

Other Leading Coolant...



S4 Coolant...



Engineered Coolants Maximizes Profits and Productivity for Automotive Glass Producer

CASE STUDY: Glass Process Engineer Performs In-Depth Analysis of Coolants and Discovers Surprising Results

PROBLEM: Coolant is critical to the glass grinding process, but it is rarely analyzed and tested in-depth.

SOLUTION: A Process Engineer with a large automotive glass fabricator, that produces windscreens (windshields) and sidelights, started studying and comparing various coolants. He spent over two years conducting a slow, methodical analysis. His most recent tests compared a leading coolant (what they had been using) to S4, a high performance coolant from Engineered Coolants. Below are the results of that analysis.

- **At the very beginning of the test, the S4 coolant cleaned up the coolant system. Glass grinds that had built up inside plumbing, pumps, valves, etc. was broken up and purged out by the S4 coolant. Items typically replaced, were being cleaned!**
 - This also allows for stopping and restarting the system without glass grinds clogging anything up.
- **With the system running clear, the first major observation was visibly cleaner and smoother edges. These cleaner edges with less chipping was confirmed under a microscope (see images).**
 - Grinding wheels were swapped out to confirm this was truly a result of the S4 coolant.
- **The Surface Tension of the glass (a cleanliness measure) was increased to 60 dynes (higher is better). This is better than this fabricator's minimum goal of 56 dynes, which was rarely met with the previous coolant.**
 - This was later increased to 64 dynes when coupled with the use of Engineered Coolants' cutting fluid, Score.
- **Water spotting has been completely eliminated with the use of the S4 coolant, increasing production and efficiency.**
 - The plant was previously averaging 150 rejected glass pieces per day due to water spotting (a ring of residual coolant).
- **Rejected glass due to pin holes has been reduced by 64% using S4 coolant.**
 - Pin holes are from the glass not being fully rinsed. Many coolants have a tendency to cling to the glass.
- **Rinse water temperature has been reduced from 140 F to approx 100 F.**
 - This resulted in a substantial cost savings from not needing to maintain large volumes of water at 140 F.
- **Cleaner glass edges are resulting in paint screens lasting much longer and causing less blow-ups.**
 - A blow-up is a sudden and major screen tear that causes substantial production problems.
- **The frequency between grinding wheel dressings doubled, from 20 to 40 cycles (glass pieces), resulting in the production of 360 more pieces of glass per day on the initial 3 grinding lines.**
 - Another company testing the S4 coolant increased their frequency from 15 to 50 cycles.
- **Grinding wheels are getting an additional 1,000 meters of grinding between redressings, and wheel life has doubled.**
 - They are getting as many as 7 redressings now out of each wheel.
- **Coolant tank cleaning is much easier, just spraying with a hose, instead of needing jack hammers to break up compacted grinds.**
 - Just as the S4 coolant had cleaned up the system's plumbing and components, it did the same in the tanks.
 - The time between cleanings, as well as the life of the coolant is expected to be extended.
- **Breakage during tempering was decreased by 2.5%, resulting in as much as 40,000 less rejects per year and more furnace up-time.**
 - This is due to the S4 coolant reducing energy at the grind interface through increased lubricity and its unique formulation.
- **Using S4 coolant costs less! This fabricator is saving more than \$3,000 per year on coolant for each grinding line.**
 - S4 costs more by volume, but a lower concentration is used.