 750.5 | 0.966009517 |
| 753.1 | 1           |
| 755.8 | 0.644187627 |
| 758.5 | 0.366145479 |
| 761.2 | 0.235961931 |
| 763.9 | 0.174847043 |
| 766.6 | 0.149354181 |
| 769.3 | 0.115091774 |
| 772   | 0.096397009 |
| 774.6 | 0.079129844 |

|       |              |
|-------|--------------|
| 777.3 | 0.063188307  |
| 780   | 0.046920462  |
| 782.7 | 0.013324269  |
| 785.4 | 0.007267165  |
| 788   | 0.009027872  |
| 790.7 | 0.007389531  |
| 793.4 | -0.00103671  |
| 796.1 | -0.007763426 |
| 798.7 | 0.011012916  |
| 801.4 | 0.010407886  |
| 804.1 | 0.019333787  |
| 806.8 | 0.055452073  |
| 809.4 | 0.054520734  |
| 812.1 | 0.083140721  |
| 814.8 | 0.105710401  |
| 817.5 | 0.10917743   |
| 820.1 | 0.098436438  |
| 822.8 | 0.134262407  |
| 825.5 | 0.174779062  |
| 828.1 | 0.232358939  |
| 830.8 | 0.365057784  |
| 833.5 | 0.56199864   |
| 836.1 | 0.558735554  |
| 838.8 | 0.555472468  |
| 841.4 | 0.5521414    |
| 844.1 | 0.280761387  |
| 846.8 | 0.139496941  |
| 849.4 | 0.081849082  |
| 852.1 | 0.072127804  |
| 854.7 | 0.071583956  |
| 857.4 | 0.087763426  |
| 860.1 | 0.084024473  |
| 862.7 | 0.080217539  |
| 865.4 | 0.074983005  |
| 868   | 0.071787899  |
| 870.7 | 0.066152277  |
| 873.3 | 0.052399728  |
| 876   | 0.043405846  |
| 878.6 | 0.052773623  |
| 881.3 | 0.04310673   |

|       |             |
|-------|-------------|
| 883.9 | 0.060292318 |
| 886.6 | 0.070020394 |
| 889.2 | 0.080081577 |
| 891.9 | 0.094561523 |
| 894.5 | 0.083888511 |
| 897.2 | 0.096329028 |
| 899.8 | 0.101971448 |
| 902.4 | 0.130727396 |
| 905.1 | 0.132019035 |
| 907.7 | 0.158395649 |
| 910.4 | 0.159347383 |
| 913   | 0.15003399  |
| 915.6 | 0.158599592 |
| 918.3 | 0.167165194 |
| 920.9 | 0.143983685 |
| 923.6 | 0.122773623 |
| 926.2 | 0.123725357 |
| 928.8 | 0.09578518  |
| 931.5 | 0.086199864 |
| 934.1 | 0.066383413 |
| 936.7 | 0.066988443 |
| 939.3 | 0.045846363 |
| 942   | 0.045098572 |
| 944.6 | 0.054554725 |
| 947.2 | 0.060611829 |
| 949.9 | 0.063616587 |
| 952.5 | 0.080217539 |
| 955.1 | 0.080149558 |
| 957.7 | 0.104282801 |
| 960.4 | 0.100475867 |
| 963   | 0.108973487 |
| 965.6 | 0.104486744 |
| 968.2 | 0.090210741 |
| 970.9 | 0.090482665 |
| 973.5 | 0.13025153  |
| 976.1 | 0.129231815 |
| 978.7 | 0.160095173 |
| 981.3 | 0.189666893 |
| 983.9 | 0.218218899 |
| 986.6 | 0.273623385 |

|       |             |
|-------|-------------|
| 989.2 | 0.321549966 |
| 991.8 | 0.356900068 |
| 994.4 | 0.470088375 |
| 997   | 0.480081577 |
| 999.6 | 0.490074779 |
| 1002  | 0.500135962 |
| 1005  | 0.510129164 |
| 1007  | 0.520122366 |
| 1010  | 0.372331747 |
| 1013  | 0.450849762 |
| 1015  | 0.571244052 |
| 1018  | 0.584840245 |
| 1020  | 0.499592114 |
| 1023  | 0.44010877  |
| 1026  | 0.469408566 |
| 1028  | 0.527260367 |
| 1031  | 0.506254249 |
| 1034  | 0.400883753 |
| 1036  | 0.289123046 |
| 1039  | 0.19503739  |
| 1041  | 0.164513936 |
| 1044  | 0.125492862 |
| 1046  | 0.126648538 |
| 1049  | 0.122637661 |
| 1052  | 0.125764786 |
| 1054  | 0.127872196 |
| 1057  | 0.154860639 |
| 1059  | 0.190618627 |
| 1062  | 0.216519375 |
| 1065  | 0.221074099 |
| 1067  | 0.26335826  |
| 1070  | 0.274167233 |
| 1072  | 0.284976207 |
| 1075  | 0.252073419 |
| 1078  | 0.191706322 |
| 1080  | 0.135078178 |
| 1083  | 0.108361659 |
| 1085  | 0.110876954 |
| 1088  | 0.094697485 |
| 1091  | 0.091774303 |

|      |              |
|------|--------------|
| 1093 | 0.084772264  |
| 1096 | 0.077770224  |
| 1098 | 0.085044188  |
| 1101 | 0.074303195  |
| 1103 | 0.089055065  |
| 1106 | 0.161658736  |
| 1109 | 0.21481985   |
| 1111 | 0.222433719  |
| 1114 | 0.230115568  |
| 1116 | 0.237729436  |
| 1119 | 0.1760707    |
| 1121 | 0.156492182  |
| 1124 | 0.106390211  |
| 1127 | 0.107273963  |
| 1129 | 0.101971448  |
| 1132 | 0.07532291   |
| 1134 | 0.038810333  |
| 1137 | 0.02439157   |
| 1139 | -0.006339905 |
| 1142 | -0.002736914 |
| 1145 | 0.00324881   |
| 1147 | 0.029972808  |
| 1150 | 0.047518695  |
| 1152 | 0.078993882  |
| 1155 | 0.075186948  |
| 1157 | 0.071312033  |
| 1160 | 0.050455472  |
| 1163 | 0.024853841  |
| 1165 | 0.019653297  |
| 1168 | 0.028395649  |
| 1170 | 0.035778382  |
| 1173 | 0.043840925  |
| 1175 | 0.058708362  |
| 1178 | 0.054439157  |
| 1180 | 0.050163154  |
| 1183 | 0.04589395   |
| 1186 | 0.040720598  |
| 1188 | 0.049150238  |
| 1191 | 0.06335826   |
| 1193 | 0.087423521  |

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| 1196 | 0.123725357 |
| 1198 | 0.191978246 |
| 1201 | 0.287151598 |
| 1203 | 0.267777022 |
| 1206 | 0.248470428 |
| 1208 | 0.229163834 |
| 1211 | 0.209789259 |
| 1214 | 0.170700204 |
| 1216 | 0.205302515 |
| 1219 | 0.210740993 |
| 1221 | 0.240312712 |
| 1224 | 0.219238613 |
| 1226 | 0.188239293 |
| 1229 | 0.163766145 |
| 1231 | 0.121617947 |
| 1234 | 0.136913664 |
| 1236 | 0.130115568 |
| 1239 | 0.175662814 |
| 1242 | 0.213800136 |
| 1244 | 0.240652617 |
| 1247 | 0.269204623 |
| 1249 | 0.235282121 |
| 1252 | 0.201291638 |
| 1254 | 0.170700204 |
| 1257 | 0.156152277 |
| 1259 | 0.147382733 |
| 1262 | 0.148062542 |
| 1264 | 0.138613188 |
| 1267 | 0.134942216 |
| 1269 | 0.100951734 |
| 1272 | 0.085723997 |
| 1274 | 0.095649218 |
| 1277 | 0.097416723 |
| 1279 | 0.088307274 |
| 1282 | 0.098232495 |
| 1285 | 0.1014276   |
| 1287 | 0.095377294 |
| 1290 | 0.110061183 |
| 1292 | 0.107477906 |
| 1295 | 0.12114208  |

|      |              |
|------|--------------|
| 1297 | 0.116519375  |
| 1300 | 0.128823929  |
| 1302 | 0.132698844  |
| 1305 | 0.174575119  |
| 1307 | 0.238273283  |
| 1310 | 0.291094494  |
| 1312 | 0.339836846  |
| 1315 | 0.338409245  |
| 1317 | 0.337049626  |
| 1320 | 0.260707002  |
| 1322 | 0.22957172   |
| 1325 | 0.187899388  |
| 1327 | 0.147926581  |
| 1330 | 0.133514616  |
| 1332 | 0.122093814  |
| 1335 | 0.137185588  |
| 1337 | 0.14860639   |
| 1340 | 0.161658736  |
| 1342 | 0.174779062  |
| 1345 | 0.177702243  |
| 1347 | 0.136709721  |
| 1350 | 0.1253569    |
| 1352 | 0.084772264  |
| 1355 | 0.054731475  |
| 1357 | 0.040659415  |
| 1360 | 0.035091774  |
| 1362 | 0.052304555  |
| 1365 | 0.033487424  |
| 1367 | 0.030312712  |
| 1370 | 0.029517335  |
| 1372 | 0.005958532  |
| 1375 | 0.0085724    |
| 1377 | -0.012256968 |
| 1380 | -0.008613188 |
| 1382 | -0.021957852 |
| 1385 | -0.00946295  |
| 1387 | -0.012943576 |
| 1390 | -0.017158396 |
| 1392 | -0.000290891 |
| 1395 | 0.004681849  |

|      |             |
|------|-------------|
| 1397 | 0.013399048 |
| 1400 | 0.023140721 |
| 1402 | 0.026084296 |
| 1405 | 0.06439157  |
| 1407 | 0.067008838 |
| 1410 | 0.132834806 |
| 1412 | 0.170836166 |
| 1415 | 0.216315432 |
| 1417 | 0.286879674 |
| 1420 | 0.314004079 |
| 1422 | 0.327532291 |
| 1425 | 0.339021074 |
| 1427 | 0.326376615 |
| 1430 | 0.340924541 |
| 1432 | 0.364309993 |
| 1434 | 0.38096533  |
| 1437 | 0.371380014 |
| 1439 | 0.397484704 |
| 1442 | 0.483480625 |
| 1444 | 0.564649898 |
| 1447 | 0.565329708 |
| 1449 | 0.566009517 |
| 1452 | 0.566621346 |
| 1454 | 0.447654657 |
| 1457 | 0.34296397  |
| 1459 | 0.309993202 |
| 1462 | 0.279061863 |
| 1464 | 0.263426241 |
| 1467 | 0.194493542 |
| 1469 | 0.15914344  |
| 1472 | 0.12039429  |
| 1474 | 0.093201903 |
| 1476 | 0.070020394 |
| 1479 | 0.075730795 |
| 1481 | 0.064133243 |
| 1484 | 0.053555404 |
| 1486 | 0.039238613 |
| 1489 | 0.026974847 |
| 1491 | 0.023208702 |
| 1494 | 0.017409925 |

|      |              |
|------|--------------|
| 1496 | 0.00889191   |
| 1499 | 0.008545207  |
| 1501 | -0.00132019  |
| 1504 | 0.012957172  |
| 1506 | -0.006075459 |
| 1508 | -0.003174031 |
| 1511 | -0.000273419 |
| 1513 | 0.000428416  |
| 1516 | 0.001130523  |
| 1518 | -0.005977566 |
| 1521 | -0.002203943 |
| 1523 | 0.000895989  |
| 1526 | -0.004836846 |
| 1528 | 0.000555608  |
| 1530 | -0.000728756 |
| 1533 | -0.002012916 |
| 1535 | 0.000890551  |
| 1538 | -0.002319511 |
| 1540 | -0.003486064 |
| 1543 | -0.003439837 |
| 1545 | -0.00339293  |
| 1548 | -0.003346703 |
| 1550 | -0.003711081 |
| 1552 | -0.004075459 |
| 1555 | -0.003244052 |
| 1557 | -0.005636982 |
| 1560 | -0.008028552 |
| 1562 | -0.005148199 |
| 1565 | 0.003855201  |
| 1567 | 0.006063902  |
| 1570 | 0.000798097  |
| 1572 | 0.010149558  |
| 1574 | 0.031067301  |
| 1577 | 0.037709041  |
| 1579 | 0.100407886  |
| 1582 | 0.102651258  |
| 1584 | 0.10489463   |
| 1587 | 0.107138001  |
| 1589 | 0.054656696  |
| 1591 | 0.052828008  |

|      |             |
|------|-------------|
| 1594 | 0.081917063 |
| 1596 | 0.155200544 |
| 1599 | 0.273691366 |
| 1601 | 0.247722638 |
| 1604 | 0.221685928 |
| 1606 | 0.195649218 |
| 1608 | 0.169612508 |
| 1611 | 0.090958532 |
| 1613 | 0.057219579 |
| 1616 | 0.022746431 |
| 1618 | 0.040938137 |
| 1621 | 0.014602311 |
| 1623 | 0.025662814 |
| 1625 | 0.013956492 |
| 1628 | 0.016186268 |
| 1630 | 0.018422842 |
| 1633 | 0.016580557 |
| 1635 | 0.024942216 |
| 1637 | 0.019027872 |
| 1640 | 0.030115568 |
| 1642 | 0.023868117 |
| 1645 | 0.033602991 |
| 1647 | 0.065771584 |
| 1650 | 0.050360299 |
| 1652 | 0.054330387 |
| 1654 | 0.063738953 |
| 1657 | 0.081985044 |
| 1659 | 0.087015636 |
| 1662 | 0.086879674 |
| 1664 | 0.1014276   |
| 1666 | 0.100951734 |
| 1669 | 0.095445275 |
| 1671 | 0.08382053  |
| 1674 | 0.10278722  |
| 1676 | 0.108837525 |
| 1678 | 0.099524133 |
| 1681 | 0.106254249 |
| 1683 | 0.106186268 |
| 1686 | 0.119442556 |
| 1688 | 0.148266485 |

|      |              |
|------|--------------|
| 1690 | 0.200543848  |
| 1693 | 0.244663494  |
| 1695 | 0.321753909  |
| 1698 | 0.419306594  |
| 1700 | 0.470224337  |
| 1702 | 0.525968729  |
| 1705 | 0.53099932   |
| 1707 | 0.487831407  |
| 1710 | 0.442556084  |
| 1712 | 0.420802175  |
| 1714 | 0.355880354  |
| 1717 | 0.294969409  |
| 1719 | 0.231747111  |
| 1722 | 0.140312712  |
| 1724 | 0.121957852  |
| 1726 | 0.096125085  |
| 1729 | 0.072671652  |
| 1731 | 0.058742352  |
| 1733 | 0.052290959  |
| 1736 | 0.063861319  |
| 1738 | 0.061835486  |
| 1741 | 0.067634262  |
| 1743 | 0.070700204  |
| 1745 | 0.071447995  |
| 1748 | 0.07110809   |
| 1750 | 0.049394969  |
| 1753 | 0.053167913  |
| 1755 | 0.040632223  |
| 1757 | 0.027423521  |
| 1760 | 0.037668253  |
| 1762 | 0.024466349  |
| 1764 | 0.013303875  |
| 1767 | 0.015397689  |
| 1769 | -0.001193066 |
| 1772 | 0.018925901  |
| 1774 | 0.017974167  |
| 1776 | 0.007171992  |
| 1779 | 0.002151598  |
| 1781 | -0.007967369 |
| 1783 | -0.001423521 |

|      |              |
|------|--------------|
| 1786 | 0.00817811   |
| 1788 | 0.000116587  |
| 1791 | -0.007946975 |
| 1793 | 0.004046907  |
| 1795 | -0.006760027 |
| 1798 | -0.010462271 |
| 1800 | 0.001135962  |

For PFF-OMe Coacervates alone:

| Wavenumber (cm <sup>-1</sup> ) | Normalized Raman Intensity |
|--------------------------------|----------------------------|
| 497.4                          | 0.115942623                |
| 500.1                          | 0.11352459                 |
| 502.9                          | 0.102254098                |
| 505.7                          | 0.075040984                |
| 508.4                          | 0.074057377                |
| 511.2                          | 0.075327869                |
| 514                            | 0.058729508                |
| 516.8                          | 0.057745902                |
| 519.5                          | 0.042827869                |
| 522.3                          | 0.048196721                |
| 525.1                          | 0.047418033                |
| 527.8                          | 0.04954918                 |
| 530.6                          | 0.042418033                |
| 533.4                          | 0.058442623                |
| 536.1                          | 0.052172131                |
| 538.9                          | 0.063483607                |
| 541.6                          | 0.061885246                |
| 544.4                          | 0.053770492                |
| 547.2                          | 0.062663934                |
| 549.9                          | 0.055737705                |
| 552.7                          | 0.054180328                |
| 555.4                          | 0.067377049                |
| 558.2                          | 0.072786885                |
| 560.9                          | 0.068770492                |
| 563.7                          | 0.067377049                |
| 566.5                          | 0.06602459                 |
| 569.2                          | 0.05795082                 |
| 572                            | 0.067868852                |
| 574.7                          | 0.066106557                |

|       |             |
|-------|-------------|
| 577.5 | 0.06557377  |
| 580.2 | 0.050286885 |
| 582.9 | 0.048155738 |
| 585.7 | 0.047213115 |
| 588.4 | 0.048565574 |
| 591.2 | 0.044959016 |
| 593.9 | 0.040766393 |
| 596.7 | 0.052131148 |
| 599.4 | 0.046516393 |
| 602.2 | 0.049508197 |
| 604.9 | 0.045122951 |
| 607.6 | 0.047868852 |
| 610.4 | 0.055163934 |
| 613.1 | 0.078237705 |
| 615.8 | 0.156844262 |
| 618.6 | 0.155327869 |
| 621.3 | 0.153811475 |
| 624   | 0.152336066 |
| 626.8 | 0.150819672 |
| 629.5 | 0.072459016 |
| 632.2 | 0.043893443 |
| 635   | 0.03175     |
| 637.7 | 0.034553279 |
| 640.4 | 0.029159836 |
| 643.2 | 0.026639344 |
| 645.9 | 0.026786885 |
| 648.6 | 0.020172131 |
| 651.3 | 0.025036885 |
| 654.1 | 0.025188525 |
| 656.8 | 0.018372951 |
| 659.5 | 0.022831967 |
| 662.2 | 0.010081967 |
| 664.9 | 0.023151639 |
| 667.7 | 0.012040984 |
| 670.4 | 0.012409836 |
| 673.1 | 0.014422131 |
| 675.8 | 0.016434426 |
| 678.5 | 0.014143443 |
| 681.2 | 0.017389344 |
| 684   | 0.012647541 |

|       |              |
|-------|--------------|
| 686.7 | 0.01077459   |
| 689.4 | 0.008901639  |
| 692.1 | 0.008668033  |
| 694.8 | 0.010286885  |
| 697.5 | 0.00554918   |
| 700.2 | 0.011680328  |
| 702.9 | 0.020061475  |
| 705.6 | -0.009258197 |
| 708.3 | -0.006913934 |
| 711.1 | -0.004569672 |
| 713.8 | -0.007860656 |
| 716.5 | -0.003770082 |
| 719.2 | -0.008286885 |
| 721.9 | 0.008307377  |
| 724.6 | 0.023061475  |
| 727.3 | 0.029819672  |
| 730   | 0.03002459   |
| 732.7 | 0.052786885  |
| 735.4 | 0.05954918   |
| 738.1 | 0.081065574  |
| 740.8 | 0.090696721  |
| 743.4 | 0.099098361  |
| 746.1 | 0.102418033  |
| 748.8 | 0.091844262  |
| 751.5 | 0.081311475  |
| 754.2 | 0.081557377  |
| 756.9 | 0.076844262  |
| 759.6 | 0.070737705  |
| 762.3 | 0.089385246  |
| 765   | 0.095368852  |
| 767.7 | 0.090245902  |
| 770.3 | 0.0825       |
| 773   | 0.066967213  |
| 775.7 | 0.050409836  |
| 778.4 | 0.041188525  |
| 781.1 | 0.029348361  |
| 783.8 | 0.015040984  |
| 786.4 | 0.024913934  |
| 789.1 | 0.01429918   |
| 791.8 | -0.00082377  |

|       |              |
|-------|--------------|
| 794.5 | -0.001805738 |
| 797.2 | 0.002746721  |
| 799.8 | 0.002177869  |
| 802.5 | -0.004536885 |
| 805.2 | 0.008422131  |
| 807.9 | 0.037983607  |
| 810.5 | 0.063852459  |
| 813.2 | 0.079467213  |
| 815.9 | 0.101270492  |
| 818.5 | 0.128770492  |
| 821.2 | 0.139713115  |
| 823.9 | 0.158196721  |
| 826.5 | 0.153770492  |
| 829.2 | 0.148278689  |
| 831.9 | 0.143032787  |
| 834.5 | 0.136721311  |
| 837.2 | 0.123278689  |
| 839.9 | 0.127663934  |
| 842.5 | 0.109303279  |
| 845.2 | 0.10954918   |
| 847.9 | 0.098360656  |
| 850.5 | 0.092295082  |
| 853.2 | 0.065737705  |
| 855.8 | 0.054959016  |
| 858.5 | 0.050532787  |
| 861.1 | 0.056147541  |
| 863.8 | 0.059918033  |
| 866.5 | 0.054877049  |
| 869.1 | 0.070368852  |
| 871.8 | 0.067377049  |
| 874.4 | 0.075040984  |
| 877.1 | 0.069385246  |
| 879.7 | 0.07442623   |
| 882.4 | 0.074303279  |
| 885   | 0.050819672  |
| 887.7 | 0.055860656  |
| 890.3 | 0.049180328  |
| 893   | 0.044180328  |
| 895.6 | 0.031163934  |
| 898.2 | 0.025532787  |

|       |             |
|-------|-------------|
| 900.9 | 0.028098361 |
| 903.5 | 0.032717213 |
| 906.2 | 0.038155738 |
| 908.8 | 0.039704918 |
| 911.5 | 0.041065574 |
| 914.1 | 0.040344262 |
| 916.7 | 0.037319672 |
| 919.4 | 0.03429918  |
| 922   | 0.03127459  |
| 924.6 | 0.035905738 |
| 927.3 | 0.038180328 |
| 929.9 | 0.040454918 |
| 932.6 | 0.032692623 |
| 935.2 | 0.024930328 |
| 937.8 | 0.029979508 |
| 940.4 | 0.025192623 |
| 943.1 | 0.016106557 |
| 945.7 | 0.01357377  |
| 948.3 | 0.020270492 |
| 951   | 0.028192623 |
| 953.6 | 0.037758197 |
| 956.2 | 0.039536885 |
| 958.8 | 0.047459016 |
| 961.5 | 0.074262295 |
| 964.1 | 0.068647541 |
| 966.7 | 0.070245902 |
| 969.3 | 0.059098361 |
| 972   | 0.07852459  |
| 974.6 | 0.05204918  |
| 977.2 | 0.070860656 |
| 979.8 | 0.086352459 |
| 982.4 | 0.107622951 |
| 985.1 | 0.136270492 |
| 987.7 | 0.185204918 |
| 990.3 | 0.227581967 |
| 992.9 | 0.283688525 |
| 995.5 | 0.457786885 |
| 998.1 | 1           |
| 1001  | 0.970491803 |
| 1003  | 0.94057377  |

|      |              |
|------|--------------|
| 1006 | 0.911065574  |
| 1009 | 0.881147541  |
| 1011 | 0.379098361  |
| 1014 | 0.2          |
| 1016 | 0.145655738  |
| 1019 | 0.142131148  |
| 1022 | 0.162827869  |
| 1024 | 0.228155738  |
| 1027 | 0.391844262  |
| 1029 | 0.585245902  |
| 1032 | 0.569672131  |
| 1035 | 0.554098361  |
| 1037 | 0.377622951  |
| 1040 | 0.235409836  |
| 1042 | 0.165532787  |
| 1045 | 0.111803279  |
| 1048 | 0.095204918  |
| 1050 | 0.073483607  |
| 1053 | 0.058934426  |
| 1055 | 0.054221311  |
| 1058 | 0.045983607  |
| 1061 | 0.02632377   |
| 1063 | 0.016897541  |
| 1066 | 0.01504918   |
| 1068 | 0.025094262  |
| 1071 | 0.020893443  |
| 1074 | 0.016696721  |
| 1076 | 0.04397541   |
| 1079 | 0.049918033  |
| 1081 | 0.066721311  |
| 1084 | 0.05852459   |
| 1086 | 0.041721311  |
| 1089 | 0.032528689  |
| 1092 | 0.023938525  |
| 1094 | 0.020061475  |
| 1097 | 0.006758197  |
| 1099 | 0.003088115  |
| 1102 | -0.003039344 |
| 1105 | 0.014811475  |
| 1107 | 0.01872541   |

|      |              |
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| 1110 | 0.005229508  |
| 1112 | 0.015090164  |
| 1115 | 0.01225      |
| 1117 | 0.009819672  |
| 1120 | 0.006159836  |
| 1123 | 0.001071311  |
| 1125 | 0.011147541  |
| 1128 | -0.002343033 |
| 1130 | 0.00527459   |
| 1133 | -0.001038115 |
| 1135 | -0.005713115 |
| 1138 | -0.007512295 |
| 1141 | -0.003577459 |
| 1143 | 0.001794672  |
| 1146 | 0.011061475  |
| 1148 | 0.021561475  |
| 1151 | 0.069959016  |
| 1153 | 0.127827869  |
| 1156 | 0.155532787  |
| 1159 | 0.13352459   |
| 1161 | 0.111516393  |
| 1164 | 0.089508197  |
| 1166 | 0.066393443  |
| 1169 | 0.06442623   |
| 1171 | 0.06795082   |
| 1174 | 0.092622951  |
| 1176 | 0.125860656  |
| 1179 | 0.176352459  |
| 1182 | 0.210655738  |
| 1184 | 0.207622951  |
| 1187 | 0.195614754  |
| 1189 | 0.193852459  |
| 1192 | 0.199672131  |
| 1194 | 0.21795082   |
| 1197 | 0.244057377  |
| 1199 | 0.326721311  |
| 1202 | 0.418442623  |
| 1205 | 0.459836066  |
| 1207 | 0.500819672  |
| 1210 | 0.429508197  |

|      |             |
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| 1212 | 0.295983607 |
| 1215 | 0.202827869 |
| 1217 | 0.12897541  |
| 1220 | 0.109795082 |
| 1222 | 0.092663934 |
| 1225 | 0.091516393 |
| 1227 | 0.089180328 |
| 1230 | 0.082704918 |
| 1233 | 0.085040984 |
| 1235 | 0.075737705 |
| 1238 | 0.081352459 |
| 1240 | 0.093360656 |
| 1243 | 0.093647541 |
| 1245 | 0.09602459  |
| 1248 | 0.089795082 |
| 1250 | 0.08352459  |
| 1253 | 0.087540984 |
| 1255 | 0.087254098 |
| 1258 | 0.09147541  |
| 1260 | 0.083770492 |
| 1263 | 0.087991803 |
| 1265 | 0.077254098 |
| 1268 | 0.061393443 |
| 1271 | 0.065819672 |
| 1273 | 0.061844262 |
| 1276 | 0.064016393 |
| 1278 | 0.071516393 |
| 1281 | 0.073729508 |
| 1283 | 0.075901639 |
| 1286 | 0.070491803 |
| 1288 | 0.077172131 |
| 1291 | 0.076680328 |
| 1293 | 0.076229508 |
| 1296 | 0.073893443 |
| 1298 | 0.067090164 |
| 1301 | 0.076639344 |
| 1303 | 0.070860656 |
| 1306 | 0.091065574 |
| 1308 | 0.08795082  |
| 1311 | 0.083770492 |

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| 1313 | 0.090901639 |
| 1316 | 0.109918033 |
| 1318 | 0.11704918  |
| 1321 | 0.120860656 |
| 1323 | 0.130655738 |
| 1326 | 0.127131148 |
| 1328 | 0.128729508 |
| 1331 | 0.130327869 |
| 1333 | 0.13807377  |
| 1336 | 0.139467213 |
| 1338 | 0.14147541  |
| 1341 | 0.133852459 |
| 1343 | 0.1375      |
| 1346 | 0.136065574 |
| 1348 | 0.124139344 |
| 1351 | 0.127991803 |
| 1353 | 0.106229508 |
| 1356 | 0.071393443 |
| 1358 | 0.063565574 |
| 1361 | 0.057622951 |
| 1363 | 0.050204918 |
| 1366 | 0.034618852 |
| 1368 | 0.048729508 |
| 1371 | 0.019631148 |
| 1373 | 0.022692623 |
| 1376 | 0.025754098 |
| 1378 | 0.01979918  |
| 1381 | 0.023889344 |
| 1383 | 0.02142623  |
| 1386 | 0.022651639 |
| 1388 | 0.017319672 |
| 1391 | 0.01752459  |
| 1393 | 0.017733607 |
| 1396 | 0.018553279 |
| 1398 | 0.017122951 |
| 1401 | 0.019590164 |
| 1403 | 0.01345082  |
| 1406 | 0.009569672 |
| 1408 | 0.015114754 |
| 1411 | 0.010413934 |

|      |              |
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| 1413 | 0.004487705  |
| 1416 | 0.009221311  |
| 1418 | 0.011491803  |
| 1421 | 0.026885246  |
| 1423 | 0.022401639  |
| 1426 | 0.042295082  |
| 1428 | 0.053196721  |
| 1431 | 0.066967213  |
| 1433 | 0.080286885  |
| 1436 | 0.106762295  |
| 1438 | 0.148196721  |
| 1441 | 0.151311475  |
| 1443 | 0.174098361  |
| 1446 | 0.155696721  |
| 1448 | 0.175819672  |
| 1450 | 0.145532787  |
| 1453 | 0.12897541   |
| 1455 | 0.10954918   |
| 1458 | 0.096516393  |
| 1460 | 0.072786885  |
| 1463 | 0.053565574  |
| 1465 | 0.038467213  |
| 1468 | 0.019057377  |
| 1470 | 0.012151639  |
| 1473 | 0.001765574  |
| 1475 | 0.004495902  |
| 1478 | 0.010094262  |
| 1480 | 0.000942623  |
| 1483 | -0.010463115 |
| 1485 | -0.00875     |
| 1487 | -0.009733607 |
| 1490 | -0.016254098 |
| 1492 | -0.001664754 |
| 1495 | 0.004319672  |
| 1497 | 0.002722541  |
| 1500 | 0.009733607  |
| 1502 | 0.00527459   |
| 1505 | 0.000814344  |
| 1507 | 0.003529098  |
| 1510 | 0.000508607  |

|      |             |
|------|-------------|
| 1512 | 0.009991803 |
| 1515 | 0.015782787 |
| 1517 | 0.019532787 |
| 1519 | 0.020618852 |
| 1522 | 0.028672131 |
| 1524 | 0.029967213 |
| 1527 | 0.041516393 |
| 1529 | 0.034815574 |
| 1532 | 0.033454918 |
| 1534 | 0.032094262 |
| 1537 | 0.033090164 |
| 1539 | 0.034090164 |
| 1541 | 0.032737705 |
| 1544 | 0.041229508 |
| 1546 | 0.044795082 |
| 1549 | 0.043032787 |
| 1551 | 0.044344262 |
| 1554 | 0.043196721 |
| 1556 | 0.049262295 |
| 1559 | 0.051188525 |
| 1561 | 0.050040984 |
| 1563 | 0.048934426 |
| 1566 | 0.060901639 |
| 1568 | 0.051393443 |
| 1571 | 0.079754098 |
| 1573 | 0.085409836 |
| 1576 | 0.102336066 |
| 1578 | 0.130901639 |
| 1580 | 0.187377049 |
| 1583 | 0.28954918  |
| 1585 | 0.282909836 |
| 1588 | 0.276270492 |
| 1590 | 0.211434426 |
| 1593 | 0.20192623  |
| 1595 | 0.263114754 |
| 1597 | 0.342786885 |
| 1600 | 0.505737705 |
| 1602 | 0.68442623  |
| 1605 | 0.670901639 |
| 1607 | 0.657786885 |

|      |             |
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| 1610 | 0.455737705 |
| 1612 | 0.291967213 |
| 1614 | 0.222868852 |
| 1617 | 0.189795082 |
| 1619 | 0.185245902 |
| 1622 | 0.166147541 |
| 1624 | 0.166721311 |
| 1627 | 0.171803279 |
| 1629 | 0.167868852 |
| 1631 | 0.159221311 |
| 1634 | 0.163688525 |
| 1636 | 0.153606557 |
| 1639 | 0.165696721 |
| 1641 | 0.157254098 |
| 1643 | 0.160286885 |
| 1646 | 0.16602459  |
| 1648 | 0.16454918  |
| 1651 | 0.163114754 |
| 1653 | 0.161680328 |
| 1656 | 0.170040984 |
| 1658 | 0.166147541 |
| 1660 | 0.191557377 |
| 1663 | 0.189713115 |
| 1665 | 0.185819672 |
| 1668 | 0.188688525 |
| 1670 | 0.179877049 |
| 1672 | 0.17352459  |
| 1675 | 0.171721311 |
| 1677 | 0.156762295 |
| 1680 | 0.150819672 |
| 1682 | 0.151065574 |
| 1684 | 0.145368852 |
| 1687 | 0.125286885 |
| 1689 | 0.122254098 |
| 1692 | 0.098319672 |
| 1694 | 0.077254098 |
| 1696 | 0.077295082 |
| 1699 | 0.061352459 |
| 1701 | 0.059344262 |
| 1704 | 0.051803279 |

|      |              |
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| 1706 | 0.046516393  |
| 1708 | 0.032446721  |
| 1711 | 0.033737705  |
| 1713 | 0.01822541   |
| 1716 | 0.024438525  |
| 1718 | 0.030245902  |
| 1720 | 0.029909836  |
| 1723 | 0.040028689  |
| 1725 | 0.039495902  |
| 1728 | 0.037118852  |
| 1730 | 0.049508197  |
| 1732 | 0.056147541  |
| 1735 | 0.056434426  |
| 1737 | 0.070245902  |
| 1739 | 0.064344262  |
| 1742 | 0.059836066  |
| 1744 | 0.065819672  |
| 1747 | 0.073401639  |
| 1749 | 0.066270492  |
| 1751 | 0.054836066  |
| 1754 | 0.043155738  |
| 1756 | 0.030090164  |
| 1759 | 0.025008197  |
| 1761 | 0.026282787  |
| 1763 | 0.019155738  |
| 1766 | 0.007114754  |
| 1768 | 0.008807377  |
| 1770 | 0.003535246  |
| 1773 | 0.016504098  |
| 1775 | 0.006938525  |
| 1778 | 0.005159836  |
| 1780 | -0.003992623 |
| 1782 | 0.005918033  |
| 1785 | 0.002510246  |
| 1787 | -7.35246E-05 |
| 1789 | -0.001219262 |
| 1792 | 0.000714344  |
| 1794 | 0.002648361  |
| 1797 | 0.000608197  |
| 1799 | -0.004092623 |

|      |              |
|------|--------------|
| 1801 | -0.001003689 |
|------|--------------|

For pure cyclohexanone:

| Wavenumber (cm <sup>-1</sup> ) | Normalized Raman Intensity |
|--------------------------------|----------------------------|
| 497.4                          | 0.108997098                |
| 500.1                          | 0.089535634                |
| 502.9                          | 0.074346985                |
| 505.7                          | 0.056594647                |
| 508.4                          | 0.044792003                |
| 511.2                          | 0.040003225                |
| 514                            | 0.032876491                |
| 516.8                          | 0.020767494                |
| 519.5                          | 0.017107385                |
| 522.3                          | 0.013864882                |
| 525.1                          | 0.012068688                |
| 527.8                          | 0.011483392                |
| 530.6                          | 0.006546275                |
| 533.4                          | 0.007252499                |
| 536.1                          | 0.005944856                |
| 538.9                          | 0.00617059                 |
| 541.6                          | 0.003979361                |
| 544.4                          | 0.00299742                 |
| 547.2                          | 0.002623347                |
| 549.9                          | 0.002247662                |
| 552.7                          | 0.000867301                |
| 555.4                          | 0.001905837                |
| 558.2                          | 0.001978394                |
| 560.9                          | 0.003261851                |
| 563.7                          | 0.000917768                |
| 566.5                          | 0.003814898                |
| 569.2                          | -0.00062238                |
| 572                            | 0.0013099                  |
| 574.7                          | 0.001147372                |
| 577.5                          | -0.002318607               |
| 580.2                          | -0.000302967               |
| 582.9                          | 0.000344083                |
| 585.7                          | 0.000105401                |
| 588.4                          | -0.000806998               |
| 591.2                          | 0.000136101                |

|       |              |
|-------|--------------|
| 593.9 | -0.001418897 |
| 596.7 | -0.001440987 |
| 599.4 | 0.001440503  |
| 602.2 | 0.001904224  |
| 604.9 | 0.006320542  |
| 607.6 | 0.005819091  |
| 610.4 | 0.004835537  |
| 613.1 | 0.006997743  |
| 615.8 | 0.008353757  |
| 618.6 | 0.010114479  |
| 621.3 | 0.014617865  |
| 624   | 0.019929055  |
| 626.8 | 0.024508223  |
| 629.5 | 0.036520477  |
| 632.2 | 0.057626572  |
| 635   | 0.072944212  |
| 637.7 | 0.109787165  |
| 640.4 | 0.164463076  |
| 643.2 | 0.239116414  |
| 645.9 | 0.339890358  |
| 648.6 | 0.462915189  |
| 651.3 | 0.584972589  |
| 654.1 | 0.610931957  |
| 656.8 | 0.565946469  |
| 659.5 | 0.431151242  |
| 662.2 | 0.298613351  |
| 664.9 | 0.200257981  |
| 667.7 | 0.132134795  |
| 670.4 | 0.086681716  |
| 673.1 | 0.065640116  |
| 675.8 | 0.045259594  |
| 678.5 | 0.031006127  |
| 681.2 | 0.025137053  |
| 684   | 0.016510803  |
| 686.7 | 0.015646566  |
| 689.4 | 0.014051919  |
| 692.1 | 0.01068365   |
| 694.8 | 0.007799097  |
| 697.5 | 0.012173492  |
| 700.2 | 0.008163496  |

|       |             |
|-------|-------------|
| 702.9 | 0.008103837 |
| 705.6 | 0.011110932 |
| 708.3 | 0.008716543 |
| 711.1 | 0.011886488 |
| 713.8 | 0.015217672 |
| 716.5 | 0.023476298 |
| 719.2 | 0.022283134 |
| 721.9 | 0.032150919 |
| 724.6 | 0.040728797 |
| 727.3 | 0.040116092 |
| 730   | 0.052724927 |
| 732.7 | 0.06662367  |
| 735.4 | 0.089793615 |
| 738.1 | 0.13152209  |
| 740.8 | 0.231376975 |
| 743.4 | 0.426797807 |
| 746.1 | 0.817478233 |
| 748.8 | 0.878265076 |
| 751.5 | 0.939213157 |
| 754.2 | 1           |
| 756.9 | 0.568203805 |
| 759.6 | 0.28055466  |
| 762.3 | 0.148178007 |
| 765   | 0.089132538 |
| 767.7 | 0.061286682 |
| 770.3 | 0.046581748 |
| 773   | 0.032924863 |
| 775.7 | 0.02579813  |
| 778.4 | 0.021412448 |
| 781.1 | 0.010427282 |
| 783.8 | 0.009514673 |
| 786.4 | 0.008602064 |
| 789.1 | 0.008094163 |
| 791.8 | 0.008797162 |
| 794.5 | 0.008049016 |
| 797.2 | 0.002950661 |
| 799.8 | 0.008331183 |
| 802.5 | 0.005572396 |
| 805.2 | 0.001846179 |
| 807.9 | 0.000781522 |

|       |             |
|-------|-------------|
| 810.5 | 0.003748791 |
| 813.2 | 0.004540471 |
| 815.9 | 0.010815866 |
| 818.5 | 0.021041599 |
| 821.2 | 0.02537891  |
| 823.9 | 0.03303773  |
| 826.5 | 0.052208965 |
| 829.2 | 0.085182199 |
| 831.9 | 0.160061271 |
| 834.5 | 0.331989681 |
| 837.2 | 0.322315382 |
| 839.9 | 0.312641084 |
| 842.5 | 0.303128023 |
| 845.2 | 0.293453725 |
| 847.9 | 0.126991293 |
| 850.5 | 0.061689777 |
| 853.2 | 0.035246695 |
| 855.8 | 0.026781683 |
| 858.5 | 0.027281522 |
| 861.1 | 0.031473718 |
| 863.8 | 0.027603999 |
| 866.5 | 0.025765882 |
| 869.1 | 0.01738149  |
| 871.8 | 0.015377298 |
| 874.4 | 0.015469203 |
| 877.1 | 0.011046437 |
| 879.7 | 0.01428249  |
| 882.4 | 0.019461464 |
| 885   | 0.022460497 |
| 887.7 | 0.036326991 |
| 890.3 | 0.044405031 |
| 893   | 0.048629474 |
| 895.6 | 0.049693647 |
| 898.2 | 0.049951629 |
| 900.9 | 0.04633989  |
| 903.5 | 0.055804579 |
| 906.2 | 0.06089971  |
| 908.8 | 0.069074492 |
| 911.5 | 0.057642696 |
| 914.1 | 0.041148017 |

|       |              |
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| 916.7 | 0.022944212  |
| 919.4 | 0.014674299  |
| 922   | 0.01010803   |
| 924.6 | 0.006027088  |
| 927.3 | 0.002834569  |
| 929.9 | -0.001576588 |
| 932.6 | 0.000847791  |
| 935.2 | -0.000354563 |
| 937.8 | -0.001072074 |
| 940.4 | 0.000146243  |
| 943.1 | -0.001455982 |
| 945.7 | -0.003621412 |
| 948.3 | 0.002192841  |
| 951   | -0.002391164 |
| 953.6 | 0.000684295  |
| 956.2 | 0.002633022  |
| 958.8 | 0.001195582  |
| 961.5 | 0.001130442  |
| 964.1 | 0.005257981  |
| 966.7 | 0.007049339  |
| 969.3 | 0.00972912   |
| 972   | 0.012811996  |
| 974.6 | 0.016784908  |
| 977.2 | 0.023411803  |
| 979.8 | 0.038600451  |
| 982.4 | 0.051757498  |
| 985.1 | 0.076701064  |
| 987.7 | 0.115817478  |
| 990.3 | 0.109690422  |
| 992.9 | 0.103547243  |
| 995.5 | 0.097404063  |
| 998.1 | 0.091277007  |
| 1001  | 0.071315705  |
| 1003  | 0.07441148   |
| 1006  | 0.092018704  |
| 1009  | 0.130022573  |
| 1011  | 0.198645598  |
| 1014  | 0.315543373  |
| 1016  | 0.450983554  |
| 1019  | 0.438245727  |

|      |             |
|------|-------------|
| 1022 | 0.425507901 |
| 1024 | 0.27668494  |
| 1027 | 0.171235085 |
| 1029 | 0.109222831 |
| 1032 | 0.076539826 |
| 1035 | 0.057610448 |
| 1037 | 0.046904224 |
| 1040 | 0.042647533 |
| 1042 | 0.040890035 |
| 1045 | 0.044953241 |
| 1048 | 0.047629797 |
| 1050 | 0.059109965 |
| 1053 | 0.064608191 |
| 1055 | 0.070364399 |
| 1058 | 0.077249274 |
| 1061 | 0.081941309 |
| 1063 | 0.104788778 |
| 1066 | 0.124733957 |
| 1068 | 0.157578201 |
| 1071 | 0.180586907 |
| 1074 | 0.203482748 |
| 1076 | 0.177039665 |
| 1079 | 0.131118994 |
| 1081 | 0.081328604 |
| 1084 | 0.057739439 |
| 1086 | 0.042228313 |
| 1089 | 0.030570784 |
| 1092 | 0.028764915 |
| 1094 | 0.025104805 |
| 1097 | 0.026507578 |
| 1099 | 0.029780716 |
| 1102 | 0.037165431 |
| 1105 | 0.053015156 |
| 1107 | 0.088777814 |
| 1110 | 0.147839407 |
| 1112 | 0.209448565 |
| 1115 | 0.233150597 |
| 1117 | 0.1965495   |
| 1120 | 0.145549823 |
| 1123 | 0.097146082 |

|      |              |
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| 1125 | 0.066010964  |
| 1128 | 0.042276685  |
| 1130 | 0.034924218  |
| 1133 | 0.021509191  |
| 1135 | 0.014640439  |
| 1138 | 0.012444373  |
| 1141 | 0.008958401  |
| 1143 | 0.007247662  |
| 1146 | 0.005457917  |
| 1148 | 0.001734924  |
| 1151 | 0.000833118  |
| 1153 | 0.003640761  |
| 1156 | 0.000162528  |
| 1159 | -0.002186391 |
| 1161 | 0.001915511  |
| 1164 | -0.001238149 |
| 1166 | -0.00237504  |
| 1169 | -0.00068881  |
| 1171 | 0.000353434  |
| 1174 | 0.000132667  |
| 1176 | -0.000409707 |
| 1179 | 0.000581103  |
| 1182 | -0.000442277 |
| 1184 | -0.001465495 |
| 1187 | 0.000979523  |
| 1189 | 0.003910029  |
| 1192 | 0.006275395  |
| 1194 | 0.01114318   |
| 1197 | 0.0106901    |
| 1199 | 0.018461787  |
| 1202 | 0.021880039  |
| 1205 | 0.032312157  |
| 1207 | 0.042824895  |
| 1210 | 0.062544341  |
| 1212 | 0.081763947  |
| 1215 | 0.124524347  |
| 1217 | 0.168494034  |
| 1220 | 0.207513705  |
| 1222 | 0.233473073  |
| 1225 | 0.212189616  |

|      |             |
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| 1227 | 0.191067398 |
| 1230 | 0.155820703 |
| 1233 | 0.127249274 |
| 1235 | 0.118590777 |
| 1238 | 0.128232828 |
| 1240 | 0.151983231 |
| 1243 | 0.181715576 |
| 1245 | 0.211544663 |
| 1248 | 0.208803612 |
| 1250 | 0.20606256  |
| 1253 | 0.175104805 |
| 1255 | 0.140841664 |
| 1258 | 0.126314092 |
| 1260 | 0.129361496 |
| 1263 | 0.141825218 |
| 1265 | 0.144550145 |
| 1268 | 0.13889068  |
| 1271 | 0.103402128 |
| 1273 | 0.077007417 |
| 1276 | 0.05917446  |
| 1278 | 0.048355369 |
| 1281 | 0.034811351 |
| 1283 | 0.037294421 |
| 1286 | 0.034214769 |
| 1288 | 0.032908739 |
| 1291 | 0.033553692 |
| 1293 | 0.039745243 |
| 1296 | 0.046597872 |
| 1298 | 0.056094808 |
| 1301 | 0.079393744 |
| 1303 | 0.10357949  |
| 1306 | 0.143066753 |
| 1308 | 0.185746533 |
| 1311 | 0.239116414 |
| 1313 | 0.274911319 |
| 1316 | 0.290551435 |
| 1318 | 0.266526927 |
| 1321 | 0.227990971 |
| 1323 | 0.177684618 |
| 1326 | 0.138729442 |

|      |             |
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| 1328 | 0.102531441 |
| 1331 | 0.080780393 |
| 1333 | 0.067075137 |
| 1336 | 0.068381167 |
| 1338 | 0.067736214 |
| 1341 | 0.075733634 |
| 1343 | 0.079619478 |
| 1346 | 0.090922283 |
| 1348 | 0.09027733  |
| 1351 | 0.079006772 |
| 1353 | 0.051854241 |
| 1356 | 0.038664947 |
| 1358 | 0.026668817 |
| 1361 | 0.021444695 |
| 1363 | 0.01847791  |
| 1366 | 0.015843276 |
| 1368 | 0.013044179 |
| 1371 | 0.013673009 |
| 1373 | 0.014301838 |
| 1376 | 0.0120703   |
| 1378 | 0.013790713 |
| 1381 | 0.012932925 |
| 1383 | 0.013526282 |
| 1386 | 0.018719768 |
| 1388 | 0.022863592 |
| 1391 | 0.023621412 |
| 1393 | 0.027845856 |
| 1396 | 0.034166398 |
| 1398 | 0.040003225 |
| 1401 | 0.047291196 |
| 1403 | 0.05862625  |
| 1406 | 0.068090938 |
| 1408 | 0.087810384 |
| 1411 | 0.115898097 |
| 1413 | 0.148597227 |
| 1416 | 0.207836182 |
| 1418 | 0.251693002 |
| 1421 | 0.290390197 |
| 1423 | 0.306836504 |
| 1426 | 0.292163818 |

|      |             |
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| 1428 | 0.273943889 |
| 1431 | 0.258303773 |
| 1433 | 0.233311835 |
| 1436 | 0.216220574 |
| 1438 | 0.19848436  |
| 1441 | 0.202515318 |
| 1443 | 0.242663657 |
| 1446 | 0.313286037 |
| 1448 | 0.397452435 |
| 1450 | 0.381167365 |
| 1453 | 0.364882296 |
| 1455 | 0.348758465 |
| 1458 | 0.27668494  |
| 1460 | 0.230087069 |
| 1463 | 0.207352467 |
| 1465 | 0.181231861 |
| 1468 | 0.150467591 |
| 1470 | 0.117945824 |
| 1473 | 0.099048694 |
| 1475 | 0.07710416  |
| 1478 | 0.061834892 |
| 1480 | 0.048758465 |
| 1483 | 0.037858755 |
| 1485 | 0.031135118 |
| 1487 | 0.026201225 |
| 1490 | 0.027071912 |
| 1492 | 0.018187681 |
| 1495 | 0.019300226 |
| 1497 | 0.018800387 |
| 1500 | 0.013219929 |
| 1502 | 0.014658175 |
| 1505 | 0.012468559 |
| 1507 | 0.010441793 |
| 1510 | 0.009625927 |
| 1512 | 0.009295389 |
| 1515 | 0.011544663 |
| 1517 | 0.00992583  |
| 1519 | 0.009113189 |
| 1522 | 0.009875847 |
| 1524 | 0.010638504 |

|      |              |
|------|--------------|
| 1527 | 0.009829087  |
| 1529 | 0.008377943  |
| 1532 | 0.010312802  |
| 1534 | 0.008782651  |
| 1537 | 0.002576588  |
| 1539 | 0.002581425  |
| 1541 | 0.001697839  |
| 1544 | 0.003236053  |
| 1546 | 0.002478233  |
| 1549 | 0.001720413  |
| 1551 | 0.000519671  |
| 1554 | -3.43438E-05 |
| 1556 | -0.000103338 |
| 1559 | 0.000313125  |
| 1561 | 0.000729442  |
| 1563 | -0.001593518 |
| 1566 | 0.000680103  |
| 1568 | 0.001503708  |
| 1571 | 0.001118994  |
| 1573 | -0.001844566 |
| 1576 | 0.00075653   |
| 1578 | -0.000603837 |
| 1580 | -0.000837633 |
| 1583 | 0.000381006  |
| 1585 | -0.000656562 |
| 1588 | -0.001451145 |
| 1590 | -0.001015963 |
| 1593 | -0.000580619 |
| 1595 | -0.000145356 |
| 1597 | -0.000438246 |
| 1600 | -0.001535956 |
| 1602 | -0.001262012 |
| 1605 | 0.001109158  |
| 1607 | 0.000176395  |
| 1610 | 0.001582715  |
| 1612 | 0.000894066  |
| 1614 | 0.004237343  |
| 1617 | -0.001366333 |
| 1619 | 0.002060626  |
| 1622 | 0.002989358  |

|      |             |
|------|-------------|
| 1624 | 0.001904224 |
| 1627 | 0.004124476 |
| 1629 | 0.005298291 |
| 1631 | 0.003974524 |
| 1634 | 0.002249274 |
| 1636 | 0.008908417 |
| 1639 | 0.005735247 |
| 1641 | 0.005867462 |
| 1643 | 0.007370203 |
| 1646 | 0.006739761 |
| 1648 | 0.00610932  |
| 1651 | 0.008019994 |
| 1653 | 0.007431474 |
| 1656 | 0.009345372 |
| 1658 | 0.006825218 |
| 1660 | 0.008658497 |
| 1663 | 0.012349242 |
| 1665 | 0.014508223 |
| 1668 | 0.018284424 |
| 1670 | 0.020041922 |
| 1672 | 0.023089326 |
| 1675 | 0.026056111 |
| 1677 | 0.026378588 |
| 1680 | 0.027329894 |
| 1682 | 0.031264108 |
| 1684 | 0.034327636 |
| 1687 | 0.040519187 |
| 1689 | 0.053821348 |
| 1692 | 0.066236698 |
| 1694 | 0.099355047 |
| 1696 | 0.150870687 |
| 1699 | 0.237826508 |
| 1701 | 0.368913254 |
| 1704 | 0.457271848 |
| 1706 | 0.500161238 |
| 1708 | 0.504837149 |
| 1711 | 0.479200258 |
| 1713 | 0.445017736 |
| 1716 | 0.410673976 |
| 1718 | 0.345694937 |

|      |             |
|------|-------------|
| 1720 | 0.268784263 |
| 1723 | 0.207513705 |
| 1725 | 0.153353757 |
| 1728 | 0.11435021  |
| 1730 | 0.088245727 |
| 1732 | 0.062286359 |
| 1735 | 0.051983231 |
| 1737 | 0.042244437 |
| 1739 | 0.036713963 |
| 1742 | 0.036891325 |
| 1744 | 0.032554015 |
| 1747 | 0.02571751  |
| 1749 | 0.025024186 |
| 1751 | 0.024153499 |
| 1754 | 0.024346985 |
| 1756 | 0.022025153 |
| 1759 | 0.01931635  |
| 1761 | 0.018768139 |
| 1763 | 0.019122864 |
| 1766 | 0.016494679 |
| 1768 | 0.018461787 |
| 1770 | 0.014946791 |
| 1773 | 0.014011609 |
| 1775 | 0.008805224 |
| 1778 | 0.008921316 |
| 1780 | 0.00589326  |
| 1782 | 0.005770719 |
| 1785 | 0.004437278 |
| 1787 | 0.003026443 |
| 1789 | 0.003066753 |
| 1792 | 0.002221864 |
| 1794 | 0.005085456 |
| 1797 | 0.000615285 |
| 1799 | 0.002674944 |
| 1801 | 0.001592873 |

**Figure S1:**

| $\mu\text{L}$ of NaOH added | pH   |
|-----------------------------|------|
| 1                           | 6.81 |

|    |       |
|----|-------|
| 2  | 7.91  |
| 3  | 8.21  |
| 4  | 8.40  |
| 5  | 8.61  |
| 6  | 8.80  |
| 7  | 9.02  |
| 8  | 9.35  |
| 9  | 9.68  |
| 10 | 10.18 |

**Figure S2:**

| 1,6-Hexanediol<br>Concentration (M) | Mean Normalized Turbidity<br>@630nm | Standard<br>Deviation |
|-------------------------------------|-------------------------------------|-----------------------|
| 0.0                                 | 1.000                               | 0.021                 |
| 0.5                                 | 0.455                               | 0.008                 |
| 1.0                                 | 0.183                               | 0.015                 |
| 1.5                                 | 0.053                               | 0.010                 |

**Figure S3:**

| Urea Concentration<br>(M) | Mean Normalized Turbidity<br>@630nm | Standard<br>Deviation |
|---------------------------|-------------------------------------|-----------------------|
| 0.0                       | 1.000                               | 0.015                 |
| 1.0                       | 0.486                               | 0.014                 |
| 2.5                       | 0.179                               | 0.004                 |
| 5.0                       | 0.032                               | 0.005                 |

**Figure S4:**

For aqueous solution of PFF-OMe:

| Wavenumber (cm <sup>-1</sup> ) | Normalized Intensity |
|--------------------------------|----------------------|
| 497.4                          | 0.065874126          |
| 500.1                          | 0.054125874          |
| 502.9                          | 0.047505828          |
| 505.7                          | 0.032261072          |
| 508.4                          | 0.023076923          |
| 511.2                          | 0.012773893          |
| 514.0                          | 0.009184149          |
| 516.8                          | -0.004895105         |

|       |              |
|-------|--------------|
| 519.5 | -0.00027972  |
| 522.3 | 0.001491841  |
| 525.1 | 0.001911422  |
| 527.8 | -0.003310023 |
| 530.6 | 0.002703963  |
| 533.4 | 0.007878788  |
| 536.1 | 0.013053613  |
| 538.9 | 0.010675991  |
| 541.6 | 0.008531469  |
| 544.4 | 0.003123543  |
| 547.2 | 0.016083916  |
| 549.9 | 0.013240093  |
| 552.7 | 0.02041958   |
| 555.4 | 0.012447552  |
| 558.2 | 0.020792541  |
| 560.9 | 0.017995338  |
| 563.7 | 0.024475524  |
| 566.5 | 0.022097902  |
| 569.2 | 0.021351981  |
| 572.0 | 0.015524476  |
| 574.7 | 0.019207459  |
| 577.5 | 0.00983683   |
| 580.2 | 0.014498834  |
| 582.9 | 0.003496503  |
| 585.7 | 0.003962704  |
| 588.4 | 0.001118881  |
| 591.2 | 0.005780886  |
| 593.9 | 0.01020979   |
| 596.7 | 0.008298368  |
| 599.4 | 0.005034965  |
| 602.2 | 0.012727273  |
| 604.9 | 0.014125874  |
| 607.6 | 0.013146853  |
| 610.4 | 0.024102564  |
| 613.1 | 0.051608392  |
| 615.8 | 0.125967366  |
| 618.6 | 0.118414918  |
| 621.3 | 0.110862471  |
| 624.0 | 0.103263403  |
| 626.8 | 0.095710956  |

|       |              |
|-------|--------------|
| 629.5 | 0.03020979   |
| 632.2 | 0.018088578  |
| 635.0 | 0.003916084  |
| 637.7 | 0.006946387  |
| 640.4 | 0.006713287  |
| 643.2 | 0.010722611  |
| 645.9 | 0.006526807  |
| 648.6 | 0.002377622  |
| 651.3 | 0.003776224  |
| 654.1 | 0.00988345   |
| 656.8 | 0.008671329  |
| 659.5 | 0.007459207  |
| 662.2 | 0.006247086  |
| 664.9 | 0.006060606  |
| 667.7 | 0.006759907  |
| 670.4 | 0.012634033  |
| 673.1 | 0.010815851  |
| 675.8 | 0.01006993   |
| 678.5 | 0.009277389  |
| 681.2 | 0.014685315  |
| 684.0 | 0.005641026  |
| 686.7 | 0.008484848  |
| 689.4 | 0.011095571  |
| 692.1 | 0.01044289   |
| 694.8 | -0.001864802 |
| 697.5 | 0.011515152  |
| 700.2 | 0.005734266  |
| 702.9 | 0.006713287  |
| 705.6 | 0.004941725  |
| 708.3 | 0.004755245  |
| 711.1 | 0.004568765  |
| 713.8 | 0.008857809  |
| 716.5 | 0.001212121  |
| 719.2 | 0.011794872  |
| 721.9 | 0.010722611  |
| 724.6 | 0.014965035  |
| 727.3 | 0.025081585  |
| 730.0 | 0.044522145  |
| 732.7 | 0.047132867  |
| 735.4 | 0.069370629  |

|       |              |
|-------|--------------|
| 738.1 | 0.064335664  |
| 740.8 | 0.08004662   |
| 743.4 | 0.088298368  |
| 746.1 | 0.081585082  |
| 748.8 | 0.08027972   |
| 751.5 | 0.075944056  |
| 754.2 | 0.070675991  |
| 756.9 | 0.061491841  |
| 759.6 | 0.071608392  |
| 762.3 | 0.079393939  |
| 765.0 | 0.068531469  |
| 767.7 | 0.057668998  |
| 770.3 | 0.056363636  |
| 773.0 | 0.04997669   |
| 775.7 | 0.044475524  |
| 778.4 | 0.027365967  |
| 781.1 | 0.013939394  |
| 783.8 | 0.01006993   |
| 786.4 | 0.007645688  |
| 789.1 | -0.000652681 |
| 791.8 | -0.013566434 |
| 794.5 | -0.01044289  |
| 797.2 | -0.011235431 |
| 799.8 | -0.004801865 |
| 802.5 | 0.002517483  |
| 805.2 | 0.009184149  |
| 807.9 | 0.036829837  |
| 810.5 | 0.0404662    |
| 813.2 | 0.075104895  |
| 815.9 | 0.091515152  |
| 818.5 | 0.117062937  |
| 821.2 | 0.133752914  |
| 823.9 | 0.141818182  |
| 826.5 | 0.136130536  |
| 829.2 | 0.125780886  |
| 831.9 | 0.122424242  |
| 834.5 | 0.107692308  |
| 837.2 | 0.101538462  |
| 839.9 | 0.104708625  |
| 842.5 | 0.082937063  |

|       |             |
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| 845.2 | 0.086806527 |
| 847.9 | 0.083496503 |
| 850.5 | 0.076643357 |
| 853.2 | 0.083123543 |
| 855.8 | 0.076503497 |
| 858.5 | 0.082937063 |
| 861.1 | 0.088951049 |
| 863.8 | 0.092121212 |
| 866.5 | 0.109090909 |
| 869.1 | 0.112773893 |
| 871.8 | 0.131095571 |
| 874.4 | 0.133146853 |
| 877.1 | 0.128438228 |
| 879.7 | 0.132773893 |
| 882.4 | 0.116643357 |
| 885.0 | 0.10960373  |
| 887.7 | 0.103496503 |
| 890.3 | 0.091095571 |
| 893.0 | 0.094265734 |
| 895.6 | 0.08955711  |
| 898.2 | 0.082051282 |
| 900.9 | 0.092261072 |
| 903.5 | 0.114358974 |
| 906.2 | 0.117342657 |
| 908.8 | 0.131794872 |
| 911.5 | 0.125687646 |
| 914.1 | 0.113519814 |
| 916.7 | 0.106013986 |
| 919.4 | 0.092913753 |
| 922.0 | 0.078927739 |
| 924.6 | 0.077016317 |
| 927.3 | 0.080699301 |
| 929.9 | 0.081398601 |
| 932.6 | 0.083916084 |
| 935.2 | 0.083449883 |
| 937.8 | 0.076876457 |
| 940.4 | 0.054265734 |
| 943.1 | 0.040932401 |
| 945.7 | 0.0402331   |
| 948.3 | 0.043496503 |

|       |             |
|-------|-------------|
| 951.0 | 0.051142191 |
| 953.6 | 0.050909091 |
| 956.2 | 0.062564103 |
| 958.8 | 0.062517483 |
| 961.5 | 0.069044289 |
| 964.1 | 0.064848485 |
| 966.7 | 0.068111888 |
| 969.3 | 0.067179487 |
| 972.0 | 0.078135198 |
| 974.6 | 0.076736597 |
| 977.2 | 0.091655012 |
| 979.8 | 0.088158508 |
| 982.4 | 0.112634033 |
| 985.1 | 0.131981352 |
| 987.7 | 0.188624709 |
| 990.3 | 0.227552448 |
| 992.9 | 0.28960373  |
| 995.5 | 0.483449883 |
| 998.1 | 1           |
| 1001  | 0.912354312 |
| 1003  | 0.824708625 |
| 1006  | 0.737062937 |
| 1009  | 0.649417249 |
| 1011  | 0.268717949 |
| 1014  | 0.151981352 |
| 1016  | 0.11025641  |
| 1019  | 0.114498834 |
| 1022  | 0.152494172 |
| 1024  | 0.224568765 |
| 1027  | 0.378927739 |
| 1029  | 0.536596737 |
| 1032  | 0.506293706 |
| 1035  | 0.475990676 |
| 1037  | 0.331748252 |
| 1040  | 0.235990676 |
| 1042  | 0.17958042  |
| 1045  | 0.148857809 |
| 1048  | 0.127459207 |
| 1050  | 0.110722611 |
| 1053  | 0.078834499 |

|      |              |
|------|--------------|
| 1055 | 0.063496503  |
| 1058 | 0.053799534  |
| 1061 | 0.034731935  |
| 1063 | 0.025687646  |
| 1066 | 0.021072261  |
| 1068 | 0.015990676  |
| 1071 | 0.024708625  |
| 1074 | 0.028951049  |
| 1076 | 0.039254079  |
| 1079 | 0.055198135  |
| 1081 | 0.055944056  |
| 1084 | 0.056689977  |
| 1086 | 0.045827506  |
| 1089 | 0.048904429  |
| 1092 | 0.033613054  |
| 1094 | 0.009230769  |
| 1097 | 0.013706294  |
| 1099 | 0.014498834  |
| 1102 | 0.018088578  |
| 1105 | 0.011375291  |
| 1107 | 0.005174825  |
| 1110 | 0.005034965  |
| 1112 | 0.013986014  |
| 1115 | 0.008951049  |
| 1117 | 0.012261072  |
| 1120 | 0.003496503  |
| 1123 | 0.007785548  |
| 1125 | -0.002610723 |
| 1128 | 0.005641026  |
| 1130 | -0.003123543 |
| 1133 | -0.01020979  |
| 1135 | -0.012447552 |
| 1138 | -0.011375291 |
| 1141 | -0.006107226 |
| 1143 | -0.003916084 |
| 1146 | 0.007179487  |
| 1148 | 0.024102564  |
| 1151 | 0.066153846  |
| 1153 | 0.113613054  |
| 1156 | 0.148018648  |

|      |             |
|------|-------------|
| 1159 | 0.133240093 |
| 1161 | 0.11006993  |
| 1164 | 0.083403263 |
| 1166 | 0.079067599 |
| 1169 | 0.072447552 |
| 1171 | 0.09030303  |
| 1174 | 0.108438228 |
| 1176 | 0.140745921 |
| 1179 | 0.173286713 |
| 1182 | 0.201864802 |
| 1184 | 0.196876457 |
| 1187 | 0.19048951  |
| 1189 | 0.175291375 |
| 1192 | 0.182657343 |
| 1194 | 0.203776224 |
| 1197 | 0.249184149 |
| 1199 | 0.317389277 |
| 1202 | 0.405920746 |
| 1205 | 0.445594406 |
| 1207 | 0.485314685 |
| 1210 | 0.402890443 |
| 1212 | 0.273240093 |
| 1215 | 0.171748252 |
| 1217 | 0.124149184 |
| 1220 | 0.093566434 |
| 1222 | 0.076456876 |
| 1225 | 0.075011655 |
| 1227 | 0.077062937 |
| 1230 | 0.070955711 |
| 1233 | 0.093986014 |
| 1235 | 0.095104895 |
| 1238 | 0.094592075 |
| 1240 | 0.105221445 |
| 1243 | 0.105687646 |
| 1245 | 0.106107226 |
| 1248 | 0.098601399 |
| 1250 | 0.095990676 |
| 1253 | 0.102937063 |
| 1255 | 0.102051282 |
| 1258 | 0.101165501 |

|      |             |
|------|-------------|
| 1260 | 0.10027972  |
| 1263 | 0.097435897 |
| 1265 | 0.095757576 |
| 1268 | 0.092494172 |
| 1271 | 0.088717949 |
| 1273 | 0.085641026 |
| 1276 | 0.082377622 |
| 1278 | 0.084895105 |
| 1281 | 0.089090909 |
| 1283 | 0.071794872 |
| 1286 | 0.067599068 |
| 1288 | 0.075291375 |
| 1291 | 0.074778555 |
| 1293 | 0.073146853 |
| 1296 | 0.080839161 |
| 1298 | 0.073846154 |
| 1301 | 0.074731935 |
| 1303 | 0.068671329 |
| 1306 | 0.064941725 |
| 1308 | 0.082191142 |
| 1311 | 0.083356643 |
| 1313 | 0.099207459 |
| 1316 | 0.108764569 |
| 1318 | 0.106433566 |
| 1321 | 0.122983683 |
| 1323 | 0.122517483 |
| 1326 | 0.132074592 |
| 1328 | 0.128158508 |
| 1331 | 0.118601399 |
| 1333 | 0.128158508 |
| 1336 | 0.129090909 |
| 1338 | 0.12983683  |
| 1341 | 0.11981352  |
| 1343 | 0.132867133 |
| 1346 | 0.119393939 |
| 1348 | 0.111002331 |
| 1351 | 0.108018648 |
| 1353 | 0.099160839 |
| 1356 | 0.074265734 |
| 1358 | 0.068018648 |

|      |              |
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| 1361 | 0.052167832  |
| 1363 | 0.043589744  |
| 1366 | 0.034778555  |
| 1368 | 0.024289044  |
| 1371 | 0.027599068  |
| 1373 | 0.024615385  |
| 1376 | 0.019067599  |
| 1378 | 0.021445221  |
| 1381 | 0.01962704   |
| 1383 | 0.022470862  |
| 1386 | 0.024848485  |
| 1388 | 0.017668998  |
| 1391 | 0.018041958  |
| 1393 | 0.018461538  |
| 1396 | 0.024568765  |
| 1398 | 0.028811189  |
| 1401 | 0.022331002  |
| 1403 | 0.011888112  |
| 1406 | 0.021305361  |
| 1408 | 0.005967366  |
| 1411 | 0.010675991  |
| 1413 | 0.01006993   |
| 1416 | 0.002424242  |
| 1418 | 0.003682984  |
| 1421 | -0.002097902 |
| 1423 | 0.018508159  |
| 1426 | 0.016923077  |
| 1428 | 0.03030303   |
| 1431 | 0.033379953  |
| 1433 | 0.058648019  |
| 1436 | 0.082051282  |
| 1438 | 0.092587413  |
| 1441 | 0.118321678  |
| 1443 | 0.139393939  |
| 1446 | 0.153939394  |
| 1448 | 0.154965035  |
| 1450 | 0.158321678  |
| 1453 | 0.157668998  |
| 1455 | 0.144941725  |
| 1458 | 0.128717949  |

|      |              |
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| 1460 | 0.084801865  |
| 1463 | 0.073006993  |
| 1465 | 0.057016317  |
| 1468 | 0.035431235  |
| 1470 | 0.033659674  |
| 1473 | 0.027459207  |
| 1475 | 0.015198135  |
| 1478 | 0.014358974  |
| 1480 | 0.007925408  |
| 1483 | 0.005687646  |
| 1485 | -0.003076923 |
| 1487 | 0.000979021  |
| 1490 | 0.004102564  |
| 1492 | -0.003030303 |
| 1495 | 0.005454545  |
| 1497 | 0.008111888  |
| 1500 | 0.006107226  |
| 1502 | -0.002843823 |
| 1505 | 0.002610723  |
| 1507 | -0.011188811 |
| 1510 | -4.662E-05   |
| 1512 | -0.002657343 |
| 1515 | -0.001538462 |
| 1517 | -0.004801865 |
| 1519 | -0.003216783 |
| 1522 | -0.002657343 |
| 1524 | -0.002097902 |
| 1527 | 0.012074592  |
| 1529 | 0.004335664  |
| 1532 | 0.008531469  |
| 1534 | 0.00993007   |
| 1537 | 0.008951049  |
| 1539 | 0.01034965   |
| 1541 | 0.008531469  |
| 1544 | 0.006759907  |
| 1546 | 0.0197669    |
| 1549 | 0.023449883  |
| 1551 | 0.024335664  |
| 1554 | 0.017529138  |
| 1556 | 0.021911422  |

|      |             |
|------|-------------|
| 1559 | 0.029277389 |
| 1561 | 0.025268065 |
| 1563 | 0.032447552 |
| 1566 | 0.032680653 |
| 1568 | 0.03006993  |
| 1571 | 0.029324009 |
| 1573 | 0.047925408 |
| 1576 | 0.056037296 |
| 1578 | 0.085594406 |
| 1580 | 0.160839161 |
| 1583 | 0.225641026 |
| 1585 | 0.245174825 |
| 1588 | 0.164708625 |
| 1590 | 0.165641026 |
| 1593 | 0.166526807 |
| 1595 | 0.167459207 |
| 1597 | 0.238974359 |
| 1600 | 0.376037296 |
| 1602 | 0.533799534 |
| 1605 | 0.481585082 |
| 1607 | 0.429137529 |
| 1610 | 0.252634033 |
| 1612 | 0.12979021  |
| 1614 | 0.073613054 |
| 1617 | 0.054452214 |
| 1619 | 0.031375291 |
| 1622 | 0.034871795 |
| 1624 | 0.032773893 |
| 1627 | 0.024382284 |
| 1629 | 0.025081585 |
| 1631 | 0.020652681 |
| 1634 | 0.019254079 |
| 1636 | 0.032540793 |
| 1639 | 0.015291375 |
| 1641 | 0.023682984 |
| 1643 | 0.030909091 |
| 1646 | 0.034452214 |
| 1648 | 0.036317016 |
| 1651 | 0.036083916 |
| 1653 | 0.043076923 |

|      |             |
|------|-------------|
| 1656 | 0.055710956 |
| 1658 | 0.061072261 |
| 1660 | 0.071095571 |
| 1663 | 0.076736597 |
| 1665 | 0.087459207 |
| 1668 | 0.092867133 |
| 1670 | 0.105221445 |
| 1672 | 0.114825175 |
| 1675 | 0.123449883 |
| 1677 | 0.12        |
| 1680 | 0.128438228 |
| 1682 | 0.117482517 |
| 1684 | 0.118228438 |
| 1687 | 0.116643357 |
| 1689 | 0.104335664 |
| 1692 | 0.091561772 |
| 1694 | 0.075291375 |
| 1696 | 0.059440559 |
| 1699 | 0.041771562 |
| 1701 | 0.032027972 |
| 1704 | 0.031375291 |
| 1706 | 0.012121212 |
| 1708 | 0.013566434 |
| 1711 | 0.004522145 |
| 1713 | 0.007599068 |
| 1716 | 0.008111888 |
| 1718 | 0.006993007 |
| 1720 | 0.023636364 |
| 1723 | 0.023682984 |
| 1725 | 0.020932401 |
| 1728 | 0.042004662 |
| 1730 | 0.036689977 |
| 1732 | 0.041864802 |
| 1735 | 0.041958042 |
| 1737 | 0.055524476 |
| 1739 | 0.065407925 |
| 1742 | 0.064895105 |
| 1744 | 0.064382284 |
| 1747 | 0.054452214 |
| 1749 | 0.056177156 |

|      |              |
|------|--------------|
| 1751 | 0.046666667  |
| 1754 | 0.03044289   |
| 1756 | 0.025641026  |
| 1759 | 0.014545455  |
| 1761 | 0.002983683  |
| 1763 | 0.01030303   |
| 1766 | 0.011515152  |
| 1768 | 0.00997669   |
| 1770 | 0.003543124  |
| 1773 | -0.001958042 |
| 1775 | -0.000652681 |
| 1778 | -0.005454545 |
| 1780 | -0.006759907 |
| 1782 | -0.001771562 |
| 1785 | -0.000512821 |
| 1787 | -0.002983683 |
| 1789 | -0.001072261 |
| 1792 | -0.000885781 |
| 1794 | -0.000652681 |
| 1797 | -0.0004662   |
| 1799 | 0.004568765  |
| 1801 | 0.005874126  |

**Figure S6:**

| pH    | Relative Turbidity<br>@630nm<br>After 50 mins | Relative Turbidity<br>@630nm<br>After 90 mins | Relative Turbidity<br>@630nm<br>After 120 mins |
|-------|-----------------------------------------------|-----------------------------------------------|------------------------------------------------|
| 6.83  | 0.00324                                       | 0.00324                                       | 0.00486618                                     |
| 7.38  | 0.00649                                       | 0.00649                                       | 0.00648824                                     |
| 7.77  | 0.07299                                       | 0.07461                                       | 0.077858881                                    |
| 8.17  | 0.50608                                       | 0.46715                                       | 0.456609895                                    |
| 8.55  | 0.90349                                       | 0.81995                                       | 0.787510138                                    |
| 8.64  | 0.88727                                       | 0.78670                                       | 0.768045418                                    |
| 9.37  | 0.98378                                       | 0.74777                                       | 0.661800487                                    |
| 9.54  | 1.00000                                       | 0.75345                                       | 0.641524736                                    |
| 10.14 | 0.63341                                       | 0.04136                                       | 0.02838605                                     |
| 10.31 | 0.68289                                       | 0.03731                                       | 0.01946472                                     |

**Figure S7:**

| Wavelength<br>(nm) | Normalized Fluorescence in<br>Coacervate | Normalized Fluorescence in<br>Water |
|--------------------|------------------------------------------|-------------------------------------|
| 410                | 0.166                                    | 0.000                               |
| 411                | 0.186                                    | 0.011                               |
| 412                | 0.200                                    | 0.012                               |
| 413                | 0.230                                    | 0.030                               |
| 414                | 0.238                                    | 0.041                               |
| 415                | 0.258                                    | 0.035                               |
| 416                | 0.285                                    | 0.041                               |
| 417                | 0.315                                    | 0.048                               |
| 418                | 0.319                                    | 0.051                               |
| 419                | 0.346                                    | 0.051                               |
| 420                | 0.369                                    | 0.048                               |
| 421                | 0.389                                    | 0.057                               |
| 422                | 0.408                                    | 0.060                               |
| 423                | 0.436                                    | 0.055                               |
| 424                | 0.457                                    | 0.055                               |
| 425                | 0.476                                    | 0.068                               |
| 426                | 0.496                                    | 0.063                               |
| 427                | 0.524                                    | 0.073                               |
| 428                | 0.562                                    | 0.076                               |
| 429                | 0.576                                    | 0.077                               |
| 430                | 0.616                                    | 0.081                               |
| 431                | 0.647                                    | 0.089                               |
| 432                | 0.673                                    | 0.092                               |
| 433                | 0.690                                    | 0.103                               |
| 434                | 0.725                                    | 0.106                               |
| 435                | 0.759                                    | 0.106                               |
| 436                | 0.795                                    | 0.118                               |
| 437                | 0.816                                    | 0.123                               |
| 438                | 0.840                                    | 0.125                               |
| 439                | 0.856                                    | 0.130                               |
| 440                | 0.882                                    | 0.140                               |
| 441                | 0.894                                    | 0.142                               |
| 442                | 0.903                                    | 0.142                               |
| 443                | 0.928                                    | 0.144                               |
| 444                | 0.933                                    | 0.147                               |
| 445                | 0.947                                    | 0.147                               |

|     |       |       |
|-----|-------|-------|
| 446 | 0.955 | 0.160 |
| 447 | 0.960 | 0.156 |
| 448 | 0.967 | 0.155 |
| 449 | 0.972 | 0.164 |
| 450 | 0.975 | 0.163 |
| 451 | 0.987 | 0.158 |
| 452 | 0.985 | 0.171 |
| 453 | 0.992 | 0.168 |
| 454 | 0.997 | 0.174 |
| 455 | 0.992 | 0.172 |
| 456 | 0.989 | 0.171 |
| 457 | 1.000 | 0.182 |
| 458 | 0.995 | 0.182 |
| 459 | 0.985 | 0.186 |
| 460 | 0.984 | 0.190 |
| 461 | 0.975 | 0.193 |
| 462 | 0.975 | 0.196 |
| 463 | 0.963 | 0.214 |
| 464 | 0.956 | 0.212 |
| 465 | 0.943 | 0.221 |
| 466 | 0.929 | 0.226 |
| 467 | 0.923 | 0.234 |
| 468 | 0.909 | 0.235 |
| 469 | 0.899 | 0.248 |
| 470 | 0.893 | 0.254 |
| 471 | 0.893 | 0.264 |
| 472 | 0.874 | 0.267 |
| 473 | 0.859 | 0.279 |
| 474 | 0.860 | 0.291 |
| 475 | 0.845 | 0.300 |
| 476 | 0.829 | 0.312 |
| 477 | 0.812 | 0.328 |
| 478 | 0.806 | 0.330 |
| 479 | 0.777 | 0.352 |
| 480 | 0.771 | 0.369 |
| 481 | 0.757 | 0.375 |
| 482 | 0.732 | 0.395 |
| 483 | 0.713 | 0.415 |
| 484 | 0.695 | 0.431 |
| 485 | 0.678 | 0.448 |

|     |       |       |
|-----|-------|-------|
| 486 | 0.668 | 0.467 |
| 487 | 0.645 | 0.481 |
| 488 | 0.632 | 0.500 |
| 489 | 0.617 | 0.520 |
| 490 | 0.607 | 0.542 |
| 491 | 0.586 | 0.552 |
| 492 | 0.569 | 0.576 |
| 493 | 0.560 | 0.604 |
| 494 | 0.549 | 0.610 |
| 495 | 0.535 | 0.633 |
| 496 | 0.509 | 0.661 |
| 497 | 0.508 | 0.675 |
| 498 | 0.499 | 0.692 |
| 499 | 0.475 | 0.712 |
| 500 | 0.470 | 0.730 |
| 501 | 0.458 | 0.754 |
| 502 | 0.441 | 0.765 |
| 503 | 0.440 | 0.782 |
| 504 | 0.416 | 0.808 |
| 505 | 0.398 | 0.827 |
| 506 | 0.392 | 0.852 |
| 507 | 0.380 | 0.854 |
| 508 | 0.353 | 0.879 |
| 509 | 0.349 | 0.891 |
| 510 | 0.338 | 0.906 |
| 511 | 0.330 | 0.915 |
| 512 | 0.316 | 0.931 |
| 513 | 0.311 | 0.945 |
| 514 | 0.295 | 0.945 |
| 515 | 0.280 | 0.958 |
| 516 | 0.280 | 0.974 |
| 517 | 0.262 | 0.974 |
| 518 | 0.259 | 0.979 |
| 519 | 0.251 | 0.981 |
| 520 | 0.243 | 0.989 |
| 521 | 0.233 | 0.992 |
| 522 | 0.217 | 0.997 |
| 523 | 0.227 | 0.999 |
| 524 | 0.215 | 1.000 |
| 525 | 0.205 | 0.994 |

|     |       |       |
|-----|-------|-------|
| 526 | 0.196 | 0.991 |
| 527 | 0.196 | 0.995 |
| 528 | 0.191 | 0.990 |
| 529 | 0.180 | 0.975 |
| 530 | 0.176 | 0.977 |
| 531 | 0.157 | 0.969 |
| 532 | 0.146 | 0.949 |
| 533 | 0.146 | 0.946 |
| 534 | 0.155 | 0.939 |
| 535 | 0.145 | 0.927 |
| 536 | 0.122 | 0.902 |
| 537 | 0.125 | 0.899 |
| 538 | 0.135 | 0.886 |
| 539 | 0.122 | 0.876 |
| 540 | 0.125 | 0.862 |
| 541 | 0.115 | 0.852 |
| 542 | 0.098 | 0.845 |
| 543 | 0.099 | 0.829 |
| 544 | 0.094 | 0.811 |
| 545 | 0.094 | 0.803 |
| 546 | 0.091 | 0.789 |
| 547 | 0.094 | 0.787 |
| 548 | 0.093 | 0.771 |
| 549 | 0.084 | 0.745 |
| 550 | 0.071 | 0.741 |
| 551 | 0.084 | 0.713 |
| 552 | 0.076 | 0.717 |
| 553 | 0.073 | 0.697 |
| 554 | 0.073 | 0.669 |
| 555 | 0.064 | 0.652 |
| 556 | 0.060 | 0.643 |
| 557 | 0.052 | 0.619 |
| 558 | 0.060 | 0.599 |
| 559 | 0.054 | 0.604 |
| 560 | 0.050 | 0.584 |
| 561 | 0.054 | 0.570 |
| 562 | 0.054 | 0.552 |
| 563 | 0.048 | 0.547 |
| 564 | 0.043 | 0.529 |
| 565 | 0.050 | 0.514 |

|     |       |       |
|-----|-------|-------|
| 566 | 0.044 | 0.507 |
| 567 | 0.037 | 0.502 |
| 568 | 0.028 | 0.484 |
| 569 | 0.035 | 0.476 |
| 570 | 0.034 | 0.465 |
| 571 | 0.038 | 0.460 |
| 572 | 0.035 | 0.439 |
| 573 | 0.035 | 0.425 |
| 574 | 0.033 | 0.413 |
| 575 | 0.042 | 0.414 |
| 576 | 0.037 | 0.394 |
| 577 | 0.021 | 0.382 |
| 578 | 0.033 | 0.362 |
| 579 | 0.030 | 0.361 |
| 580 | 0.040 | 0.352 |
| 581 | 0.019 | 0.335 |
| 582 | 0.016 | 0.331 |
| 583 | 0.028 | 0.318 |
| 584 | 0.033 | 0.302 |
| 585 | 0.018 | 0.300 |
| 586 | 0.020 | 0.298 |
| 587 | 0.014 | 0.291 |
| 588 | 0.013 | 0.285 |
| 589 | 0.015 | 0.278 |
| 590 | 0.015 | 0.268 |
| 591 | 0.011 | 0.256 |
| 592 | 0.004 | 0.252 |
| 593 | 0.013 | 0.247 |
| 594 | 0.033 | 0.234 |
| 595 | 0.025 | 0.239 |
| 596 | 0.015 | 0.229 |
| 597 | 0.010 | 0.216 |
| 598 | 0.000 | 0.223 |
| 599 | 0.023 | 0.214 |
| 600 | 0.009 | 0.205 |
| 601 | 0.029 | 0.183 |
| 602 | 0.009 | 0.186 |
| 603 | 0.000 | 0.185 |
| 604 | 0.000 | 0.181 |
| 605 | 0.000 | 0.176 |

|     |       |       |
|-----|-------|-------|
| 606 | 0.013 | 0.171 |
| 607 | 0.008 | 0.165 |
| 608 | 0.000 | 0.166 |
| 609 | 0.000 | 0.151 |
| 610 | 0.010 | 0.149 |
| 611 | 0.023 | 0.148 |
| 612 | 0.016 | 0.142 |
| 613 | 0.015 | 0.150 |
| 614 | 0.000 | 0.139 |
| 615 | 0.000 | 0.129 |
| 616 | 0.010 | 0.131 |
| 617 | 0.000 | 0.126 |
| 618 | 0.000 | 0.127 |
| 619 | 0.019 | 0.123 |
| 620 | 0.011 | 0.116 |
| 621 | 0.019 | 0.111 |
| 622 | 0.019 | 0.089 |
| 623 | 0.000 | 0.099 |
| 624 | 0.000 | 0.091 |
| 625 | 0.000 | 0.088 |
| 626 | 0.009 | 0.085 |
| 627 | 0.015 | 0.087 |
| 628 | 0.000 | 0.087 |
| 629 | 0.000 | 0.082 |
| 630 | 0.000 | 0.089 |
| 631 | 0.000 | 0.089 |
| 632 | 0.052 | 0.073 |
| 633 | 0.000 | 0.084 |
| 634 | 0.016 | 0.075 |
| 635 | 0.000 | 0.056 |
| 636 | 0.004 | 0.062 |
| 637 | 0.006 | 0.084 |
| 638 | 0.034 | 0.076 |
| 639 | 0.001 | 0.067 |
| 640 | 0.000 | 0.064 |
| 641 | 0.000 | 0.038 |
| 642 | 0.019 | 0.065 |
| 643 | 0.000 | 0.058 |
| 644 | 0.006 | 0.027 |
| 645 | 0.003 | 0.076 |

|     |       |       |
|-----|-------|-------|
| 646 | 0.000 | 0.026 |
| 647 | 0.018 | 0.050 |
| 648 | 0.030 | 0.044 |
| 649 | 0.000 | 0.056 |
| 650 | 0.000 | 0.023 |

**Figure S8:**

b)

| Time (s)   | Average Fluorescence Intensity | Standard Deviation |
|------------|--------------------------------|--------------------|
| 0          | 0.252093638                    | 0.009154714        |
| 0.8998841  | 0.259768609                    | 0.009496613        |
| 1.9038944  | 0.278320151                    | 0.009667949        |
| 2.8948887  | 0.289993211                    | 0.009969057        |
| 3.9019025  | 0.305466971                    | 0.009162925        |
| 4.8908944  | 0.320320334                    | 0.010353043        |
| 5.8989094  | 0.325347598                    | 0.010956574        |
| 6.8959112  | 0.34138723                     | 0.010946388        |
| 7.8959164  | 0.356491815                    | 0.012222956        |
| 8.9039314  | 0.362024775                    | 0.014019367        |
| 9.8959271  | 0.370126508                    | 0.013042878        |
| 10.8969334 | 0.387501918                    | 0.012049514        |
| 11.9049484 | 0.39419217                     | 0.014851216        |
| 12.8949416 | 0.399206536                    | 0.015128132        |
| 13.9019555 | 0.424167342                    | 0.015043334        |
| 14.8939512 | 0.41499234                     | 0.015087389        |
| 15.8979612 | 0.43143248                     | 0.016440767        |
| 16.9039739 | 0.430731279                    | 0.015692248        |
| 17.8959694 | 0.445791757                    | 0.017565622        |
| 18.9009807 | 0.454404696                    | 0.018647874        |
| 19.9039898 | 0.464321091                    | 0.015628987        |
| 20.8959853 | 0.479641444                    | 0.018344861        |
| 21.9040003 | 0.487909942                    | 0.016829616        |
| 22.8959959 | 0.491628587                    | 0.016741465        |
| 23.9030098 | 0.505058781                    | 0.018434534        |
| 24.8899994 | 0.517769302                    | 0.017860175        |
| 25.897013  | 0.522359734                    | 0.017185329        |
| 26.9030257 | 0.531960563                    | 0.01802821         |
| 27.8950212 | 0.525286712                    | 0.018808566        |

|            |             |             |
|------------|-------------|-------------|
| 28.9030362 | 0.544363075 | 0.021337505 |
| 29.8920282 | 0.537480292 | 0.020516995 |
| 30.8980407 | 0.549880522 | 0.019091273 |
| 31.8900364 | 0.555990226 | 0.019887092 |
| 32.8960491 | 0.554465981 | 0.019261107 |
| 33.9010603 | 0.560594    | 0.020716024 |
| 34.8920548 | 0.573740497 | 0.019057526 |
| 35.8970662 | 0.572361175 | 0.019966562 |
| 36.9010762 | 0.581313151 | 0.022020008 |
| 37.8930718 | 0.589966456 | 0.019743793 |
| 38.9010869 | 0.590932816 | 0.02250718  |
| 39.8930825 | 0.590505538 | 0.020152845 |
| 40.9000962 | 0.598675078 | 0.020062174 |
| 41.9051075 | 0.599846319 | 0.022206478 |
| 42.8961021 | 0.601659785 | 0.021913636 |
| 43.9021146 | 0.609415282 | 0.022285128 |
| 44.8901053 | 0.607552759 | 0.021568351 |
| 45.8971191 | 0.615879464 | 0.02190127  |
| 46.9021305 | 0.611270518 | 0.023795555 |
| 47.8921237 | 0.622571747 | 0.022009494 |
| 48.897135  | 0.617271681 | 0.023483431 |
| 49.8901319 | 0.627888579 | 0.023650686 |
| 50.8971457 | 0.631392925 | 0.02404984  |
| 51.9051607 | 0.625246906 | 0.024672629 |
| 52.8941525 | 0.629692267 | 0.025133521 |
| 53.9011664 | 0.639565528 | 0.025871755 |
| 54.8911596 | 0.648382973 | 0.023507032 |
| 55.8991746 | 0.649575535 | 0.025220346 |
| 56.8911703 | 0.650018999 | 0.024182186 |
| 57.8981839 | 0.657295515 | 0.025892506 |
| 58.9031953 | 0.658974281 | 0.025484657 |
| 59.8921873 | 0.666321106 | 0.025356075 |
| 60.8992012 | 0.674095179 | 0.024247965 |
| 61.9052137 | 0.66947642  | 0.026390855 |
| 62.8952069 | 0.674442792 | 0.023556636 |
| 63.9002182 | 0.684954805 | 0.026605244 |
| 64.8902114 | 0.676613706 | 0.026449638 |
| 65.8972253 | 0.679739004 | 0.027264106 |
| 66.9042389 | 0.679211676 | 0.02632768  |
| 67.8962346 | 0.680413072 | 0.025538601 |

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|-------------|-------------|-------------|
| 68.9042496  | 0.686603097 | 0.025858274 |
| 69.8922403  | 0.691021265 | 0.028097577 |
| 70.8992541  | 0.704117894 | 0.026741171 |
| 71.8912498  | 0.696324357 | 0.027544749 |
| 72.8972623  | 0.701139727 | 0.027783742 |
| 73.9032748  | 0.704829667 | 0.028660539 |
| 74.8952705  | 0.70614927  | 0.02943766  |
| 75.9022843  | 0.711097997 | 0.026082346 |
| 76.8932787  | 0.703641214 | 0.028178796 |
| 77.89829    | 0.705949745 | 0.028259134 |
| 78.8902857  | 0.712389359 | 0.027655394 |
| 79.8922934  | 0.713643154 | 0.028149325 |
| 80.8993071  | 0.717502662 | 0.028413695 |
| 81.8903016  | 0.721205308 | 0.027399204 |
| 82.895313   | 0.722646322 | 0.028268872 |
| 83.9023266  | 0.725894552 | 0.026722746 |
| 84.8923198  | 0.731966535 | 0.027280602 |
| 85.89633    | 0.727542083 | 0.027720036 |
| 86.9023425  | 0.726050224 | 0.029041944 |
| 87.8923357  | 0.733811217 | 0.026970062 |
| 88.8963459  | 0.733383968 | 0.029046321 |
| 89.9043609  | 0.729117359 | 0.028660989 |
| 90.8953553  | 0.739164883 | 0.02916851  |
| 91.9033703  | 0.739455206 | 0.029792323 |
| 92.8923623  | 0.744312005 | 0.030331659 |
| 93.9003773  | 0.744767032 | 0.028916151 |
| 94.8903705  | 0.753132168 | 0.029332833 |
| 95.8983855  | 0.751347477 | 0.029413517 |
| 96.8903812  | 0.756331945 | 0.030305448 |
| 97.8943912  | 0.755824411 | 0.030037361 |
| 98.8974003  | 0.756649512 | 0.030187966 |
| 99.9044141  | 0.758534528 | 0.030369168 |
| 100.8964096 | 0.756616704 | 0.03315322  |
| 101.9044246 | 0.759508426 | 0.031331024 |
| 102.8924153 | 0.767432899 | 0.028933945 |
| 103.8994291 | 0.768952386 | 0.031328206 |
| 104.8914248 | 0.769177924 | 0.030306418 |
| 105.8994398 | 0.776338162 | 0.030324028 |
| 106.8904341 | 0.771833361 | 0.032981575 |
| 107.8924419 | 0.780395562 | 0.032217315 |

|             |             |             |
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| 108.9004569 | 0.78222526  | 0.029065738 |
| 109.89045   | 0.781119547 | 0.030249311 |
| 110.8974639 | 0.780979752 | 0.030084902 |
| 111.9044775 | 0.780757172 | 0.032525541 |
| 112.8944707 | 0.782904007 | 0.0294607   |
| 113.9004834 | 0.787995637 | 0.032397565 |
| 114.8924789 | 0.786473963 | 0.03127922  |
| 115.895488  | 0.790329922 | 0.029189483 |
| 116.8964943 | 0.786229819 | 0.028693007 |
| 117.9045096 | 0.787285519 | 0.029693536 |
| 118.896505  | 0.78707461  | 0.03295829  |
| 119.9035189 | 0.793972665 | 0.031239002 |
| 120.8955143 | 0.787425864 | 0.032387351 |
| 121.9015271 | 0.791832196 | 0.033277223 |
| 122.8925214 | 0.799341027 | 0.033266226 |
| 123.9015375 | 0.79741875  | 0.03272497  |
| 124.8925321 | 0.801241521 | 0.03308787  |
| 125.8985446 | 0.80129042  | 0.031331978 |
| 126.8915414 | 0.805364934 | 0.030891526 |
| 127.8985553 | 0.801598077 | 0.033405636 |
| 128.8905507 | 0.806912345 | 0.030618781 |
| 129.8965634 | 0.803846336 | 0.03237982  |
| 130.9035771 | 0.80048445  | 0.03233495  |
| 131.8955728 | 0.805179389 | 0.029851005 |
| 132.9035878 | 0.800438609 | 0.032294439 |
| 133.8945821 | 0.801950758 | 0.03141193  |
| 134.9015959 | 0.814398367 | 0.031725962 |
| 135.8925903 | 0.810874128 | 0.033186047 |
| 136.9006053 | 0.808705386 | 0.03229658  |
| 137.9046155 | 0.81705378  | 0.03256302  |
| 138.8966112 | 0.813572182 | 0.033637946 |
| 139.9036248 | 0.816567644 | 0.033248178 |
| 140.8956205 | 0.817905258 | 0.031209723 |
| 141.901633  | 0.811176087 | 0.035402576 |
| 142.8936287 | 0.816508847 | 0.032304644 |
| 143.9016437 | 0.821647943 | 0.032001919 |
| 144.8936393 | 0.824508666 | 0.032205383 |
| 145.8986507 | 0.824012576 | 0.033523475 |
| 146.8906462 | 0.828196674 | 0.031259176 |
| 147.8956575 | 0.824096984 | 0.032351191 |

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|-------------|-------------|-------------|
| 148.9006689 | 0.825468401 | 0.03351043  |
| 149.9056803 | 0.822486642 | 0.033418823 |
| 150.8956734 | 0.827052172 | 0.031851225 |
| 151.9026873 | 0.827499224 | 0.033306668 |
| 152.8936816 | 0.829531556 | 0.0328394   |
| 153.8996943 | 0.837033877 | 0.034175007 |
| 154.8906887 | 0.830692664 | 0.035255972 |
| 155.8977025 | 0.836553809 | 0.034988484 |
| 156.9047162 | 0.836795954 | 0.032703176 |
| 157.8957107 | 0.837523701 | 0.031991282 |
| 158.9027244 | 0.830547645 | 0.032136443 |
| 159.89472   | 0.826005212 | 0.032866732 |
| 160.9017339 | 0.839983307 | 0.034356416 |
| 161.8937294 | 0.83915778  | 0.030294838 |
| 162.9007432 | 0.836063476 | 0.034623825 |
| 163.8927389 | 0.847933022 | 0.033254779 |
| 164.8987514 | 0.847252408 | 0.034593589 |
| 165.9027616 | 0.845983064 | 0.03525441  |
| 166.8947571 | 0.842581324 | 0.033007146 |
| 167.8977662 | 0.842629077 | 0.033575366 |
| 168.9047798 | 0.846599917 | 0.03265111  |
| 169.8967755 | 0.847079267 | 0.034798901 |
| 170.9007857 | 0.852350557 | 0.033636313 |
| 171.9037946 | 0.848919124 | 0.033724196 |
| 172.8957903 | 0.849828679 | 0.034057119 |
| 173.9018028 | 0.853180776 | 0.035541016 |
| 174.8937984 | 0.850005037 | 0.03214956  |
| 175.8998109 | 0.848199286 | 0.034425492 |
| 176.8918066 | 0.851435202 | 0.035106721 |
| 177.8998216 | 0.855620475 | 0.032852614 |
| 178.8908159 | 0.8473344   | 0.034830589 |
| 179.8958273 | 0.850460526 | 0.034839636 |
| 180.9008387 | 0.853032879 | 0.03624296  |
| 181.9048489 | 0.851601261 | 0.035032418 |
| 182.8968443 | 0.851849006 | 0.032717702 |
| 183.9038582 | 0.851545049 | 0.033587943 |
| 184.8938514 | 0.856095605 | 0.034478857 |
| 185.8988628 | 0.85482502  | 0.032709982 |
| 186.9048753 | 0.855073675 | 0.032862982 |
| 187.8958698 | 0.858777986 | 0.032949476 |

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|-------------|-------------|-------------|
| 188.9018823 | 0.854644115 | 0.032953902 |
| 189.8918755 | 0.867241807 | 0.033385011 |
| 190.8988894 | 0.864595384 | 0.03097133  |
| 191.8898837 | 0.860713933 | 0.03510979  |
| 192.894895  | 0.874400219 | 0.034260197 |
| 193.9009075 | 0.859533288 | 0.032270016 |
| 194.8919021 | 0.858655303 | 0.035904489 |
| 195.8969134 | 0.857806445 | 0.031324163 |
| 196.9049284 | 0.865736808 | 0.03282288  |
| 197.8959228 | 0.871375651 | 0.033449198 |
| 198.9039378 | 0.872260026 | 0.034790289 |
| 199.8959334 | 0.870065944 | 0.032931963 |
| 200.9039484 | 0.871214916 | 0.033182412 |
| 201.8969453 | 0.859850619 | 0.033896179 |
| 202.8999541 | 0.863338463 | 0.035108269 |
| 203.8919498 | 0.866732876 | 0.033349779 |
| 204.8989634 | 0.871554034 | 0.035019466 |
| 205.9019725 | 0.86739928  | 0.034083724 |
| 206.893968  | 0.872952146 | 0.032915692 |
| 207.9009819 | 0.870120846 | 0.03418645  |
| 208.8919762 | 0.872553845 | 0.033325705 |
| 209.89899   | 0.870741868 | 0.033068212 |
| 210.9050025 | 0.875087423 | 0.033713287 |
| 211.8959971 | 0.871939579 | 0.033791205 |
| 212.9040121 | 0.873510584 | 0.033657727 |
| 213.8940053 | 0.869450527 | 0.034446522 |
| 214.9010189 | 0.873653157 | 0.034462914 |
| 215.8920134 | 0.876982984 | 0.035146361 |
| 216.8990271 | 0.874837886 | 0.033920417 |
| 217.8900216 | 0.874881423 | 0.032822077 |
| 218.8980366 | 0.870638592 | 0.032944241 |
| 219.9040491 | 0.873484598 | 0.0333921   |
| 220.8930412 | 0.880100952 | 0.033743828 |
| 221.9000548 | 0.879146631 | 0.034765718 |
| 222.890048  | 0.884320623 | 0.032233812 |
| 223.8940582 | 0.8775875   | 0.032172708 |
| 224.8990696 | 0.884358885 | 0.032637253 |
| 225.9040809 | 0.877870327 | 0.03539662  |
| 226.8940741 | 0.879693326 | 0.034834438 |
| 227.9000866 | 0.881181802 | 0.033837382 |

|             |             |             |
|-------------|-------------|-------------|
| 228.8910812 | 0.877759491 | 0.032651438 |
| 229.8960925 | 0.878361277 | 0.033638418 |
| 230.9041075 | 0.881065266 | 0.031440996 |
| 231.896103  | 0.882345716 | 0.034375244 |
| 232.9021157 | 0.882837184 | 0.032132489 |
| 233.8941112 | 0.87702216  | 0.034678058 |
| 234.9031275 | 0.882220858 | 0.034565717 |
| 235.8931207 | 0.88438476  | 0.034443742 |

c)

| a*Width <sup>2</sup> (Pa <sup>-1</sup> ) | Half-Life (s) |
|------------------------------------------|---------------|
| 0.972627972                              | 32.328200     |
| 1.294918898                              | 42.415356     |
| 1.663251384                              | 59.471577     |
| 2.077625432                              | 71.880325     |

**Figure S9:**

| Time (h) | Normalized Turbidity for PFF-OMe Coacervates Containing Cyclohexanone | Normalized Turbidity for PFF-OMe Coacervates Without Cyclohexanone |
|----------|-----------------------------------------------------------------------|--------------------------------------------------------------------|
| 0.083    | 1.000                                                                 | 0.256                                                              |
| 0.500    | 0.994                                                                 | 0.316                                                              |
| 0.983    | 0.950                                                                 | 0.360                                                              |
| 1.550    | 0.951                                                                 | 0.317                                                              |
| 2.000    | 0.924                                                                 | 0.299                                                              |

**Figure S10:**

Raman spectrum of aqueous solution of cyclohexanone:

| Wavenumber (cm <sup>-1</sup> ) | Mean Normalized Intensity |
|--------------------------------|---------------------------|
| 498.2                          | 0.1101                    |
| 501.4                          | 0.1193                    |
| 504.6                          | 0.1275                    |
| 507.9                          | 0.1356                    |
| 511.1                          | 0.1365                    |
| 514.3                          | 0.1253                    |
| 517.5                          | 0.1110                    |

|       |         |
|-------|---------|
| 520.7 | 0.0882  |
| 523.9 | 0.0738  |
| 527.1 | 0.0519  |
| 530.3 | 0.0429  |
| 533.5 | 0.0346  |
| 536.8 | 0.0268  |
| 540.0 | 0.0219  |
| 543.2 | 0.0176  |
| 546.4 | 0.0113  |
| 549.6 | 0.0155  |
| 552.8 | 0.0115  |
| 556.0 | 0.0145  |
| 559.2 | 0.0082  |
| 562.4 | 0.0089  |
| 565.6 | 0.0087  |
| 568.7 | 0.0065  |
| 571.9 | 0.0068  |
| 575.1 | 0.0008  |
| 578.3 | 0.0038  |
| 581.5 | 0.0026  |
| 584.7 | 0.0024  |
| 587.9 | 0.0084  |
| 591.1 | 0.0090  |
| 594.3 | 0.0100  |
| 597.4 | 0.0145  |
| 600.6 | 0.0150  |
| 603.8 | 0.0113  |
| 607.0 | 0.0055  |
| 610.2 | 0.0030  |
| 613.3 | 0.0019  |
| 616.5 | 0.0012  |
| 619.7 | -0.0053 |
| 622.9 | -0.0003 |
| 626.0 | -0.0005 |
| 629.2 | 0.0064  |
| 632.4 | 0.0167  |
| 635.5 | 0.0261  |
| 638.7 | 0.0421  |
| 641.9 | 0.0612  |
| 645.0 | 0.0880  |

|       |         |
|-------|---------|
| 648.2 | 0.1240  |
| 651.4 | 0.1782  |
| 654.5 | 0.2384  |
| 657.7 | 0.3043  |
| 660.8 | 0.3560  |
| 664.0 | 0.3972  |
| 667.2 | 0.3963  |
| 670.3 | 0.3665  |
| 673.5 | 0.3125  |
| 676.6 | 0.2418  |
| 679.8 | 0.1820  |
| 682.9 | 0.1291  |
| 686.1 | 0.0870  |
| 689.2 | 0.0604  |
| 692.4 | 0.0403  |
| 695.5 | 0.0215  |
| 698.7 | 0.0118  |
| 701.8 | 0.0042  |
| 704.9 | 0.0016  |
| 708.1 | -0.0016 |
| 711.2 | -0.0024 |
| 714.4 | -0.0009 |
| 717.5 | -0.0051 |
| 720.6 | -0.0056 |
| 723.8 | -0.0061 |
| 726.9 | 0.0002  |
| 730.0 | 0.0067  |
| 733.2 | 0.0131  |
| 736.3 | 0.0247  |
| 739.4 | 0.0454  |
| 742.5 | 0.0730  |
| 745.7 | 0.1148  |
| 748.8 | 0.1563  |
| 751.9 | 0.2145  |
| 755.0 | 0.3297  |
| 758.2 | 0.5232  |
| 761.3 | 0.7927  |
| 764.4 | 1.0000  |
| 767.5 | 0.9731  |
| 770.6 | 0.7289  |

|       |        |
|-------|--------|
| 773.8 | 0.4735 |
| 776.9 | 0.3103 |
| 780.0 | 0.2238 |
| 783.1 | 0.1769 |
| 786.2 | 0.1470 |
| 789.3 | 0.1350 |
| 792.4 | 0.1270 |
| 795.5 | 0.1316 |
| 798.6 | 0.1352 |
| 801.7 | 0.1369 |
| 804.9 | 0.1405 |
| 808.0 | 0.1392 |
| 811.1 | 0.1420 |
| 814.2 | 0.1494 |
| 817.3 | 0.1590 |
| 820.4 | 0.1752 |
| 823.5 | 0.1876 |
| 826.5 | 0.1992 |
| 829.6 | 0.2075 |
| 832.7 | 0.2264 |
| 835.8 | 0.2517 |
| 838.9 | 0.3034 |
| 842.0 | 0.3917 |
| 845.1 | 0.5448 |
| 848.2 | 0.7193 |
| 851.3 | 0.7147 |
| 854.4 | 0.4849 |
| 857.4 | 0.2803 |
| 860.5 | 0.1855 |
| 863.6 | 0.1432 |
| 866.7 | 0.1199 |
| 869.8 | 0.1130 |
| 872.8 | 0.1064 |
| 875.9 | 0.0942 |
| 879.0 | 0.0807 |
| 882.1 | 0.0733 |
| 885.2 | 0.0693 |
| 888.2 | 0.0713 |
| 891.3 | 0.0709 |
| 894.4 | 0.0729 |

|       |         |
|-------|---------|
| 897.4 | 0.0757  |
| 900.5 | 0.0773  |
| 903.6 | 0.0786  |
| 906.6 | 0.0753  |
| 909.7 | 0.0674  |
| 912.8 | 0.0690  |
| 915.8 | 0.0745  |
| 918.9 | 0.0675  |
| 921.9 | 0.0499  |
| 925.0 | 0.0310  |
| 928.1 | 0.0165  |
| 931.1 | 0.0105  |
| 934.2 | 0.0067  |
| 937.2 | 0.0006  |
| 940.3 | -0.0034 |
| 943.3 | -0.0076 |
| 946.4 | -0.0059 |
| 949.4 | -0.0107 |
| 952.5 | -0.0113 |
| 955.5 | -0.0119 |
| 958.6 | -0.0115 |
| 961.6 | -0.0093 |
| 964.7 | -0.0089 |
| 967.7 | -0.0105 |
| 970.8 | -0.0075 |
| 973.8 | -0.0037 |
| 976.8 | -0.0031 |
| 979.9 | 0.0050  |
| 982.9 | 0.0120  |
| 985.9 | 0.0243  |
| 989.0 | 0.0423  |
| 992.0 | 0.0748  |
| 995.0 | 0.1150  |
| 998.1 | 0.1549  |
| 1001  | 0.1528  |
| 1004  | 0.1157  |
| 1007  | 0.0914  |
| 1010  | 0.0885  |
| 1013  | 0.1073  |
| 1016  | 0.1436  |

|      |         |
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| 1019 | 0.2090  |
| 1022 | 0.3146  |
| 1025 | 0.4313  |
| 1028 | 0.4877  |
| 1031 | 0.4140  |
| 1034 | 0.2929  |
| 1037 | 0.2295  |
| 1040 | 0.2206  |
| 1043 | 0.2557  |
| 1046 | 0.3030  |
| 1049 | 0.3107  |
| 1052 | 0.2766  |
| 1055 | 0.2286  |
| 1058 | 0.1870  |
| 1061 | 0.1410  |
| 1064 | 0.1006  |
| 1067 | 0.0805  |
| 1070 | 0.0863  |
| 1073 | 0.1115  |
| 1076 | 0.1498  |
| 1079 | 0.1803  |
| 1082 | 0.1795  |
| 1085 | 0.1278  |
| 1088 | 0.0685  |
| 1091 | 0.0326  |
| 1094 | 0.0114  |
| 1097 | 0.0005  |
| 1100 | -0.0032 |
| 1103 | -0.0019 |
| 1106 | 0.0087  |
| 1109 | 0.0269  |
| 1112 | 0.0646  |
| 1115 | 0.1148  |
| 1118 | 0.1812  |
| 1121 | 0.2446  |
| 1124 | 0.2654  |
| 1127 | 0.1942  |
| 1130 | 0.1166  |
| 1133 | 0.0795  |
| 1136 | 0.0543  |

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| 1139 | 0.0348  |
| 1142 | 0.0204  |
| 1145 | 0.0123  |
| 1148 | 0.0040  |
| 1151 | 0.0004  |
| 1154 | -0.0017 |
| 1157 | -0.0014 |
| 1160 | -0.0032 |
| 1163 | -0.0027 |
| 1166 | 0.0015  |
| 1169 | -0.0012 |
| 1172 | 0.0000  |
| 1175 | 0.0016  |
| 1178 | -0.0006 |
| 1181 | 0.0037  |
| 1184 | 0.0038  |
| 1187 | 0.0062  |
| 1190 | 0.0098  |
| 1193 | 0.0095  |
| 1196 | 0.0129  |
| 1199 | 0.0138  |
| 1202 | 0.0201  |
| 1205 | 0.0225  |
| 1207 | 0.0286  |
| 1210 | 0.0369  |
| 1213 | 0.0510  |
| 1216 | 0.0630  |
| 1219 | 0.0708  |
| 1222 | 0.0843  |
| 1225 | 0.1073  |
| 1228 | 0.1364  |
| 1231 | 0.1608  |
| 1234 | 0.1712  |
| 1237 | 0.1706  |
| 1240 | 0.1567  |
| 1243 | 0.1372  |
| 1246 | 0.1148  |
| 1249 | 0.1245  |
| 1252 | 0.1616  |
| 1255 | 0.2051  |

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| 1258 | 0.2156 |
| 1260 | 0.1845 |
| 1263 | 0.1466 |
| 1266 | 0.1135 |
| 1269 | 0.0979 |
| 1272 | 0.1002 |
| 1275 | 0.1095 |
| 1278 | 0.1118 |
| 1281 | 0.1023 |
| 1284 | 0.0810 |
| 1287 | 0.0651 |
| 1290 | 0.0531 |
| 1293 | 0.0495 |
| 1296 | 0.0493 |
| 1299 | 0.0582 |
| 1301 | 0.0682 |
| 1304 | 0.0918 |
| 1307 | 0.1187 |
| 1310 | 0.1520 |
| 1313 | 0.1980 |
| 1316 | 0.2597 |
| 1319 | 0.3357 |
| 1322 | 0.3841 |
| 1325 | 0.3696 |
| 1328 | 0.2972 |
| 1331 | 0.2040 |
| 1333 | 0.1355 |
| 1336 | 0.0964 |
| 1339 | 0.0664 |
| 1342 | 0.0528 |
| 1345 | 0.0510 |
| 1348 | 0.0566 |
| 1351 | 0.0674 |
| 1354 | 0.0836 |
| 1357 | 0.0944 |
| 1360 | 0.0866 |
| 1362 | 0.0571 |
| 1365 | 0.0324 |
| 1368 | 0.0177 |
| 1371 | 0.0086 |

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| 1374 | 0.0078 |
| 1377 | 0.0051 |
| 1380 | 0.0032 |
| 1383 | 0.0056 |
| 1386 | 0.0056 |
| 1389 | 0.0057 |
| 1391 | 0.0080 |
| 1394 | 0.0092 |
| 1397 | 0.0130 |
| 1400 | 0.0178 |
| 1403 | 0.0248 |
| 1406 | 0.0323 |
| 1409 | 0.0468 |
| 1412 | 0.0670 |
| 1414 | 0.0891 |
| 1417 | 0.1184 |
| 1420 | 0.1620 |
| 1423 | 0.2076 |
| 1426 | 0.2566 |
| 1429 | 0.2936 |
| 1432 | 0.2955 |
| 1435 | 0.2742 |
| 1437 | 0.2487 |
| 1440 | 0.2295 |
| 1443 | 0.2224 |
| 1446 | 0.2207 |
| 1449 | 0.2401 |
| 1452 | 0.3020 |
| 1455 | 0.4001 |
| 1457 | 0.5078 |
| 1460 | 0.5443 |
| 1463 | 0.4575 |
| 1466 | 0.3376 |
| 1469 | 0.2565 |
| 1472 | 0.2257 |
| 1475 | 0.2189 |
| 1477 | 0.1945 |
| 1480 | 0.1611 |
| 1483 | 0.1147 |
| 1486 | 0.0747 |

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| 1489 | 0.0517  |
| 1492 | 0.0363  |
| 1495 | 0.0260  |
| 1497 | 0.0175  |
| 1500 | 0.0108  |
| 1503 | 0.0087  |
| 1506 | 0.0055  |
| 1509 | 0.0033  |
| 1512 | 0.0007  |
| 1514 | -0.0008 |
| 1517 | -0.0014 |
| 1520 | -0.0023 |
| 1523 | -0.0023 |
| 1526 | -0.0022 |
| 1529 | -0.0051 |
| 1532 | -0.0025 |
| 1534 | -0.0035 |
| 1537 | -0.0029 |
| 1540 | -0.0044 |
| 1543 | 0.0002  |
| 1546 | -0.0060 |
| 1548 | -0.0033 |
| 1551 | -0.0028 |
| 1554 | -0.0017 |
| 1557 | 0.0011  |
| 1560 | 0.0028  |
| 1563 | 0.0053  |
| 1565 | 0.0055  |
| 1568 | 0.0064  |
| 1571 | 0.0087  |
| 1574 | 0.0119  |
| 1577 | 0.0140  |
| 1580 | 0.0186  |
| 1582 | 0.0228  |
| 1585 | 0.0262  |
| 1588 | 0.0308  |
| 1591 | 0.0371  |
| 1594 | 0.0408  |
| 1596 | 0.0473  |
| 1599 | 0.0534  |

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| 1602 | 0.0612 |
| 1605 | 0.0701 |
| 1608 | 0.0804 |
| 1610 | 0.0882 |
| 1613 | 0.0967 |
| 1616 | 0.1043 |
| 1619 | 0.1133 |
| 1622 | 0.1197 |
| 1624 | 0.1300 |
| 1627 | 0.1355 |
| 1630 | 0.1473 |
| 1633 | 0.1527 |
| 1636 | 0.1592 |
| 1638 | 0.1679 |
| 1641 | 0.1754 |
| 1644 | 0.1829 |
| 1647 | 0.1905 |
| 1650 | 0.1966 |
| 1652 | 0.1963 |
| 1655 | 0.2007 |
| 1658 | 0.2002 |
| 1661 | 0.2006 |
| 1664 | 0.2036 |
| 1666 | 0.2053 |
| 1669 | 0.2095 |
| 1672 | 0.2221 |
| 1675 | 0.2423 |
| 1677 | 0.2710 |
| 1680 | 0.3095 |
| 1683 | 0.3535 |
| 1686 | 0.4092 |
| 1689 | 0.4538 |
| 1691 | 0.5036 |
| 1694 | 0.5477 |
| 1697 | 0.5904 |
| 1700 | 0.6155 |
| 1702 | 0.5837 |
| 1705 | 0.5132 |
| 1708 | 0.4102 |
| 1711 | 0.3131 |

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| 1714 | 0.2376 |
| 1716 | 0.1846 |
| 1719 | 0.1468 |
| 1722 | 0.1192 |
| 1725 | 0.1013 |
| 1727 | 0.0862 |
| 1730 | 0.0751 |
| 1733 | 0.0679 |
| 1736 | 0.0620 |
| 1738 | 0.0564 |
| 1741 | 0.0510 |
| 1744 | 0.0450 |
| 1747 | 0.0440 |
| 1749 | 0.0388 |
| 1752 | 0.0383 |
| 1755 | 0.0347 |
| 1758 | 0.0329 |
| 1760 | 0.0332 |
| 1763 | 0.0284 |
| 1766 | 0.0294 |
| 1769 | 0.0270 |
| 1771 | 0.0249 |
| 1774 | 0.0264 |
| 1777 | 0.0239 |
| 1780 | 0.0229 |
| 1782 | 0.0244 |
| 1785 | 0.0248 |
| 1788 | 0.0218 |
| 1791 | 0.0222 |
| 1793 | 0.0181 |
| 1796 | 0.0171 |
| 1799 | 0.0163 |
| 1802 | 0.0159 |