

automatically QI will increase because there is no weight will reduce the value of QI with Demerit system. Both pictures and data show that material changing from PVC 85 to PVC 65 bring positive results.

The second improvement is checking actual condition of each mold. Checking is done by comparing the actual condition of mold and mold drawing. If all mold are in good condition, then need to add cavity number on all mold for better tracing and identification if a new problem occurs.

The third improvement is training for functional, life, reliability, and durability test for MH dolls. The training are prioritized for the non MH dolls laboratory operators. At the end of the training, there will be a test to see how far lab operator understand of how proper they perform testing. Only operator that passed the test that allowed to check MH dolls.

The fourth improvement is making control tag to control material regrind process. These tags will be attached in resin bag, so that the quality personnel can easily identified whether resin inside bags still can be used for injection molding or not.

V. CONTROL PHASE AND CONCLUSION

To control the dimensions and shape of the molded parts, it needs quality control measurements of critical dimensions and visual checking. In this project, critical dimension is the dimension of surface that will be in contact after the parts are assembled, they are the dimension of the wrist connector that shaped like a ball and the hole inside lower arm. If the measurement is made using a caliper, then most likely there will be variations in measurement between operators. Thus it is proposed to provide tools for checking, in this case the tool is a go-no go jig. The mechanism of this jig is, if the dimensions and shape of the corresponding part within specification, then the part can go thru the tools, but if the shape and dimensions of the parts are not within specification, the part can not go thru the tools.

Once Six Sigma project is implemented, we performed checking on first QI of FEP, to see the effectiveness of the project. From the data obtained, the average first QI a significant increase, from an average of the first QI 336.27, to 5.46.

Based on the stages ranging from Six Sigma define, measure, analyze, improve, and control that has been done, it can be concluded through the FMEA method, based on the largest value of RPN, it is known that the main cause of failure is the improper material selection for lower arm, too hard. In the improve phase, carried out improvement based on FMEA analysis, material replacement for lower arm from PVC 85 to PVC 65, mold checking for wrist connector and lower arm, adding cavity number on the lower arm's mold, and provision of periodic training for lab operators.

In the control phase we made standard form to facilitate data retrieval for lab operator to take data and check the condition of the torso, and propose to provide go-nogo jig to facilitate dimension and shape checking of molded parts. At this phase it is found a significant increase of the average first from -336.27 to 5.46

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