Dataset of Biopolymers - Viscosity / Consistency Index vs Concentration

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General Introduction
Excel (spreadsheet) file containing the experimentally determined Herschel-Bulkley Consistency Index (or viscosity) as a function of concentration for different biopolymer systems. The data is made available to the readers via a journal publication(s). As the data may be shared for multiple publications, the terms viscosity and consistency index are used interchangeably. A summary of the different polymer systems is available on the first spreadsheet. This is maintained consistent with the labels and information provided in the respective publications.

Methodological Information
The data was obtained using a stress controlled TA Instruments - Discovery Hybrid Rheometer 3. The measurements were carried out using either a roughened cone on plate setup or a concentric cylinder setup. The fitting of the consistency index was carried out using the scipy.optimize.curve_fit() function on Python.

Data Specific Information

Summary Sheet: Summarises the data obtained for the various biopolymer systems. This sheet provides links to all datasets for the

various biopolymer systems.

Screened: Screening of Charged Interactions using NaCl solution. Conductivity post screening is typically > 25 mS/cm

Unscreened: No Screening was induced and polymers were directly dissolved as is.

H-Bonding: The pH was changed to introduce hydrogen bonding within the functional groups of the respective biopolymer system in question. The exact pH value is dependent on the expected pKa of the individual functional groups. Additionally NaCl was also added to facilitate screening.

In the case of the gelatin samples, the samples were heated to 338K during measurement to denature the coils and the pH was adjusted to three values = 4, 6 and 11.

Further information about the exact pH and conductivity values may be obtained through the respective publications and the accompanying supplementary material.

All concentrations are reported in kg/m3. Conversion to the more common g/dL is obtained by dividing all values by 10. The consistency index and viscosity values are reported in Pa and Pa-s respectively. Std. Dev. represents the standard deviation of the consistency index values.