

## Case study: statistical monitoring for the moisture content of the cut tobacco

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20465138&lokasi=lokal>

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### Abstrak

The moisture content of cut tobacco in Tobacco industry affects directly the quality of tobacco. To prevent the abnormal changes of the moisture content of cut tobacco, effective surveillance systems would be extremely helpful to give out-of-control (OC) signals as quickly as possible. The conventional statistical process control charts are not suitable to use due to complex structures, such as semiparametric trend, within-batch correlation in the moisture content data. In this paper, we propose a four-step procedure in which Semiparametric longitudinal model, time series analysis methods and normal transformation methods are utilized to eliminate the impact of the complex structures. And our procedure is demonstrated using the moisture content data of cut tobacco at the outlet (MCCTO) collected in Shanghai tobacco group co., Ltd of China. The results show that our procedure is effective in detecting the abnormal changes of the MCCTO data.