

Abstract

The chemical industrial sector has widely developed in the last many years in India and the world over. In the last 15 years, there has been a growing movement world wide among Government and Industry to change the way industry interacts with environment. The focus has been to reduce the environmental impacts from the industry through changes in industrial behaviors and technology. Cleaner Production (CP) is one such measure that follows the "Precautionary Principles".

"Precautionary Principles" elaborates as a thought that it is better and usually less expensive, to prevent environmental problems from happening than to fix them once they are created. If the effects of such actions on the environment are unknown, it is always essential to adopt a pro-active kind of an approach and proceed with caution and try to minimize the potential effects that might occur.

Cleaner Production (CP) is the continuous application of an integrated preventive environmental strategy to processes, products, and services to increase overall efficiency, and reduce risks to humans and the environment. Cleaner Production can be applied to the processes used in the industry, for process modification or equipment modification.

The CP concept is developed based on certain set of principles that serve as guidelines for developing CP options; that include:

1. Substitution
2. Source Reduction
3. Recycling/Reuse
4. Cleaner Technologies
5. Developing better products

With the invention to study CP as one such approach to pollution prevention, a research project has been undertaken in order to propose and

analyze CP options for technological changes for a set of four products in the form of four case studies. The project includes introduction of Cleaner

Production (CP) and Cleaner Technology (CT), various principles to carry out CP, CP tools and methodology.

An exhaustive literature survey has been conducted to survey several case studies wherein CP has been carried out. Depending on the available options and technical details available within the limited time span, a set of two products has been selected for CP technology analysis. These are Vinyl Chloride Monomer and Formalin. These products are taken up as two different case studies for CP analysis.

An industrial problem on a dye intermediate called 4-Sulfoanthranilic Acid: product of a small-scale industry has been attempted to solve for environmental and economic gains mode of CP. This case study follows the standard CP Methodology and is presented in the form of another case study.

Finally, these case studies are summarized to highlight the benefits and gains of conducting CP for due production. The research is an attempt to study CP technology in maximum possible aspect and importance of the same on implementation in industrial sectors.

Cleaner production is going to be the key to future profits. A beginning has been made, and industries are realizing the importance and the benefits of the concept. The objective of this study is to realize the importance of cleaner technologies that are implemented as a means to cleaner production of any product on manufacture. Cleaner production is a preventive kind of approach. It deals with avoiding waste generation as far as possible instead of treating it later before discharge.

Key Words : Cleaner Production, Cleaner Technology, Waste generation minimization.