

Material Qualification Project

Testing Phase

Final Report

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Project background

The material qualification project involved qualifying a new supplier of clear rigid PVC material namely Kysor-Century corporation of Santa Clarita, CA. The specific grade recommended by Kysor-Century was KC 1608-005. The new material was to be compared with Geon M4300 rigid PVC compound being used currently. 30-6103 Nut was selected for this purpose.

Testing/Qualification Phase

The testing phase consisted of Specification Comparison, Material's processibility in terms of ease of processing and thermal stability, verifying published specifications, dimensional comparison, testing for special requirements such as torque test and RTV sealant compatibility test and burst strength test. CRT Laboratories, an ISO certified independent testing laboratory was commissioned to carry out most of the tests. Sion conducted a twenty-four hour processibility qualification run and dimensional measurement.

Results and Conclusions

The test results were mixed. The Kysor-Century material compared very well with present Geon material in terms of physical properties, special requirement tests and burst test. However, the material did not process well especially in terms of its ability to withstand material degradation. The parts were slightly yellowed and were not as clear as the parts molded from Geon material under similar processing conditions. An interesting side note to this is that the molded parts were Relatively smaller in size and residence time is shorter compared to some other larger more complicated parts. Also no regrind was used during this qualification run.

Recommendations

Since Kysor-Century material compares well with Geon except for the poor thermal stability, a meeting should be arranged with Kysor representative to explore if they have more stable compound (higher level of heat stabilizer) with identical properties so that we can conduct further testing. A tour of the Kysor-century compounding facility would also be helpful. Given the economic conditions and glut of PVC in the market, Geon may well be motivated to offer comparative pricing.