

Figure 4. Residual Multivariate Control Chart Physical factor under in control condition

Figure 4 shows the residual multivariate control chart of physical factors that have been in full in control condition with a 21.59 Upper Control Limit (UCL) limit and a median value of 3.63.

8. Conclusion and Suggestions

Some of the quality parameters used in this study are FFA, IV, PV, color red, yellow color, CP. From the results of research conducted, it is known that the quality parameters of cooking oil are correlated and autocorrelated each other. Therefore, the appropriate control chart to be used is the T^2 Hotelling multivariate control chart of the residual time series model. Factor analysis is conducted to form quality parameters into two factors, namely physical factors and chemical factor. Physical factors consist of parameter FFA, color red, color yellow. Chemical factor consist of parameter IV, PV, and CP. From the formation of time series model for physical factors and chemical factors it is known that the model corresponding to each factor is VAR (2) model. T^2 Hotelling multivariate control chart from residual model VAR (2) for chemical factor has upper control limit (UCL) of 22,18 and median value 3,60. The T^2 Hotelling control chart of the residual VAR model (2) for physical factors has a control upper limit (UCL) of 21.59 and a median value of 3.63. T^2 Hotelling multivariate control chart from the residual VAR model to control the quality of cooking oil with correlated and autocorrelated quality parameters.

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Biographies

Ivan Pudjiharjo earned B.S. in Industrial Engineering from Widya Mandala Surabaya Catholic University Surabaya Indonesia

Ig. Jaka Mulyana is a Senior Lecturer in Industrial Engineering Department, Widya Mandala Surabaya Catholic University Surabaya Indonesia. He earned B.S. in Agricultural Industrial Technology from Gadjah Mada University Jogjakarta Indonesia and Masters in Industrial Engineering from Sepuluh Nopember Institute of Technology Surabaya Indonesia. He has published journal and conference papers. His research interests include quality engineering, lean manufacturing and supply chain management

Luh Juni Asrini is a lecturer in Industrial Engineering Department, Widya Mandala Surabaya Catholic University Surabaya Indonesia. He earned her bachelor degree in Mathematic Science from Mataran University Lombok Indonesia and master degree in Industrial Statistic from Sepuluh Nopember Institute of Technology Surabaya Indonesia. He has published journal and conference papers. His research interests include quality engineering