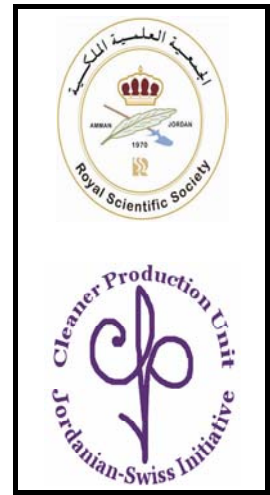


Cleaner Production in Jordan

Fact sheet: National Paints Factories Co. Ltd. (Sayegh Group - Resin Factory), Amman, Jordan



What is Cleaner Production?

Cleaner Production (CP) is the continuous application of an integrated, preventive strategy to processes, products and services to increase efficiency and reduce risks to humans and the environment.

In this fact-sheet the results achieved from the CP In-plant Assessments in National Paints Factories Co. Ltd. / Resin Factory are summarised. The information shall serve to demonstrate how CP can be implemented in industries in Jordan.

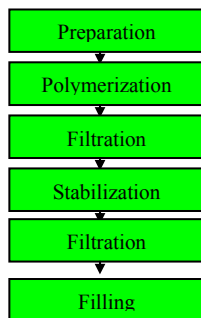
General Information



Resin production process

Company	National Paints Factories Co. Ltd., Amman, Jordan / Resin Factory.
Sector	Resin manufacturing.
Products	Long, medium and short alkyds, acrylic emulsion, styrene acrylic, melamine alkyd, polyester, polyurethane and wood glue, emulsion polymers, styrene poly methyl acetate and glue.
Market	50% local market, 50 % export to Sudan, Syria, Iraq, Saudi Arabia, Egypt, Palestine, Qatar, Oman ...etc.
Employees	54 employees
Management Systems	Certification in ISO 9001:2000 since year 2000.

Production



Process Flow Diagram

Processes	The general production steps consist of: raw material preparation, polymerization, filtration, stabilization, filtration and product filling.
Raw Materials	Monomers, activators, initiators, surfactant, solvents, hydrocarbon materials, nitrogen, water and acids.
Energy Sources	Electricity (1281600 KWh was consumed in 2003). Diesel (40870 liters was consumed in April / 2005).
Wastes and Emissions	Wastewater generated from the polymerization is the main waste in addition to dust and solvent emissions.

CP program

The CP program comprised capacity building and in-plant application in a modular form in addition to experts mission. A joint team from RSS CP Unit and the Company worked cooperatively to implement CP assessment for the company. The work included detailed company visits, identifying and evaluating CP options, implementing a number of options and setting an action plan for the follow up of CP at the company.

Company Statement

The cleaner production assessment leads us to concentrate on getting sustainable and eco-efficient solutions to optimize our production process.

Mr. Ibrahim Sayegh, Vice President of Sayegh Group.

Results

During the CP assessment that was done by a team of RSS CP unit and the company, 11 CP options were identified to be feasible for the company. The four most feasible options are described below:

Option	Environmental benefits	Economic savings		
		Savings [JD/yr]	Investment [JD]	Pay back [years]
Option 1 - Controlling the mixing time by a timer Turning off the mixers while getting acceptance from the QC labs will save energy.	2960 KWh / yr	115 (one tank)	60 (one tank)	0.5
Option 2 - Neutralize wastewater from reaction by caustic soda instead of ammonia Using caustic soda instead of ammonia to neutralize wastewater is safer and inexpensive.	-	240	-	-
Option 3 - Install N₂ generator instead of using N₂ cylinders Getting N ₂ from nitrogen generator instead off pre-filled cylinders will reduce operating cost.	-	1800	13870	7.7
Option 4 - Install a mobile silo for preparation of raw material	Installation a mobile silo for preparation of the solid raw materials in the storage area will reduce the spills of these materials to a minimum and control the feeding process (time and dose).			

Contacts & Partners



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