

Realities in the Petrochemical industry ...

With the reduction of import duty over the years, industry is now open to global competition. Further the duty differential between final products and raw material (naphtha) is narrowing down, and companies are facing increasing pressure on margins.

No sizeable capacity addition is expected globally in the next two years and demand is growing at a fast pace. This would result in narrowing of demand supply gap. A deficit of 5mmt and 4.5mmt of PE and PP is anticipated in Asia in the next two years

Key challenges:

- Continuously looking for alternate raw materials and processes to lower material and energy costs
- Reducing yield and purity variations on a batch to batch basis, and optimising yields
- Eliminating equipment failures

Gaining sustainable competitive advantage entails:

- Effective program management of new product-process-supply chain development for launching right first time products
- Operational efficiency improvement through batch-to-batch variability reduction & energy cost reduction
- Setting up of effective procurement practices

Case Study:

Manufacturing Excellence at an Agrochemical Manufacturer

The company was facing challenges on many fronts:

- The company was in the red in the previous year. A new leadership had taken over with a mandate to turn around the company
- The variation in product quality and high fixed costs in plants had led to many products becoming unviable in the market
- There was also a need sensitize people with the necessity to change and become competitive

Old, dilapidated plants needed to be transformed into vibrant, visual workplaces with enthusiastic people aligned, committed and working towards excellence at all levels and functions

A multi-pronged approach across 5 plants:

- ECS designed a multipronged intervention using TPM and Six Sigma tools to bring in continuous, fast and sustainable improvements
- Initiatives were launched in manufacturing, sales & marketing, procurement and research & development simultaneously to bring about all-round improvement
- A Process based improvement team structure was established involving supervisors and workmen. Unit level goals were then deployed to these
- The teams analyzed problems using relevant tools and implemented countermeasures

Intervention highlights:

1. Common improvement structure across 5 plants:

- **5 Area Effectiveness Teams** at supervisory level for routine management
- **19 frontline cross-functional teams** ensuring ownership at an operating level
- **5 pillar teams** to execute focussed improvement projects using Six Sigma tools

2. World class training in the use of tools & techniques of TPM and Six Sigma

3. New Product Program Management system and structure set up

4. Procurement practices revisited

- Workmen performed autonomous maintenance steps in their equipment to maintain equipment ideal condition
- Pillar teams were launched in the areas of Operations Planning, Skill Development, Planned Maintenance and New Product Development. These teams used Six Sigma tools for:
 - Solvent reduction
 - Yield improvement
 - Reduction of utilities consumptions
 - Reducing Cost of Poor Quality(COPQ)
 - Procurement management, etc.

Key Results:

- **The 24 months initiative resulted in a annualised potential benefit of Rs. 20 cr. of which ~Rs. 8 cr. accrued during the assignment**
- **New product development time crashed by 48%**
- **Key solvent consumptions reduced by 70%**
- **Yield of key contributing products improved by 12%.**
- **Energy costs reduced by 30%**
- **Strategies for procurement of key materials with an annualised potential benefit of ~ 5% of spend**
- **9 Black Belts and 22 Green Belts**

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