

## RINGKASAN

**Adhi Kurniawan**, Program Studi Teknik Industri, Fakultas Teknik, Universitas Brawijaya, Agustus 2012. *Analisis Perbaikan Faktor First Time Quality Proses Blending Oil dengan Metode Six Sigma (Studi Kasus di PT. Alp Petro Industry)*, Dosen Pembimbing: Murti Astuti dan Arif Rahman.

Globalisasi mengisyaratkan bahwa pasar akan semakin didominasi oleh perusahaan yang mampu memberikan pelayanan produk dengan daya saing tinggi. Upaya yang dilakukan oleh PT. Alp Petro Industry untuk mencapai daya saing tinggi tersebut adalah dengan memproduksi pelumas dengan kualitas yang sesuai dengan keinginan pasar. Salah satu cara agar produk yang dihasilkan sesuai dengan permintaan pasar adalah dengan menerapkan *First Time Quality* (FTQ). FTQ merupakan kondisi suksesnya suatu proses produksi pada kesempatan pertama dengan hasil berkualitas. Salah satu yang paling rawan gagal terjadinya FTQ pada proses *blending*, yaitu pencampuran pelumas dasar dengan bahan *additive*. PT. Alp Petro Industry memiliki target 96% FTQ proses *blending oil* dalam setahun. Dalam lima tahun terakhir ternyata PT. Alp Petro Industry belum mampu memenuhi target tersebut. Berdasarkan masalah tersebut maka dibutuhkan perbaikan terhadap FTQ proses *blending oil*.

Jenis penelitian yang digunakan adalah penelitian deskriptif. Penelitian ini menggunakan metode *six sigma* dengan tahapan DMAIC untuk memperbaiki serta meningkatkan persen FTQ proses *blending*. Langkah penelitian yang digunakan adalah: Mendefinisikan masalah yang terjadi dalam proses *blending*. Melakukan pengukuran terhadap nilai *sigma* dan nilai *defect per million opportunity* (DPMO). Kemudian mencari penyebab permasalahan dengan menggunakan Diagram Tulang Ikan. Terakhir dibuat rekomendasi perbaikan berdasarkan penyebab masalah.

Dari hasil penelitian diketahui cacat yang paling sering mempengaruhi gagalnya FTQ pada proses *blending oil* adalah viskositas yaitu sebesar 70% dari total cacat selama proses *blending*. Adapun nilai DPMO karakteristik kualitas viskositas adalah sebesar 12.419 dan nilai *sigma* 2,5 . Faktor-faktor yang mempengaruhi cacat viskositas yaitu *human error*, minimnya pemahaman proses *blending*, akurasi alat ukur, kebersihan *blender*, lingkungan penyimpanan *additive* di area *blending*, karakteristik bahan baku yang berubah, bahan baku *expired*, serta *mixing time*. Rekomendasi yang dibuat berdasarkan penyebab masalah. Rekomendasi yang diberikan yaitu: merekam aktivitas *blending oil*, melakukan penimbangan ulang bahan baku sebelum digunakan, menerapkan *acceptance sampling* untuk menginspeksi berat bersih bahan baku, *training* berkala kepada semua pihak yang terkait dengan *blending oil*, kalibrasi yang teratur sesuai dengan jadwal, revisi *work instruction blending*, pengaktifan kembali gudang *work in process*, serta penerapan *quality control circle*.

**Kata Kunci:** *First Time Quality, Blending Oil, Six Sigma*

## SUMMARY

**Adhi Kurniawan**, Departement of Industrial Engineering, Faculty of Engineering, University of Brawijaya, August 2012. *Analysis of Improvement Towards Blending Oil's First Time Quality Factor Using The Six Sigma Methods (Case Study at PT. Alp petro Industry)*, Academic Supervisor: Murti Astuti and Arif Rahman

Globalization signalled that market will be more dominated by companies being able to provide service product by high competitiveness. Therefore PT. Alp Petro Industry is trying to produce lubricant with high quality. One way is by applying the First Time Quality (FTQ) factor. FTQ is a condition for the success of the production process on the first occasion with high quality results. One of the most prone to fail the FTQ is in the process of blending, which is mixing additives with base materials of lubricant. PT. Alp Petro Industry has FTQ target of 96% blending process in a year. In the last five years turned out that PT. Alp Petro Industry hasn't been able to fulfill these targets. Based on the issue, PT alp Petro Industry needs to repairs FTQ on the process of blending oil.

The kind of research that used are descriptive research. This research uses methods of six sigma with stage DMAIC to improve and increase FTQ percent in the process of blending. The research steps are: Define the problems that occurred in the process of blending. Make measurements on the sigma and value of defect per million opportunity (DPMO). Then find the causes of the problem with fish bone diagram. And the is to made recommendations of improvement by the cause of trouble.

From the research known that the most frequently defect that affect the failure of FTQ to the blending process is viscosity as of 70 % of total defect during the blending. The DPMO value of quality characteristic of viscosity is worth 12.419 with sigma value is 2,5 . Factors which affect the viscosity defect are: human error, lack of understanding about blending process, the accuracy of measuring instrument, cleanliness of the blender, the environment of storage additive in the area of blending, the changing of raw materials characteristic, expired raw material, and mixing time. Recommendations are made based on the causes of the problems. The recommendation are: Record blending activity, reweigh the materials before using, use acceptance sampling to inspect net weight of raw materials, periodic training to all parties related with blending, regular calibration according to the schedule, work instruction revision, reactivation of work in process warehouse, and the application of quality control circle

**Keywords:** *First Time Quality, Blending Oil, Six Sigma*