RCM Application on Aluminum Injection Molding Machine with Reduced Sample

MA Fuentes-Huerta[1], DS González-González[1,2], M Cantú-Sifuentes[3], and RJ Praga-Alejo[1,2]

[1]COMIMSA (Corporación Mexicana de Investigación en Materiales)
No 790 Col. Saltillo 400, C.P. 25290 Saltillo, Coahuila. México

[2]Facultad de Sistemas / Universidad Autónoma de Coahuila Ciudad Universitaria
Carretera a México Km 13 Arteaga, Coahuila, México.

[3]Universidad Autónoma Agraria Antonio Narro
Calzada Antonio Narro No 1923, Buenavista, CP. 25315, Saltillo Coahuila, México.

Corresponding author's Email: marco.fuentes@alumnos-comimsa.mx

Abstract: Maintenance has become an important support for ensuring equipment availability and reduce costs. In this way, the RCM (Reliability Centered Maintenance) could be used due to its characteristics like cost-effectiveness. The RCM methodology is based on equipment reliability, it will be assumed that all failure times could be fit a Weibull distribution. However, in some cases the reduced sample affects statistical power and accuracy in parameters estimation. This paper seeks to show effect of consider sample size. Comparing maximum likelihood estimation (MLE) method with MLE with reduced bias adjustment for compute the Weibull distribution parameters. In order to reliability assessment and define maintenance activities program of Injection molding machine. The results, considering reduced sample of failure times, have shown 66 % of savings in the annual maintenance cost. That is a direct benefit for company.

Keywords: Reliability Centered Maintenance, Reduced Sample, Weibull