**Table SM1**. Characteristics of starting samples and experimental conditions for viscosity measurements.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Run** | **Solid fraction Vol. %** | **Starting Sample** | **H2Om wt%**  **KFT(1)(2)** | **H2Om wt%**  **IR(1)(3)** | **Length (mm)** | **Diameter (mm)** | **Jacket** | **P (MPa)** | **T (°C)** | **Strain rate (s-1)** | **Finite strain ()** |
| PO514 | 16.3 | HPG - 5 | 2.60 | 2.47 | 7.064 | 14.91 | Cu | 300 | 475 | 2x10-4 - 6x10-4 | 2.6 |
| PO519 | 16.3 | HPG - 5 | 2.60 | 2.65 | 6.635 | 14.94 | Cu | 300 | 500-550 | 6x10-4 | 17.5 |
| PO540 | 0 | HPG - 10 | 2.57 | 2.45 | 7.84 | 14.87 | Cu | 300 | 475-500 | 2x10-4 - 2x10-3 | 8.8 |
| PO610 | 16.3 | HPG - 11 | *3.0* | *2.84* | 8.495 | 14.92 | Cu | 300 | 500-550 | 2x10-4 - 2x10-3 | 7.0 |