



# CHEMICAL INDUSTRY

## Sector Update - December 2011

**C**hemical industry plays a vital role in the economic development of Pakistan. There are numerous chemical products which are made and used as a basic input across various industries. The chlor-alkali business can be described as a subsector of the chemical industry which produces liquid chlorine, hydrochloric acid, sodium hypochlorite, bleaching earth, chlorinated paraffin, whereas, Caustic Soda (Sodium Hydroxide-NaOH) is the key product of this sector.

Caustic Soda is industrially produced as a 50 % solution by variations of the electrolytic chlor-alkali process. Chlorine gas is also produced in this process. Caustic Soda is obtained from this solution by the evaporation of water. Solid sodium hydroxide is most commonly sold as flakes, prills, cast blocks and liquid. The industry largely acquires sodium chloride from rock salt and sea water since it is easily available in the country in salt mines and the coastal belt. The demand for caustic soda is highly dependent on the growth of manufacturing sector as it is an essential raw material in industries including textile, soap & detergent, paper & board, vegetable oil refining, thermal power units, food processing sugar etc.

Presently, there 4 major players in the market with a production capacity of more than 500,000 MT of caustic soda and chlor alkali based products. These plants are SCIL, Ittehad Chemicals Limited (ICL), Engro Polymers Chemicals Limited (EPCL) and NIMIR Industrial Chemicals Limited (NIMIR). However, NIMIR produces caustic soda for its internal usage only. The installed production capacity of caustic soda of the other three commercially competing players is tabulated below:

Annual Capacity	FY08	FY09	FY10	FY11
SCIL	178,200	178,200	201,300	201,300
ICL	143,550	143,550	143,550	143,550
EPCL	Nil	106,000	106,000	106,000

Unit: MT/annum

Total annual production capacity of these 3 units remained at the prior year level of 450,850 MT, where SCIL has the largest production capacity of 201,300 MT/annum. After EPCL's entry in this industry, the market has become more competitive for the other players as witnessed in the declining trend in capacity utilization of all caustic soda producers. EPCL has the freight advantage

and better supply reliability of being located in the south. However, EPCL is now also making efforts to increase its share in the north. During FY11, EPCL has increased its market share to around 34%, whereas, Sitara Chemicals remained around the previous year's level (41%) while market share of Ittehad Chemicals dropped to about 25% (FY10: ~30%)

Due to global economic stress and ongoing internal power crisis, the overall economic condition of the country still remains under severe pressure. Despite the challenges being faced, the chemical manufacturing sector has the optimistic outlook for their business and they are finding ways to overcome the economic and power crisis by streamlining their operations, developing competitive market strategies, curtailing cost, adopting alternate power generation and improving efficiencies to explore newer markets.

### Demand & Supply of Caustic Soda Production Update

SCIL enhanced the installed production capacities of its two main chemical division product lines during FY10. However, these have remained at prior year's level during the outgoing year. The capacity utilization of chemical division product lines is tabulated below:

Capacity Utilization	FY09	FY10	FY11
Caustic Soda*	178,200	201,300	201,300
Capacity Utilization	82.27%	52.39%	51.14%
Sodium Hypochlorite*	66,000	66,000	66,000
Capacity Utilization	57.26%	40.61%	44.74%
Hydrochloric Acid*	180,000	212,200	212,200
Capacity Utilization	73.28%	63.10%	72.47%
Liquid Chlorine*	9,900	9,900	9,900
Capacity Utilization	87.75%	84.13%	77.56%
Bleaching Powder*	7,500	7,500	7,500
Capacity Utilization	58.68%	61.72%	61.15%
Ammonium Chloride*	3,400	6,600	6,600
Capacity Utilization	119.06%	48.94%	23.65%

\* Installed capacity is in Metric Tons

As illustrated, capacity utilization dropped drastically during FY10 on account of entry of a new player in the market. However, subsequently there seems to be a tacit understanding among major players for the market

share, though lately it appears to be favoring EPCL. Moreover, location of the manufacturing facility plays a pivotal role as freight advantage has primarily distributed major operators between south and north of the country. In order to somewhat mitigate lower quantity sales of caustic soda, the company took a timely initiative of enhancing installed capacity of hydrochloric acid, thereby taking advantage of its higher demand. This along with higher prices of caustic soda resulted in increase in sales of the chemical division.

The chlor-alkali industry is highly dependent on fuel & power, as it can account for more than 50% of total production cost. The increasing trend in the prices of gas & electricity makes the locally produced caustic soda expensive, thereby making it unattractive in the international markets. However, to curtail the high energy expense and power constraints the domestic players are switching from mercury cell to membrane cell technology, while SCIL has completely shifted to Mercury free Membrane technology which is the most cost efficient technology for producing Caustic Soda in terms of power consumption. Moreover, companies have installed their own captive power plants to ensure uninterrupted supply of energy.

Jahangir Kothari Parade (Lady Lloyd Pier)

Inspired by Her Excellency, The Honorable Lady Lloyd, this promenade pier and pavillion was constructed at a cost of 3 Lakhs and donated to the public of Karachi by Jahangir Kothari to whose genrosity and public spirit the gift is due. Foundation stone laid on January 5, 1920. Opened by Her Excellency, The Honorable Lady Lloyd on March 21, 1921.

*Dome: A roof or vault, usually hemispherical in form. Until the 19th century, domes were constructed of masonry, of wood, or of combinations of the two, frequently reinforced with iron chains around the base to counteract the outward thrust of the structure.*

*Origins: The dome seems to have developed as roofing for circular mud-brick huts in ancient Mesopotamia about 6000 years ago. In the 14th century B.C. the Mycenaean Greeks built tombs roofed with steep corbeled domes in the shape of pointed beehives (tholos tombs).*

*Otherwise, the dome was not important in ancient Greek architecture. The Romans developed the masonry dome in its purest form, culminating in a temple built by the emperor Hadrian. Set on a massive circular drum the coffered dome forms a perfect hemisphere on the interior, with a large oculus (eye) in its center to admit light.*



Jahangir Kothari  
Parade

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Member Association of Credit Rating Agencies in Asia

## **KARACHI**

VIS House - 128/C, 25th lane off Khayaban-e-Ittehad  
D. H. A. Phase VII, Karachi - Pakistan

## **LAHORE**

VIS House - 61-A/1, Street # 17  
Cavalry Ground, Lahore - Pakistan

Tel: (92-21) 35311861-70 Fax: (92-21) 35311872-73  
Website: [www.jcrvis.com.pk](http://www.jcrvis.com.pk)