

Problem Statement SY - A

Jr. Industry Defined Problem

Bergmann Chemical Corporation comes to an end

20th September 1952, North Rhine-Westphalia, Germany.

The Second World War was definitely very consequential and impactful. It left its footprints on history. It brought about major leaps in technology and laid the groundwork that permitted the evolution of many different industries. Especially, chemical industry was the one which got promoted and buttressed by individual countries which essentially enhanced their military powers. Many chemical engineers acclimate themselves in order to become the responsible pillars of the nation. Germany was an important center where these effects were seen to a large extent. Growth of chemical industry in Germany was not natural but it was a result of constant thrusts given by German government. This report talks about a Germany company which was a victim of World War II.

19th July 1940

Henry Bergmann and his wife Marie arrived in North Rhine-Westphalia to inaugurate his new company 'Bergmann Chemical Corporation'. After a superficial study, he managed to know the methods of production of mixed Cresols using Benzene as a feedstock. He had invested over 15 millions of Dollars in his dream project and also invited many other investors to invest as well. Increasing demand of Cresols, which were used in disinfectants, preservatives, and wood preservatives, gave the impetus to Henry.

24th July 1942

In merely two years, Bergmann Chemical Corporation was declared to be one of the best chemical companies in the state.

22nd February 1943

Defeat in the battle of Stalingrad caused a chaotic situation in Germany. The country became economically weaker. Industry started to change its demand. This made a profound effect on Henry's chemical company. Increasing demand of Individual cresols (o,p,m-cresols) started abating company's profit when it was at the acme of success.

31st October 1945

Henry accosted state's best chemical engineer and brought him to design a process at the downstream of Cresol production plant. This system included a simple distillation column which was expected to separate the mixture of cresols into three different streams (ortho, meta, para cresol). But due to obvious reasons it could not succeed in obtaining higher conversions.

5th May 1947

The company included another variation in the process. It bought a new and taller distillation column. This time they were successful in separating some amount of Cresol but the conversions were still not enough. Investors started to take out all the money they had invested. This was just the start of Henry's downfall.

19th May 1949

The company ordered another distillation column which was put in series with the earlier column which was proved to be their last hope. Henry literally lost all the money he had. He had to take loan from the rich community.

8th September 1951

Bergmann Chemical Corporation tried to merge into other companies, but it was not included by any other companies. With all the loans and pessimistic partners, Henry could not take his project out of this cataclysm. The company was shut down on 8th September 1951

Problem Statement:

This report draws our attention on an incident happened in Germany. As a latent chemical engineer in 2016, what will you do to correct the mistakes done by Henry Bergmann? What went really wrong with Bergmann Chemical Corporation? **How will you circumvent the problem and come up with a solution?** Be the chemical engineer that will take the corporation again to pinnacle of success. **Explain your approach qualitatively and quantitatively. Prove it by showing material, energy and money balance.**

You can take the feed composition of cresols of your choice, each composition should be between 30 to 80 %. (Sum of all the cresol compositions should be equal to 100%).

The production capacity is 50ton/day (all three cresols together).

Quotable Quote: To help yourself, you must be yourself. Be the best that you can be. When you make a mistake or others make mistake, learn from it, pick yourself up and move on - Dave Pelzer