

## **Stress analysis of adhesive bonding of urea granulator fluidization bed**

### **Abstract**

Stress analysis of adhesive bonding of urea granulator fluidization bed was performed by using finite element method. The main objective of this project is to develop an alternative joining technique for urea granulator fluidization bed by using adhesive bonding. The problem can solve by using commercial finite element package ANSYS version 13.0. T-joint and double T-joint are the main adhesive joints which will be focused in this project. The stresses on stainless steel plate can reduce by increasing the thickness of adhesive as demonstrated in numerical analysis results. Different thickness of adhesive will give different value of maximum von Mises stress. It shows that greater thickness resulted in higher maximum. This analysis proves that increasing the adhesive thickness will reduces the joint strength because stress was concentrated more on the adhesive interfaces. The adhesive bonding on T-joint is stronger than other design of joint because it need lower stress. It followed by first design of double T-joint and second design of double T-joint.

**Keywords** — Stress analysis, adhesive bonding, urea granulator fluidization bed, T-joint