

Summary Of Test Data

1. Viscosity Over Time Test

Summary:

- This data compares the viscosity of the NanoJelly-enhanced concrete mix (NNC) versus a reference mix (REF) over time.
- **Key Observations:**
 - **Initial Viscosity:** At 8 minutes, the NanoJelly mix starts with a higher viscosity (2500 mPa·s) compared to the reference mix (1800 mPa·s).
 - **Viscosity Stability:** Throughout the testing period (10, 12, 15, 20, 25, 30 minutes), the NanoJelly mix maintains a consistently higher viscosity than the reference mix, which shows a more significant drop in viscosity over time.
 - **Implication:** The stable viscosity of the NanoJelly mix indicates better workability, making it easier to handle and apply, particularly during extended working periods.

2. Gunite Mass Flow Rate and Rebound Reduction Test

Summary:

- This data compares the mass flow rate and rebound material loss between the NanoJelly-enhanced mix (NNC) and the reference mix (REF) during application.
- **Key Observations:**
 - **Initial Material Weight:** The reference mix started with an average material weight of 11 lbs, compared to 10 lbs for the NanoJelly mix.
 - **Mass Flow Rate:** The reference mix moved 80% of the total mix (8.7/11) through the system in the given time, while the NanoJelly mix moved 86% of the total mix (8.6/10) in the same time. This

indicates a higher mass flow rate with the NanoJelly mix, meaning more efficient material movement.

- **Rebound Material Loss:** Starting from a weight of 6.7lbs for both, the NanoJelly mix *significantly* outperformed the reference mix, with only 0.12 lbs of rebound material loss compared to 0.8 lbs for the reference mix, meaning an 85% reduction in rebound loss.
- **Implication:** NanoJelly not only improves the mass flow rate, allowing more material to move through the system in the same time, but it also significantly reduces material waste due to rebound loss. This leads to more efficient use of concrete and lower material costs.

Overall Implications for NanoJelly:

- **Enhanced Workability:** NanoJelly improves the consistency and workability of concrete over time, as evidenced by its higher and more stable viscosity.
- **Improved Pumping Efficiency:** NanoJelly consistently lowers pumping pressures, making the process more energy-efficient and reducing strain on equipment, lowering operational costs and increasing productivity.
- **Superior Material Efficiency:** NanoJelly increases the mass flow rate, allowing more material to move through the system in the same time, while significantly reducing rebound material loss. This results in better material retention, less waste, and more time for more jobs.