Report - HSF_S57

Author: Konstantinos Antonopoulos

Supervisor: Prof. Amalia Aggeli

Date: 23/03/2024

1. Sample's Information

Table 1: Sample's information summary.

Sampling date	02/06/2022
Test date	23/03/2024
Stored in freezer	no
COVID 19 in general	nan
COVID 19 vaccination	nan
COVID 19 when tested	nan

2. Sample's Description

The sample had a total volume of approximately 2.3 ml. It was yellow in color, transparent, non viscous, without blood, clot and tissue.

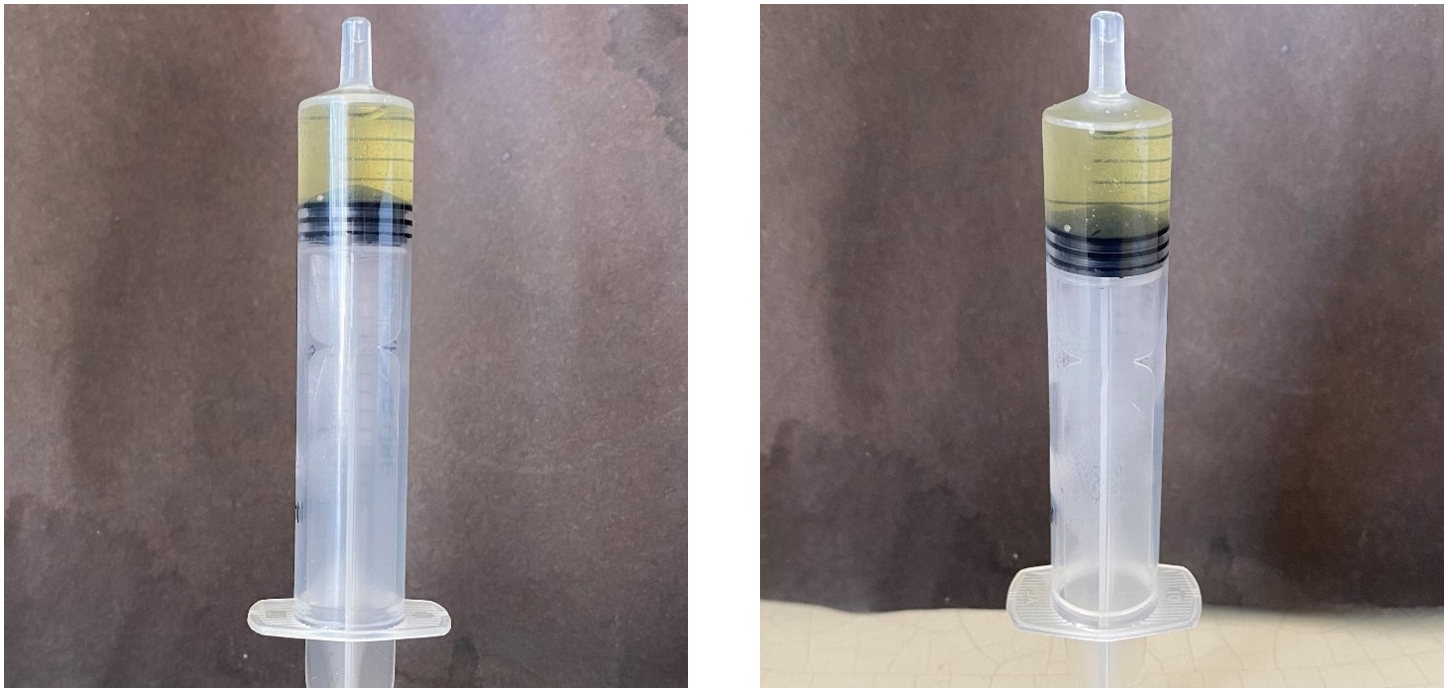

Figure 1. HSF_S57 in syringe.

3. Analysis

Time Sweep test at 25 oC: The variation of G', G'' (Pa) over time (min) at 25 oC with an oscillation frequency of 3.142 rad/s and a 3% shear stress.

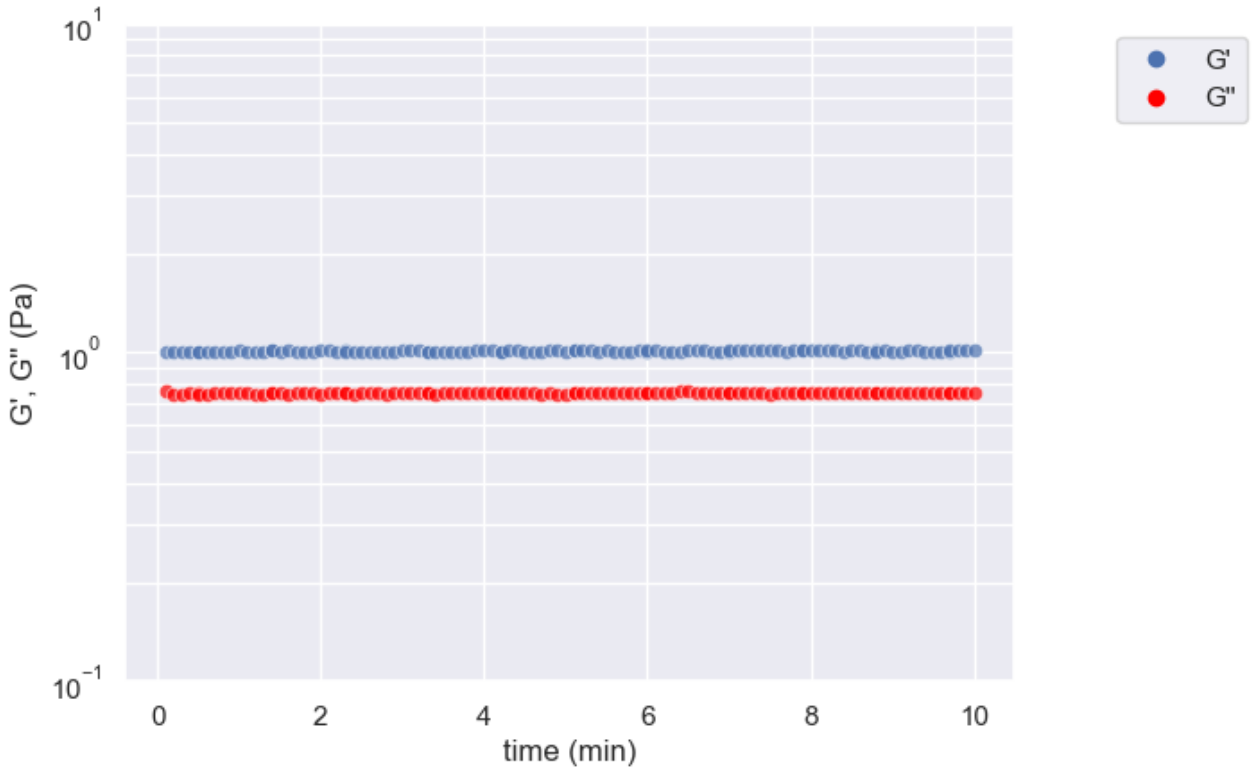

Figure 2. Time sweep test at 25 oC.

The means and standard deviation are calculated for the data from 0.5 to 5 minutes.

Table 2: Time sweep analysis results.

Mean G'	1.0093
Standard Deviation G'	0.2654 %
Mean G''	0.7519
Standard Deviation G''	0.2818 %

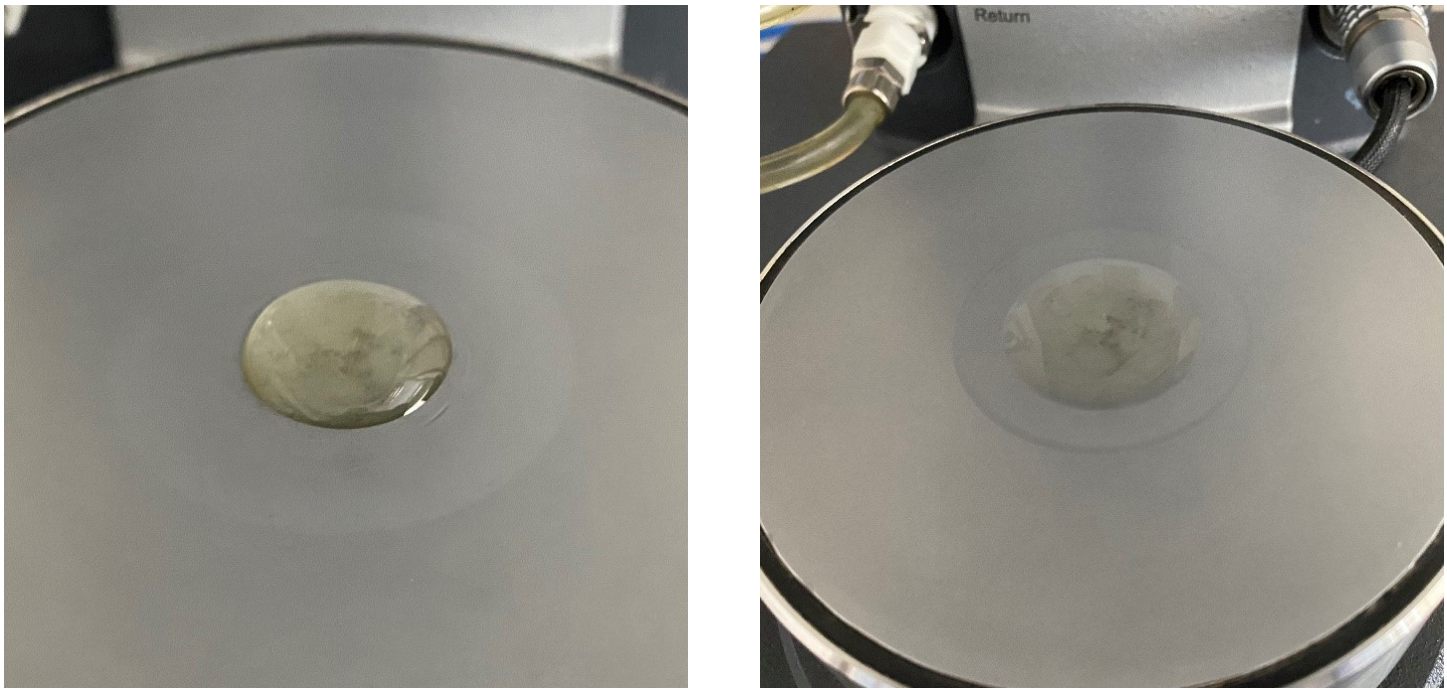

Figure 3. HSF_S57 before (left) and after (right) Time Sweep test at 25 oC.

Author's notes:

Nothing worth mentioning.

Frequency Sweep test at 25 oC: The variation of G', G'' (Pa) and |n*| (Pa s) as a function of the oscillation frequency of the strain (rad/s) at 25 oC.

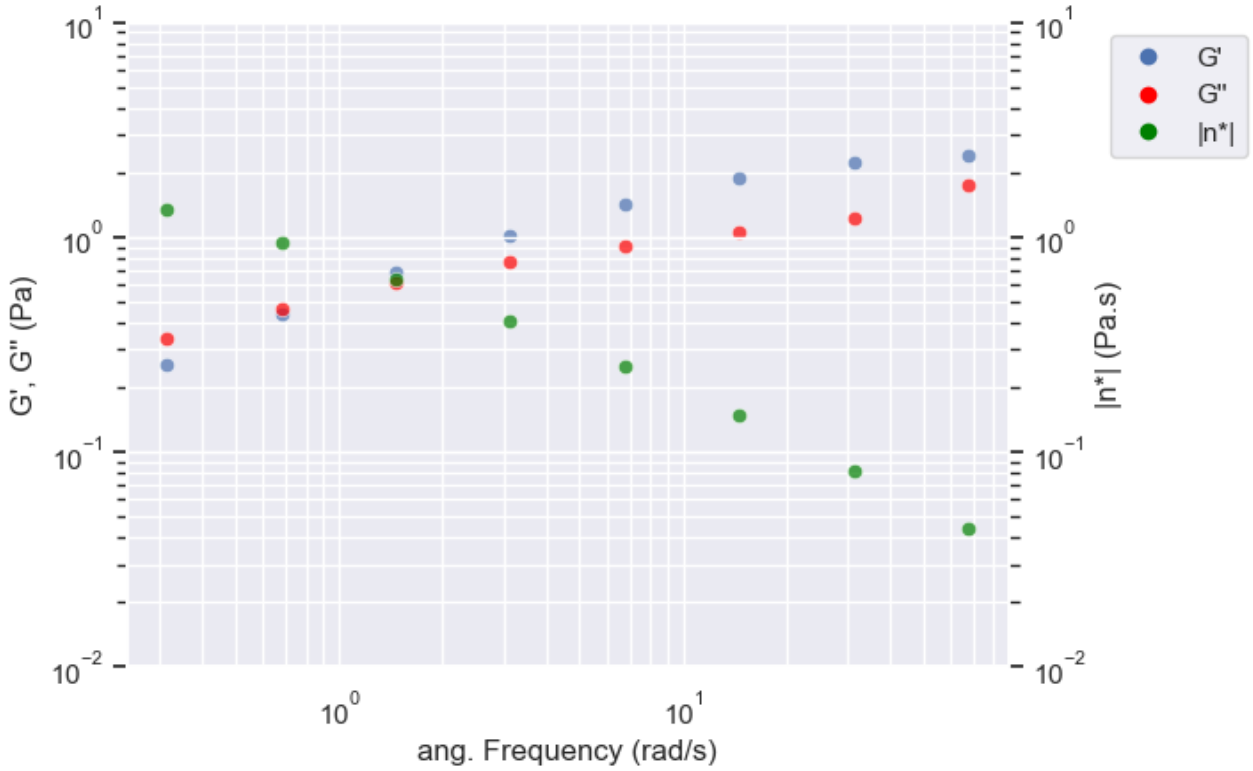

Figure 4. Frequency sweep test at 25 oC.

Cross over point at 1.458 rad/s.

Table 3: Frequency sweep analysis results.

Time sweep G'	1.0093
Frequency sweep G'	1.025
Percentage difference	1.5402 %
Time sweep G''	0.7519
Frequency sweep G''	0.7624
Percentage difference	1.3847 %

Frequency sweep G' at 0.68 rad/s	0.4352
Frequency sweep G'' at 0.68 rad/s	0.4654
Frequency sweep G' at 14.58 rad/s	1.869 %
Frequency sweep G'' at 14.58 rad/s	1.064

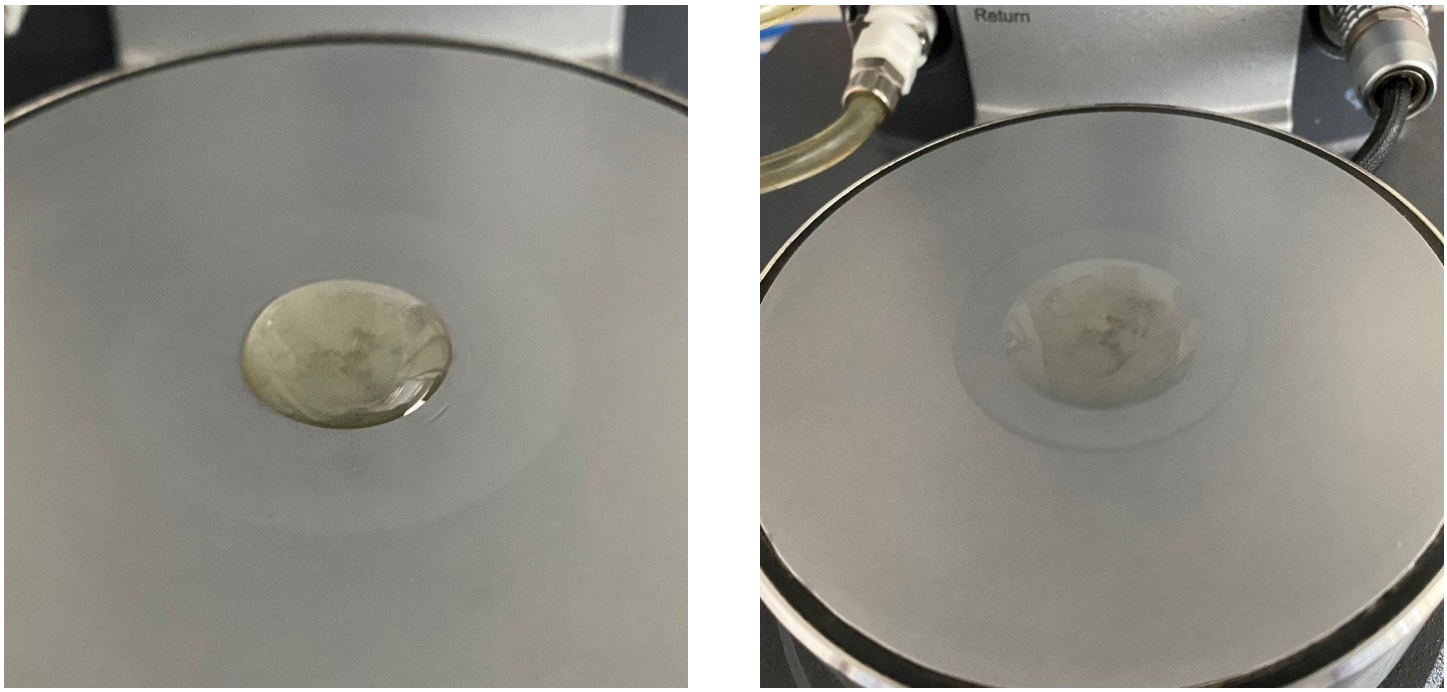

Figure 5. HSF_S57 before (left) and after (right) Frequency Sweep test at 25 oC.

Author's notes:

Nothing worth mentioning.

Flow step test at 25 oC: The variation of viscosity (Pa s) with shear rate (1/s) at 25 oC.

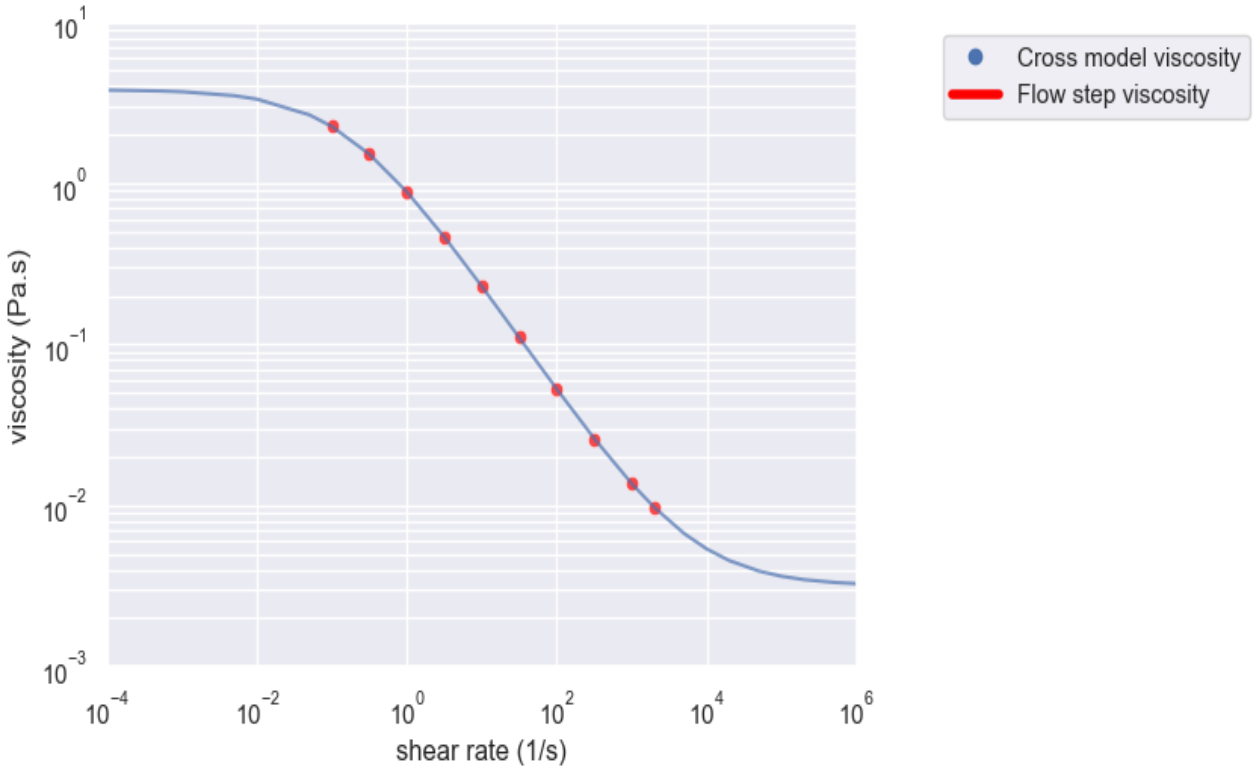

Figure 6. Flow step test at 25 oC.

Cross model parameters:

Table 4: Flow step analysis results.

Zero-rate viscosity (Pa s)	3.815
Infinite-rate viscosity (Pa s)	0.0032
Consistency (s)	5.854
Rate index	0.6793
% error	0.799

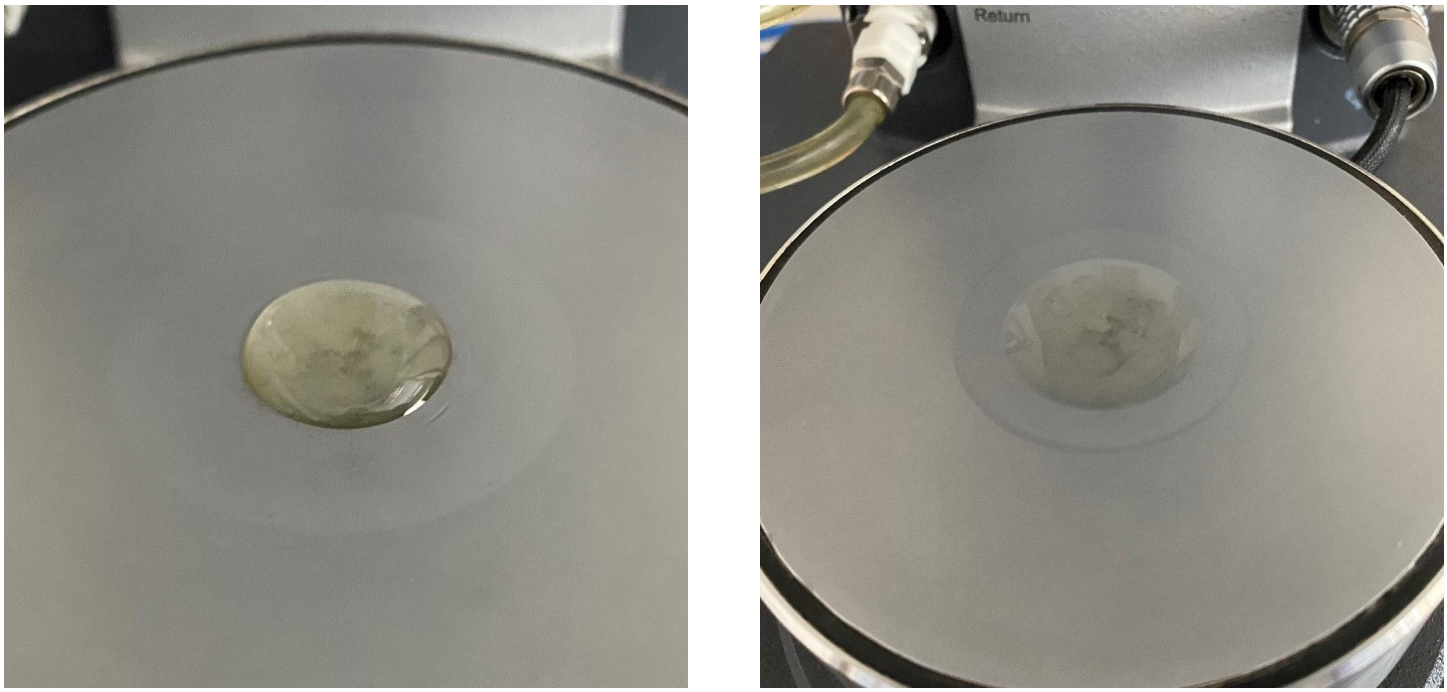

Figure 7. HSF_S57 before (left) and after (right) Flow Step test at 25 oC.

Author's notes:

Nothing worth mentioning.

Cox-Merz rule at 25 oC: The viscosity variation as a function of the shear rate (1/s) and the angular frequency (rad/s) from the Flow step and Frequency sweep, respectively at 25 oC.

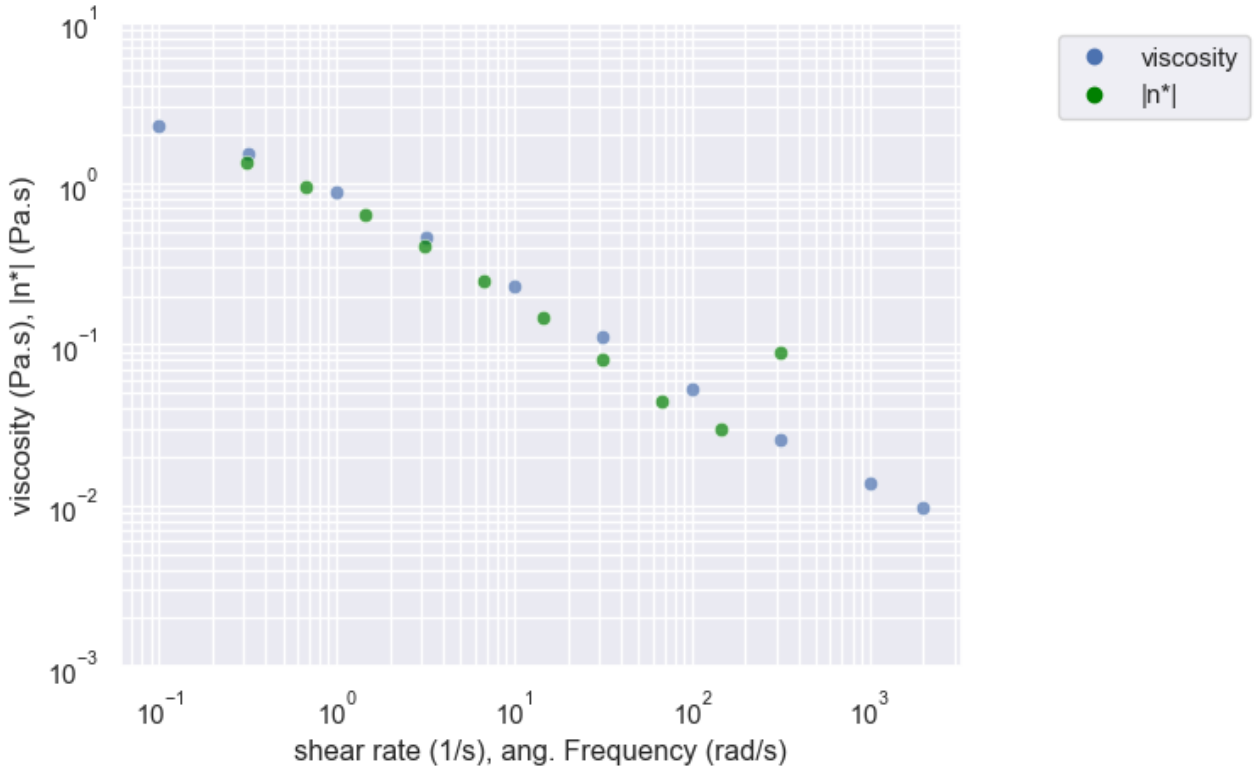

Figure 8. Cox-Merz rule at 25 oC.

Table 5: Cox-Merz rule results.

Flow step viscosity	0.4637
Frequency sweep |n*|	0.4066
Percentage difference	13.1219 %

Author's notes:

Nothing worth mentioning.

4. Results

The sample is considered OA.