

Technology Know-how

Engineering

Procurement

Construction

Project Management

# Success in Executing Chlor-Alkali EPC & LSTK Projects



Chemicals & Fertilizers, Energy & Infrastructure, Hydrocarbons, Steel

# **EPC & LSTK NUBERG GROUP Gas Plants Fabrication**

Pressure Vessels & Reactors, Heat Exchangers, Columns & Towers, Tanks Hydrogen, Compressed Air System, PSA – Nitrogen, PSA/VPSA -Oxygen

### **NUBERG EPC**

Founded in 1996, Nuberg EPC is a global EPC and turnkey project management company providing solutions with basic engineering and process know-how either from its own intellectual property or licensed from technology suppliers.



### What We Do

**Technology & Engineering Services** 

**EPC & LSTK Solutions** 

**Heavy Fabrication** 











### What We Do

## Technology & Engineering Services

#### **Process Design & Technology**

- Feasibility Study
- Product & Technology Development
- Process Know-how & Licensing
- Basic Engineering

Front End Engineering Design (FEED)

Project Management Consultancy (PMC)

Detail Engineering

- Civil & Structural Engineering
- Layout & Piping
- Rotary & Static Equipment
- Electrical & Instrumentation

Construction Management
Commissioning Services
Operation & Maintenance Services

### **EPC & LSTK Solutions**

**Greenfield-LSTK Project Execution** 

**EPC Project Execution** 

Relocation, Expansion of Projects

Composite MEP Packages

Manufacturing of Major Equipment

### **Heavy Fabrication**

**Columns & Towers** 

Pressure Vessels

Reactors/Columns

**Heat Exchangers** 

Primary Gas Cooler

Air Pre Heater

Waste Heat Recovery Boiler

Tanks (API Tank, Conical Roof, Rectangular Tanks)

### What We Do



Technology Know-how

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### Process Design and Technology

- Feasibility Study
- Product & Technology Development
- Process Know-how & Licensing



#### **Engineering**

- Basic Engineering
- Front End Engineering Design (FEED)
  - Detailed Engineering
  - Civil & Structural Engineering
    - Layout & Piping
  - Rotary and Static Equipment
  - Electrical & Instrumentation



#### **Procurement**

- Vendor Development & Qualification
- Cost Estimation & Purchase
- Super Capability Assessments
  - Quality Inspection and Surveillance



### **Project Management**

- Technical & Commercial Documentation
- Site Survey & Project
   Schedule
- Construction & Procurement
- Commissioning and Hand Holding





- Construction & Project Management
  - Installation and Erection of Equipment, Piping & Systems
  - Mechanical, Instrument and Electrical Work
    - Site Inspection & Safety Enforcement





### World Class Engineering

World class engineering set up with team strength of 300+ engineers

In-house set-up for FEED, Basic & Detailed Engineering

Latest Tools & Software: PIRS, AUTOCAD, HTRI, PRIMAVERA, PV Elite, ISOMAC, ProSteel, STAAD.Pro

Plant 3D modeling through PDMS and Solidworks







115000 sqm state-of-the-art heavy fabrication facility Cold rolling capacity of 100 mm and handling capacity

of 200 ton

Certifications: ISO9001:2008, ISO14001:2004 & OHAS 18001:2007

ASME, U,U2, R, IBR accreditation



# Swedish R&D Facility

R & D facility in Sweden for specialty chemicals

Proprietary technology for hydrogen peroxide and sulfuric acid



# Global Knowledge Base

Global experience in working with local codes, norms and standards

Executed more than 60 turnkey projects in 30+ countries

Strong global knowledge base with industry experience of over two decades



# International Quality Construction

Construction team of 200+ professionals with global experience

Proven track record of delivering projects with international quality and standards

Experience of working with international PMCs





### **Health and Safety**

Nuberg EPC is committed to provide protection against health and safety risks for its employees and all other stakeholders involved in completion of a project. We take stringent actions required to provide a safe environment for all stakeholders thereby minimizing the hazards. A proper management of risks control is the only solution for a safe environment and in Nuberg EPC we follow every aspect of risk control with integrity.

Stringent international quality and safety process standards are maintained. All major international certifications and accreditations are in place. We follow a world class HSE policy and safety is a paramount attitude we foster towards every team member working on projects. With zero accident since its inception in 1996, Nuberg EPC takes pride in being considered as one of the safest contractors. This repositions the company as one of the leaders in EPC industry.



### **Industries We Serve**





### **Industries We Serve**

## **Chemicals** and Fertilizers

- Chlor Alkali Plant
- Hydrogen Peroxide Plant
- Calcium Chloride Plant
- Sulfuric Acid Plant

## **Energy & Infrastructure**

- Ethanol Plant
- Methanol Plant
- Hydrogen Plant
- Fertilizer Plant

#### Steel

- Gas Condensation Unit
- Ammonia Sulphate Plant
- H2S Removal Plant
- Naphthalene Recovery Plant

## Nuclear & Defence

- Propellant Plant
  - Single Base Plant
  - Double Base Plant
  - Triple Base Plant

- Calcium Carbonate Plant
- Sulphonation Plant
- Quick Lime Plant
- PAC / Ferric Chloride
- Flare Gas System
- Oil Storage Tankages
- Sulphur Recovery Unit
- Green Technologies
  - Benzol Recovery Plant
  - Benzol Distilation Plant
  - Benzol Rectification Plant
  - Tar Distillation Plant
- Ammonium Perchlorate Plant
- Explosives Plant
  - NC, NG, HMX, RDX
  - PBX, TNT, Octol

- Bleaching Powder Plant
- Soda Ash Plant
- Gelatin Plant
- Specialty Chemical Plants
- Columns
- Scrubber & Separator
- Dispatch Terminals
  - Gas Holder Plant
  - BOD Plant
  - Pressure Sand Filter
- DEN/SAC Plant
- Tributyl Phosphate Plant
- High Energy Material Plant

# NUBERG EPC Success Story in Chlor Alkali Industry





**Caustic Soda Plant** 

**Client: SCE** 

**Location: Morocco** 

Technology Partner:

INEOS



**Caustic Soda Plant** 

**Client: Lineer Kostik Soda Sanayi** 

**Anomin Sirketi** 

**Location: Turkey** 

Technology Partner:

INEOS



**Caustic Soda Plant** 

**Client: Fluoder** 

**Location: Villeta, Paraguay** 

**Technology Partner:** 

INEOS



**Caustic Soda Plant** 

**Client: SARL SASKO** 

Location: Biskara, Algeria

**Technology Partner:** 





Caustic Soda Plant Phase - 1

**Client: Al Ghaith Industries** 

Location: ICAD, Abu Dhabi

**Technology Partner:** 

Asahi **KASEI** 



Caustic Soda Plant Phase - 2

**Client: Al Ghaith Industries** 

Location: ICAD, Abu Dhabi

**Technology Partner:** 

Asahi **KASEI** 



**Caustic Soda Plant** 

**Client: Emirates Chemical Factory** 

Location: KIZAD, Abi Dhabi

**Technology Partner:** 

Asahi**KASEI** 



**Caustic Soda Plant** 

**Client: Union Chlorine** 

**Location: Tarif Rd, Abu Dhabi** 

**Technology Partner:** 

C.E.C.





Caustic Soda Plant Phase - 1

**Client: SACHLO** 

Location: Riyadh, Saudi Arabia

**Technology Partner:** 

INEOS



Caustic Soda Plant Phase - 2

**Client: SACHLO** 

Location: Riyadh, Saudi Arabia

**Technology Partner:** 

INEOS



**Caustic Soda Plant** 

**Client: Oman Chlorine** 

**Location: Sohar, Oman** 

**Technology Partner:** 

INEOS



**Caustic Soda Plant** 

**Client: Egyptian Petrochemical** 

**Company** 

Location: Alexandria, Egypt

**Technology Partner:** 





Caustic Soda Plant

**Client: Inovyn** 

Location: Stenungsund, Sweden

**Technology Partner:** 

INEOS



**Caustic Soda Plant** 

**Client: TASNIM** 

Location: Dhaka, Bangladesh

Technology Partner:

INEOS



### **Caustic Soda Plant**

**Client: Global Heavy Chemicals** 

Location: Dhaka, Bangladesh

**Technology Partner:** 

INEOS



### **Caustic Soda Plant**

**Client: Lords Chloro Alkali Limited** 

**Location: New Delhi, India** 

**Technology Partner:** 





#### **Caustic Soda Plant**

**Client: Samuda Chemicals** 

Location: Dhaka, Bangladesh

**Technology Partner:** 

Asahi **KASEI** 



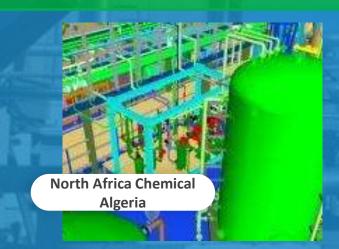
### **Caustic Soda Plant**

**Client: Gulf Chlorine** 

**Location: D-Ring Road, Doha, Qatar** 

**Technology Partner:** 

C.E.C.



### **Caustic Soda Plant**

Client: North Africa Chemical, Algeria

Location: Bouira, Algiers, Algeria

**Technology Partner:** 





### **Caustic Soda Plant**

**Client: Oman Chlorine SAOG** 

**Location: Sohar, Muscat** 

**Technology Partner:** 





### **Caustic Soda Plant**

**Client: Chemfab Alkalis Limited** 

**Location: Karaikal, India** 

**Technology Partner:** 





## **Project Methodology**

#### **Schedule**

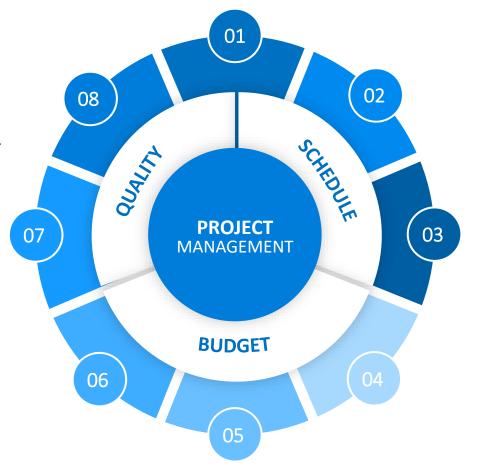
Microscopic planning and scheduling activities to the last point.

### **Budget**

Proper planning and regular execution monitoring are prerequisite to control budget.

### Quality

Essential for customer satisfaction and plant life.



### 01 Scope

Clear scope and brief keeps project in budget and time.

### **02** Planning

Planning all activities for better execution.

### 03 Monitoring

Tracking and reporting details minutely for quality delivery.

### **04** Engineering

Dedicated teams, equipped with latest technology and software, to deliver safe, sustainable and cost efficient plants.

#### **05** Procurement

Procurement team compliments processes for quality and timely execution.

#### **06** Construction

Specialized teams and approved contractors with global experience deliver faster and better.

### 07 Commissioning

Dedicated and experienced teams for smooth commissioning, training and handover of project.

### 08 HSE & Quality

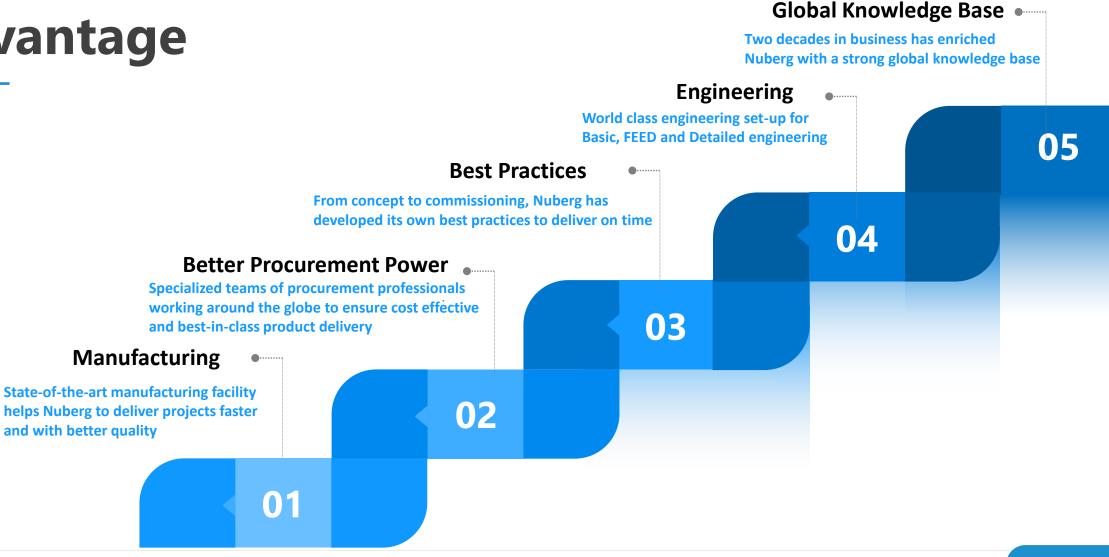
HSE, quality control and audit is of paramount importance and integral part of project life cycle.



# Nuberg Advantage

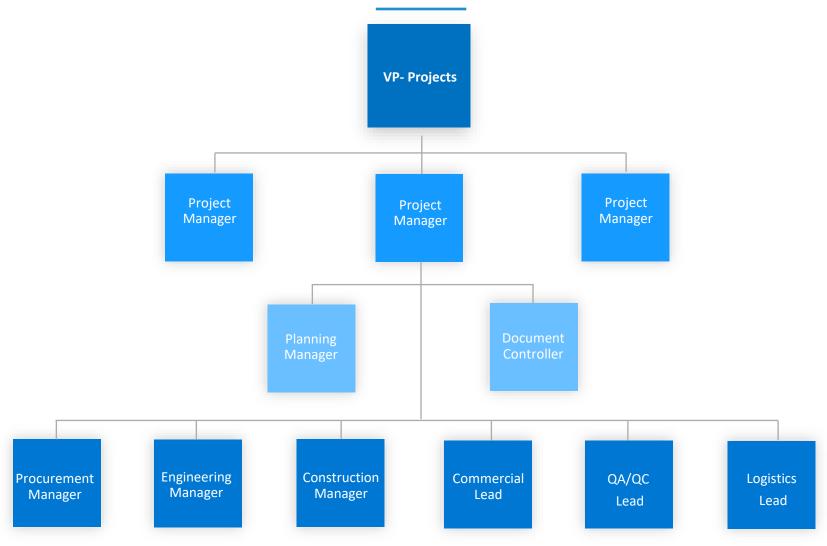
Manufacturing

and with better quality



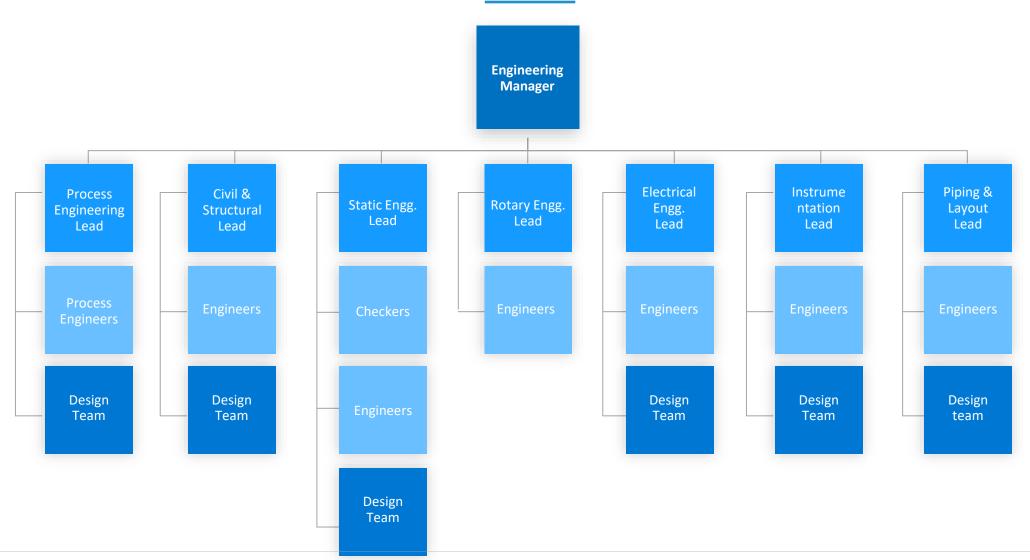


# **Project Management Chart**



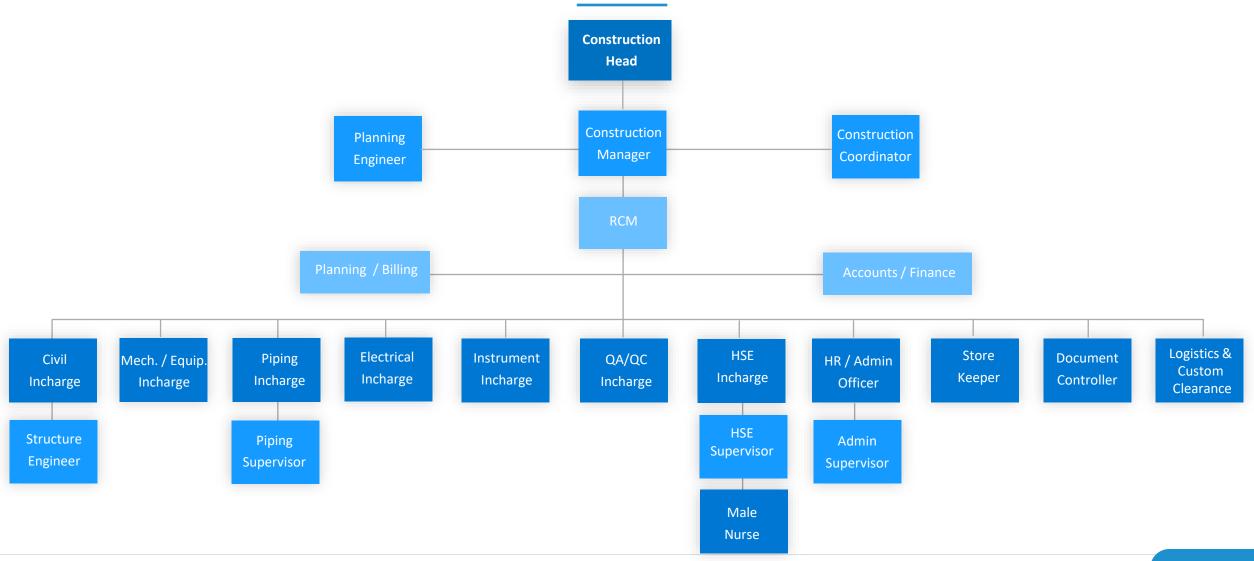


# **Project Engineering Chart**





## **Project Construction Chart**



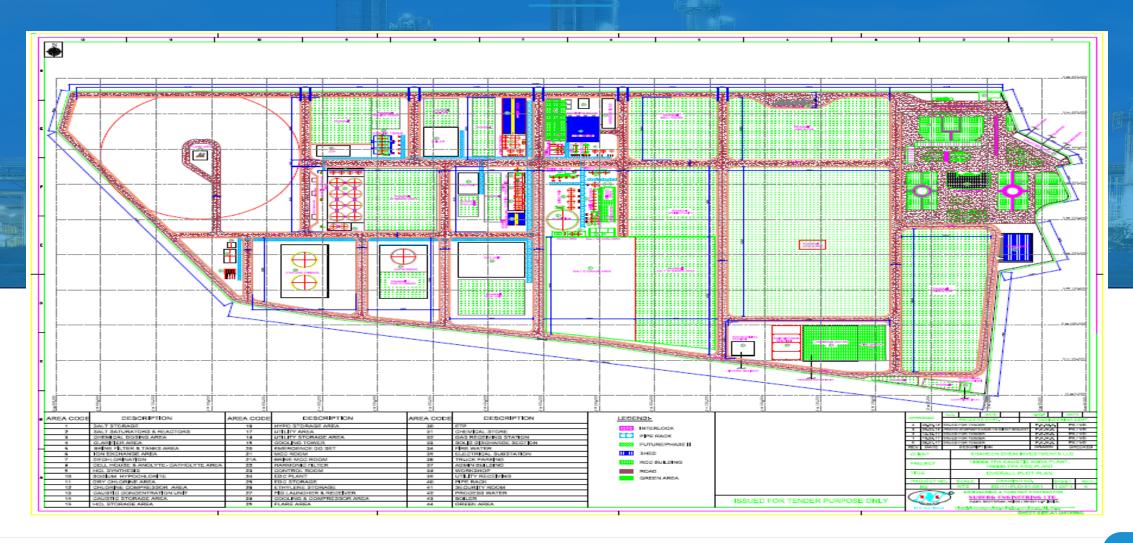


# **Project Scope Matrix**

S. No.	Description	Performed by	Remarks
	Project Management		
1	Project Review & Steering Committee		
0.0	Project Execution Team		
2	Project Management Consultant (PMC)		
3	Process & Technology Know-how		
4	Adaptation of Basic Engineering Package		
5	Detail Engineering Package		
6	Procurement & Logistics		
7	QA & QC		
8	HSE		
9	Civil Construction		
10	Mechanical Construction		
11	Electrical Construction		
12	Control & Instrumentation Construction		
13	Fire Fighting & Gas Detection Construction		
14	HVAC Construction		
15	Commissioning		
16	Training & Handover		



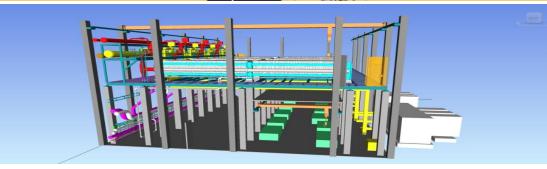
# Sample Layout – Caustic & EDC Complex

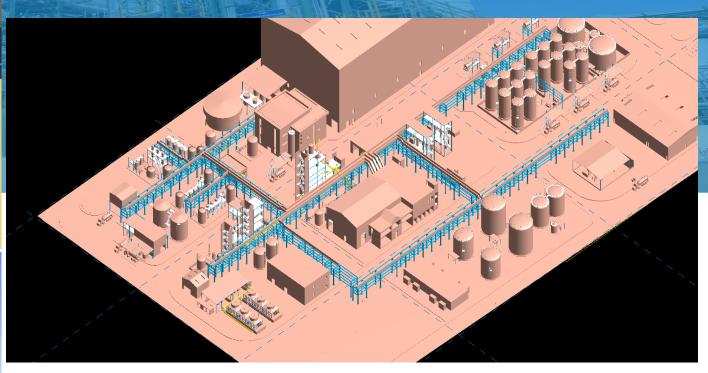




# Sample 3D Modeling

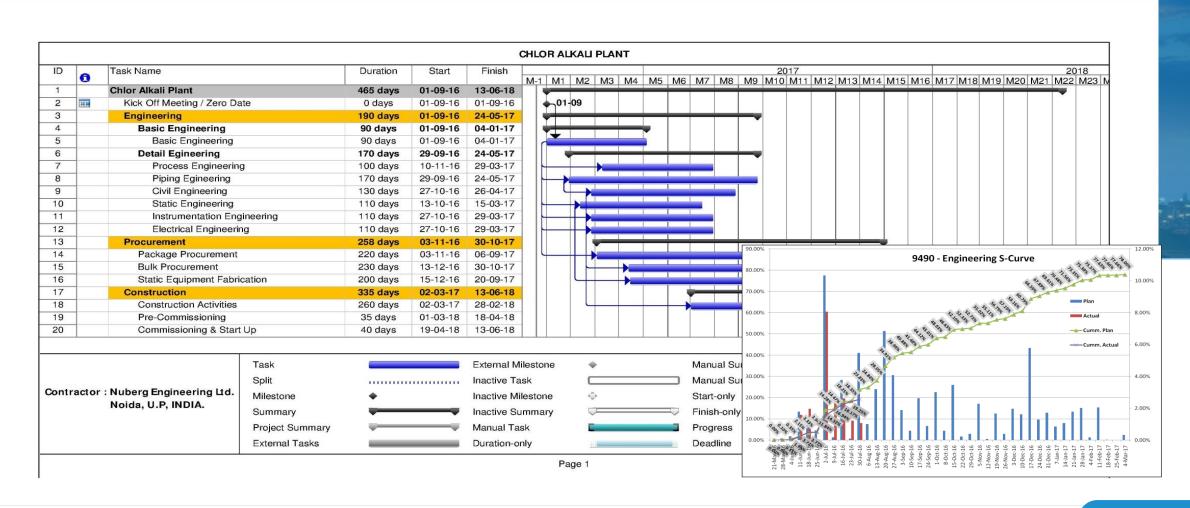








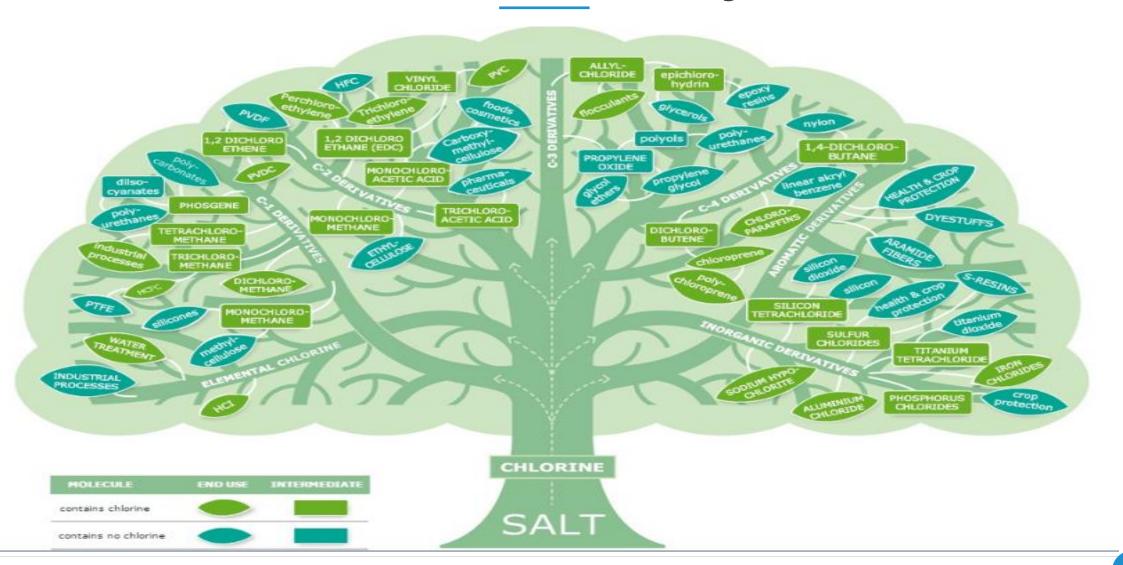
# **Project Schedule & Monitoring**



## **Solutions for Chlorine & Derivatives**



## **Chlorine Tree – Essence of Synthetic World**



## **Chlorine Applications**



### **AUTOMOTIVE**

- Paints
- Floor Mats
- •Tire rods
- Dashboards
- Fabric

#### **DEFENSE**

- Bullet proof Vests
- •Helmets
- Parachutes
- •Jet Engines
- Missiles

### **CONSTRUCTION**

- Carpeting
- Pipes
- Siding
- •Flooring
- Paints & Coatings

#### **HEALTH CARE**

- Sterile Packaging
- Surgical Equipments
- Lab Reagents
- Cleaning Compounds
- Eye Wear

#### **MEDICINE**

- Antibiotics
- Pain reliever
- •Cancer Treatment
- Decongestants
- Anesthetics

### OUTDOOR RECREATION

- •Golf grip
- •Sleeping bags
- Tents
- Backpacks

### **ELECTRONICS**

- Antibiotics
- Pain reliever
- Cancer Treatment
- Decongestants
- Anesthetics

### METAL PRODUCTION

- Magnesium
- Nickel
- •Zinc

### WATER TREATMENT

- Safe drinking water
- •Wastewater treatment

### **FOOD**

- •Vitamin B1 & B6
- Herbicides



## **Drivers, Opportunities & Challenges**

#### **Drivers**

Higher growth in end-user industries,
 Water Treatment, Organic & Inorganic
 Chemicals, EDC/PVC, propylene oxide,
 and pulp & paper industries in Asia.

### **Opportunities**

Chlorine based products can tap new markets.

- Diversified product portfolio offers better potential for optimizing operating costs.
- Downstream products can set the right direction for the future business approach.

### **Challenges**

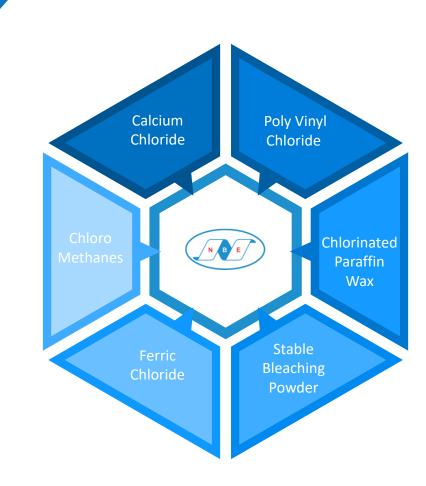
- •Uncertainty in demand for liquid chlorine.
- Points of sales either non-existent or limited at many locations.
- Difficulties with long distance transportation of Chlorine because of its hazardous nature.
- Negative impact on project feasibility / operating cost due to the above.
- High cost of Chlorine puts a negative impact on Caustic Soda.



# Nuberg EPC's Vision Today & Tomorrow

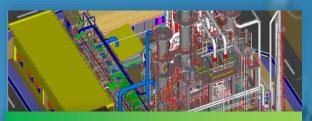
- Nuberg has strongly established its leadership in Caustic Chlorine industry.
- Nuberg has plans to expand its portfolio to provide the solutions of the downstream integration of the Caustic Chlorine process.
- Caustic soda has provided most of the return on the investment in the last several decades but chlorine has been making only modest contributions.
- The usual by product of Chlor Alkali process is Hydrochloric Acid which has storage & export limitations. Moreover, the value addition down the chain is not much for Hydrochloric Acid.
- Few of the products which offer much higher realization in the value chain and so at our immediate attention are:
  - Calcium Chloride
  - Stable Bleaching Powder
  - EDC to PVC

- Ferric Chloride
- Chlorinated Paraffin Wax
- Chloro Methanes





# Calcium Chloride Worldwide EPC & LSTK Plants



## Al Ghaith Industries Abu Dhabi

Client: Al Ghaith Industries

Location: ICAD, Mussafah, Abu Dhabi

Commission: 2017

**■ PRODUCT MIX:** 

Calcium Chloride

CO2



### Chimcomplex Romania

Client: Chimcomplex

Location: Onesti, Romania

Commission: Under Execution

PRODUCT MIX:

Calcium Chloride

CO2



TCI Sanmar Chemicals
Egypt

Client: TCI Sanmar Chemicals

Location: Port Said, Egypt

■ Commission: Under Execution

PRODUCT MIX:

Calcium Chloride

CO2



### SACHLO Saudi Arabia

Client: SACHLO

Location: Riyadh, Saudi Arabia

Commission: Under Execution

PRODUCT MIX:

Calcium Chloride

CO2

In addition, Nuberg EPC has executed many turnkey projects for Stable Bleaching Powder (SBP), Chlorinated Paraffin Wax (CPW) and Ferric Chloride across the world.

## **Awards & Recognition**



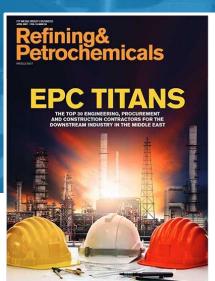
### **EPC COMPNAY OF THE YEAR**





### **Awards & Recognition**

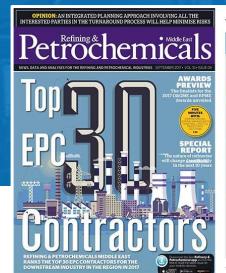
# Nuberg EPC is acknowledged among TOP 30 EPC companies in the Middle East













2021

2018

2017



### **NUBERG EPC In News**

25 Years of Delivering Value



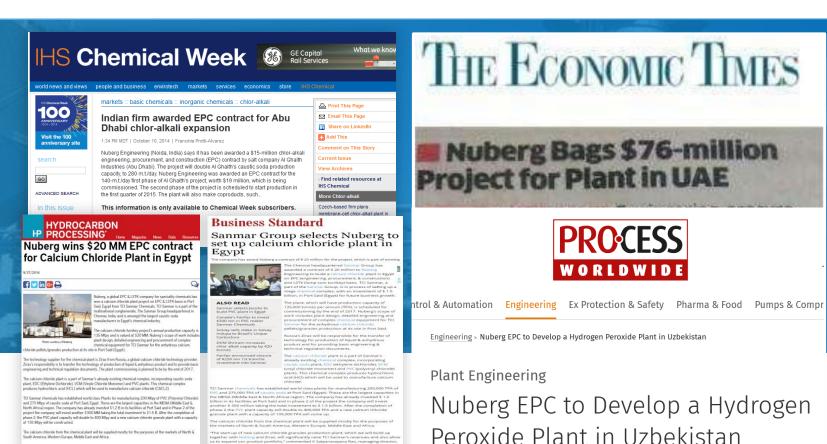




World's No. 2 EPC Company for Chlor-Alkali World's No. 1 EPC Company for Calcium Chloride World's No. 1 EPC Company for Hydrogen Peroxide



### **NUBERG EPC In News**









### **Global Offices**



### **SWEDEN**

EB Nuberg Badviksvagen 75 424 57 Gunnilse Sweden



### **LONDON**

Caxton Way, Stevenage, SG-1 2XU United Kingdom Unit-32- Caxton Point, UK 32



#### **ABU DHABI**

PO Box- 35119 M-41, ICAD Industrial City of Abu Dhabi, Musaffah, Abu Dhabi, UAE



### **SAUDI ARABIA**

No.5 Block 7 Seehiank, Secondary Industrial Area, Jubail Kingdom of Saudi Arabia



#### **EGYPT**

Plot No. 198, Al Ahram Street, Mokattam, Cairo Egypt

### **CORPORATE OFFICE**

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