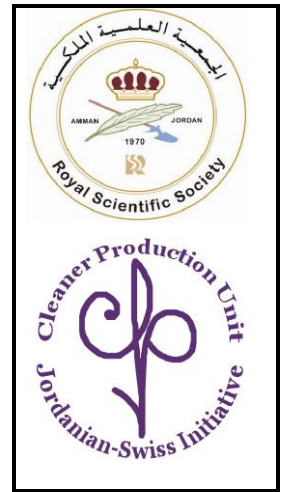


# Cleaner Production in Jordan

## Fact Sheet: Modern Aluminium Industries Co. Ltd. (MODAL), 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 Assessment in Modern Aluminium Industries Co. Ltd. (MODAL) are summarized. The information shall serve to demonstrate how CP can be implemented in industries in Jordan.

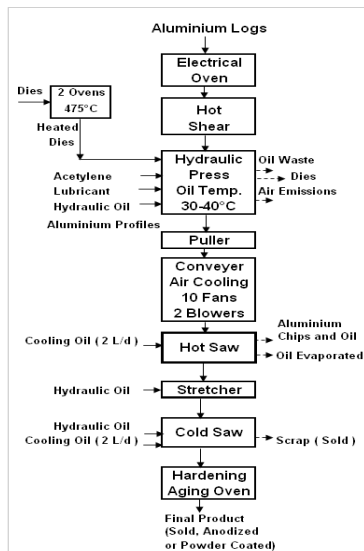
### General Information



Extrusion Line

Company	Modern Aluminium Industries Co. Ltd. (MODAL). Amman, Jordan.
Sector	Heavy Metal.
Products	Aluminium Profiles.
Market	40 % National market, 60% export to Germany. England. France. Iraq. Palestine and others.
Employees	327 (28 administration, 299 production).
Management Systems	ISO 9001 Since 1998, ISO 14001 since 2001 and The King Abdullah n Excellence Award 2000.

### Production



Extrusion Line Flow Diagram

### Processes

MODAL Production lines contain Extrusion Line, Anodizing Line, a Powder Coating Line, Wood Finishing line, Polishing Line and finally Wrapping and Storage. Throughout these stages of production, rigorous tests are carried out to ensure that quality is continuously monitored. MODAL offers a wide selection of ready products and designs. Ranging from architectural applications such as windows, doors and curtain walls; to decorative, furniture, and construction applications.

### Raw Materials

The significant material streams are Aluminium log, sulphuric acid, caustic soda, and other additives. The wastes and emissions generated are not hazardous.

### Energy Sources

The main source of energy is electricity. The bill for electricity was 465983 JD for 2004.

### Wastes and Emissions

Effluent wastewater, concentrated chemicals, gas emissions and aluminium scrap.

### CP program

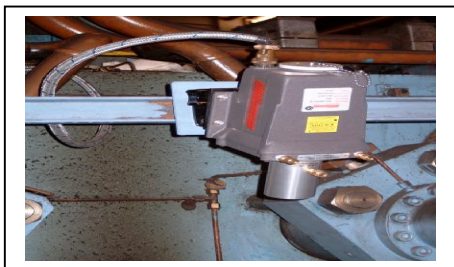
The CP program comprised capacity building and in-plant application in a modular form in addition to experts mission. A joint team from RSS CP Unit and the Company worked cooperatively to implement CP assessment for the company. The work included detailed company visits, identifying and evaluating CP 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 process is a real process of finding the projects related to optimizing our process through continuous improvement strategy, which our company commits.

Mr. Yousef Al Yacoub deputy general manager.

## Results



Installation of a sensor / temperature controller option

Those are some benefits gained from the implementation of the CP options and measures:

- Reduction of manufacturing costs.
- Improve competitiveness.
- Quality improvement.
- Improvement of work environment.
- Reduction of environmental impacts.
- Some results obtained are described in the table below.

Option	Environmental benefits	Economic savings		
	Water, materials or energy consumption reduction [Unit/yr]	Savings [JD/yr]	Investment [JD]	Payback [years]
<b>Option 1 – Rinsing At Anodizing Line</b> All anodizing rinses shall be done with recycled water (after wastewater treatment unit).	5.5 m <sup>3</sup> of water/hour.	12000	300	0.03
<b>Option 2 – Install a sensor/ temperature controller</b> Install a sensor/ temperature controller for observation and better temperature control of extruded profiles.	Increase productivity at a minimum of 3%. Reduce scrap quantity. Product quality improvement.	16900	4830	0.29
<b>Option 3 – Dripping off into the anodizing baths</b> Optimize the dripping off and drag out from the Aluminum profiles.	Reduce consumption of chemicals and water at a minimum of 3%.	7180	700	0.10
<b>Option 4 – Install inverter</b> Slow down the speed of dust collection fan of the cold saw machine.	Reduce electrical consumption.	1200	800	0.67

## Contacts & Partners



Royal Scientific Society, Environmental Research Centre (ERC),  
Cleaner Production Unit (CPU)

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