

ABSTRAK

Arinta Prabawati Ma'arif. EVALUASI POTENSI KEGAGALAN MENGGUNAKAN METODE *FAILURE MODE AND EFFECT ANALYSIS COST-BASED* (FMEA *COST-BASED*) DAN *FAULT TREE ANALYSIS* (FTA) DI BAGIAN PRODUKSI PT PARDIC JAYA CHEMICALS. Dibimbing oleh WAHYU SUSIHONO dan DYAH LINTANG TRENGGONOWATI

PT Pardic Jaya Chemicals adalah perusahaan yang bergerak di bidang pembuatan resin sintesis. PT Pardic Jaya Chemicals memiliki beberapa lantai produksi yaitu P1, P2 dan P3. Dalam menjalankan kegiatan produksi, operator harus menghadapi beberapa hazard seperti paparan bahan kimia baik dalam bentuk powder maupun cair. Hal tersebut tidak dapat dihindari meskipun operator sudah dilengkapi dengan peralatan safety. Selain itu, beberapa lantai produksi berada tidak berada di lantai satu, sehingga manual material handling harus melewati lift. Lantai produksi yang semi outdoor juga menyebabkan debu kimia mudah bertebaran di udara bebas yang dapat memicu kebakaran. Penelitian ini bertujuan untuk mengidentifikasi penyebab kegagalan dan menghitung besarnya ekspektasi biaya kegagalan yang mungkin ditimbulkan yang berlokasi di lantai produksi P2 dan P3. Rancangan pada penelitian ini adalah cross sectional. Penelitian ini menggunakan metode FMEA cost based dan Fault Tree analysis. Berdasarkan hasil penelitian diperoleh total biaya ekspektasi kegagalan yang mungkin dikeluarkan akibat 19 high risk di P2 adalah sebesar Rp 3.021.910.007 dan total biaya ekspektasi kegagalan akibat 7 high risk di P3 adalah sebesar Rp 643.974.416,5. Perbandingan persentase kategori risiko adalah kategori low risk pada P2 sebesar 38,67% dan P3 sebesar 19,29%. Sedangkan untuk kategori medium risk pada P2 sebesar 48,67% dan P3 sebesar 68,42%. Untuk kategori high risk pada P2 sebesar 12,67% dan P3 sebesar 12,28%. Top Event kegagalan yang ada adalah kebakaran, keseleo, gangguan tulang belakang, lift jatuh, sling bag crane putus, tangan terjepit dan tertimpa material.

Kata kunci: *FMEA cost-based, FTA, Potensi Kegagalan*

ABSTRACT

Arinta Prabawati Ma'arif. EVALUATING OF POTENTIAL FAILURE USING FAILURE MODE AND EFFECT COST-BASED (FMEA COST-BASED) AND FAULT TREE ANALYSIS (FTA) IN THE PRODUCTION SECTION PT PARDIC JAYA CHEMICALS. Guided by WAHYU SUSIHONO and DYAH LINTANG TRENGGONOWATI

PT Pardic Jaya Chemicals is a company engaged in the manufacture of synthetic resin. PT Pardic Jaya Chemicals has several production floors, there are P1, P2 and P3. In carrying out production activities, operators must face several hazards such as exposure to chemicals both in powder and liquid. This cannot be avoided even though the operator is equipped with safety equipment. In addition, some production floors are not on the first floor, so the material handling manual must pass through the elevator. Semi-outdoor production floors also cause chemical dust that easily scatter in free air which can trigger fires. This study aims to identify the causes of failure and calculate the amount of expected cost of failure that might be caused which is located on the production floor of P2 and P3. The design in this study was cross sectional. This study uses the FMEA cost based method and Fault Tree analysis. Based on the results of the study, the total cost of failure expectations that may be incurred due to 19 high risk in P2 is IDR 3.021.910.007 and the total cost of failure expectations in P3 is IDR 643.974.416,5. Comparison percentage of risk categories at low risk P2 is 38,67% and P3 is 19,29%. Medium risk at P2 is 48,67% and P3 is 68,42%. High risk at P2 is 12,67% and P3 is 12,28%. Top Event failures are fire, musculoskeletal disorder, lift falls, crane sling bag breaks, hands pinched and crushed material.

Keyword: *FMEA cost-based, FTA, Potential Failure*