

Libra Techcon Ltd.

(An ISO 9001:2008 compliant company)



ENGINEERING SERVICES PROFILE

Head Office:

805 / 806 Hallmark Business Plaza,
Gurunanak Hospital Road, Bandra (E),
Mumbai 400 051.

Ph: 91-22-40940555,

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Email: libra@bom3.vsnl.net.in

R&D Centre:

A-167, T.T.C. MIDC.,

Khairane,

Navi Mumbai 400 709

Ph: 91-22-40896200, 27782122

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Website: www.libratechcon.com



DET NORSKE VERITAS

MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 60399-2009-AQ-IND-UKAS Rev. 01

This is to certify that

LIBRA TECHCON LTD.

at

Head Office: 805/806, Hallmark Business Plaza, Guru Nanak Hospital Road, Bandra (E), Mumbai - 400 051, INDIA
R&D Centre: A-167, T.T.C, M.I.D.C, Khairane, Navi Mumbai - 400 709, INDIA

has been found to conform to the Quality Management System Standard:

ISO 9001:2008

This certificate is valid for the following scope:

**DESIGN, DEVELOPMENT, ENGINEERING & PROJECT MANAGEMENT RELATED TO
CHEMICAL PLANTS INCLUDING INNOVATION IN PROCESS TECHNOLOGY**

Initial Certification date:
15 September 2009

This Certificate is valid until:
14 September 2012

*The audit has been performed under the
supervision of:*

Col. R.M. Bedi (Retd.)
Lead Auditor



Place and date of Issue:
Chennai, 09 August 2011

for the Accredited Unit:
DNV CERTIFICATION LIMITED
UNITED KINGDOM

Bhupalam Ajit
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement & the annexure to this certificate may render this Certificate invalid.

About Libra Techcon Limited

LIBRA, the holding company for the Wazir Group of Companies was founded in 1961 by Late Shri. Shyam Lal Wazir. The basic objective of the company was to promote various group companies as well as to represent overseas companies in India in the fields of Imports and Exports, Financial Services, Investments and Management Services.

LIBRA entered the manufacturing field in 1971 under the leadership of Mr. Surinder Wazir, a Chemical Engineer from University of Tulsa, Oklahoma, U.S.A. and put up its first Formaldehyde plant. The plant capacity was subsequently increased and the unit diversified into the production of Hexamine and later Para formaldehyde after developing its technology.

Due to in house experience of technology development, project implementation and management, Libra started a separate division “Libra Consultancy Services”(LCS) to cater to the business of ***technology transfer, engineering and related services***. LCS initially concentrated on providing its technologies only to its group companies. However in 1993, M/s Saudi Formaldehyde Chemical Company Ltd., Saudi Arabia approached LCS for technologies for their future expansion and an MOU was signed. This gave an opportunity to LCS to expand the horizon of its activities to international clients.

Since then, Libra has supplied the technologies of Hexamine, Paraformaldehyde, Alcoholic Solution of Formaldehyde etc. to Saudi Arabia and China (through an Italian Company). Libra has also provided various other technical services to companies in Bahrain, U.A.E., Egypt, Iran, Italy, China, Ghana and Saudi Arabia.

In 2005, Libra promoted a wholly owned subsidiary Libra Techcon Ltd. (LTL)

In order to meet the challenge of technology obsolescence and to foster innovation, Libra has constructed a state of the art R&D facility, located at Navi Mumbai. This research center has been operational since March 2005. **Libra Techcon has been certified as ISO 9001:2008 (without exclusions) compliant in September 2009.**

Today, Libra is a single window company dealing with Chemical Technology, Chemical processes & innovations, design, engineering services and project management for the client.

General Information

Name of the firm	:	LIBRA TECHCON LIMITED [A wholly owned subsidiary of Libra (Agencies) Pvt. Ltd.]
Year of establishment of parent company:	:	22 nd September, 1961
Legal form of the firm	:	Private Sector – Limited Company
Number of employees	:	47 Nos. (Direct)
Nationality	:	Indian Company
Address Head Office	:	805 / 806, Hallmark Business Plaza, Guru Nanak Hospital Road, Bandra (E), Mumbai – 400 051. India.
Telephone No. H.O.	:	00 – 91 – 22 –40940555
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Address R&D Centre	:	A-167, TTC Indl. Area Khairne MIDC Navi Mumbai-400 709
Telephone No. R&D Centre	:	00 – 91 – 22 –40896200 / 2778 2122 / 23
Fax No R&D Centre	:	00 – 91 – 22 – 2778 1629
E-mail R&D Centre	:	admin@libratechcon.com
Website	:	www.libratechcon.com
Contact Person	:	Mr. Sandeep Nadkarni Manager – Projects Mr. A. R. Birla Sr.Manager
Representative Office	:	United Kingdom. 5 -7 Finsgate, Granwood Street, London. EC1V 9EE. Tel. 00 44 (0) 870 7479165 Fax 00 44 (0) 870 7479166 E-mail : SGohil7893@aol.com
Activities	:	Suppliers of Technical Know-How, Turn-key Projects, Equipment / Machinery Supplier and Merchant exports.

Our Core Professional Team

Libra employees are an asset we carefully nurture. Many of our employees have been with us for years, and have grown with the company. Here is our core team responsible for keeping us flying high.

Name	Designation	Brief Profile
Mr. N N Manek	President	Mr Manek is the visionary leader at Libra Techcon Ltd with more than 41 years of experience in the Chemical Industry. A Chemical Engineering Graduate from UDCT Mumbai , he has to his credit, a patented process for manufacturing for Paraformaldehyde . In his long career with industry leaders like Polyolefins Industries, Aegis Chemicals, Deepak Fertilizers, Claro India and Konkan Chemicals , he has practically mastered the chemical processes related to Formaldehyde, Paraformaldehyde Pentaerythritol and Hexamine .
Mr M S Bhawe	Vice President – Projects	Mr Bhawe is a Post Graduate in Chemical Engineering from UDCT, Mumbai . With more than 27 years of experience , and back ground of project implementation starting from bench scale development through pilot plant to Project implementation for organic intermediates, bulk drugs, fine chemicals and simulation packages for process design, he has worked with industry leaders like Bombay Oil Industries, Apte Amalgamations, Gharda Chemicals, Indofil chemicals and Shroff Associates .
Mr P H Rao	Vice President – Projects	Mr P H Rao is a thorough Projects specialist with more than 40 years of experience in various capacities with companies like RCF (28 years), Reliance – Refinery, Eastern Petrochemicals (Sharq – Saudi Arabia) Furnace Fabrica – Navi Mumbai and Hindustan Dorr Oliver after graduating from as Mechanical Engineer from REC - Rourkela . His knowledge of international codes and standards in various fields like Pressure vessels, Storage tanks, Piping, NDT, Welding, Materials, Inspection, Painting and coating and cathodic protection is an asset to our company.
Mr N M Chaudhari	General Manager – Projects	Mr Chaudhari is a fine executioner combined with cross functional capabilities in Purchase, Finance, Logistics and regulatory liasioning. After completing Chemical Engineering from UDCT Mumbai and post graduation in Industrial Management , he has worked with wide spectrum of companies like IVP Ltd., Gujarat Themis Biosyn, Lawande Pharma, Alembic Chemicals, United Phosphorus, Deepak Fertilisers and Navin Flourine in his career spanning more than 28 years .
Mr A R Birla	Sr. Manager	Mr Birla is a thorough R&D specialist with more than 31 years of experience in various capacities with companies like KLJ Organic, API Industriaal Corp., B. D. Khaitan & Co.,Gitanjali Chemicals, Manak Citrus Products and Multi Organics . A B. Sc. (Hons.) in Chemical Technology from Pune University with a Post Graduation in Industrial Engineering , he has developed unique technologies for manufacture of pesticide and pharmaceutical intermediates like 1) Para Chloro Benzyl Cyanide 2) Para Chloro Phenyl alpha Isopropyl Cyanide 3) 2:6 Di Chloro Phenol 4) O' Chloro

		Benzaldehyde & O' Chloro Benzoic Acid 5) O' Chloro Benzo Trichloride 6) P' Chloro Benzaldehyde & P' Chloro Benzoic Acid
Mr K S Rao	Manager – Projects	Mr K S Rao is also a Formaldehyde specialist with a career spanning 36 years in chemical industry after B. Sc. (Chemistry) from Pune University . The man behind erection and commissioning our own pilot plant , he has also successfully erected and commissioned Paraformaldehyde plant in China and Paraformaldehyde Plant in Saudi Arabia , both supplied by us. In addition he has successfully erected and commissioned Formaldehyde plant of Mohata Chemicals . His experience with companies like SFCCL, Saudi Arabia, Iftex Oil and Chemicals, IPCL, Herdillia chemicals, Konkan Chemicals and Universal Chemicals are an asset to us.
Mr S R Nadkarni	Manager – Projects	Mr Nadkarni, a Chemical Engineer from Mumbai University has over 19 years of experience in Chemical Industry. His all rounded career has spanned variety of functions like Project Coordination, Execution and Consultancy, Marketing, Engineering Services, ISO certification implementation with industry players like Aarti Organics, Apar Ltd., Amoli Organics, Nikhil Adhesives, Hemani Chemiorganics and Joja Chemicals .
Mr J V Gandha	Manager	Mr Gandha, a Chemical Engineer from Gujarat University has over 31 years of experience in Chemical Industry. Being general manager of Mysore Petrochemicals and Resonance Speciality Ltd , he has successfully handled functions of personnel, administration, statutory compliances, stores, purchase, operations, production and engineering. Associated for doubling the plant capacity of Maliec Anhydride at Mysore Petrochemicals from 3,000 TPA to 6,000 TPA along with process licensors M/s. Lurgi GmbH Germany and detailed engineering consultants M/s. H&G . At Ambuja Petrochemicals , he handled the de-bottlenecking of Phthalic Anhydride from 8,600 TPA to 10,000 TPA . Further he setup Fumaric Acid Plant with process licensors M/s. Allussisse Italia and detailed engineering consultant M/s. Tata Consulting Services .

Libra's solutions for Hydrocarbons, Organic Chemicals and Intermediates Processing Sector:

We, at Libra Techcon, deliver not just know how, technology and services – though equally critical – but complete solutions for a wide range of process clients including hydrocarbon processing industry, leveraging our skilled and experienced manpower and technology resources.

Our expertise in Process / Production areas, help our customers reduce supply cost by being more energy efficient as also by optimizing yields and qualities of valuable products. We aim to improve profitability and returns on investments by improving reliability of individual equipments and processes by taking a third eye view of complete business units as a whole that deliver value to its stake holders. Appropriate steps like de bottlenecking and replacing of outdated processes and technologies help our clients improve profitability. This is done by setting objective targets, creating actionable projects at plant / executive levels and implementing them through time bound action plans and rigorous monitoring while targets are achieved.

Our proactive approach towards your production assets (inclusive of captive units) helps extend asset life by predictive maintenance activities and optimum production practices thus reducing associated downtime costs and increasing profitability.

With our thorough knowledge of Chemical technologies combined with business acumen towards complete product chain, we advise clients on backward or forward integration strategies as also helping them convert by products to value added products ultimately contributing to their bottom lines. Our Design / Development strengthened by our own R&D laboratory and Pilot Plant, help us achieve client specific objectives qualitatively and quantitatively, in a time bound manner.

In areas of Hydrocarbon Processing, Chemicals, Organic Chemicals and intermediate processes, we offer you following:

I. Project Services

1. Detailed Project Reports and Techno Economic Feasibility Studies

- Detailed Project Report and Techno Economic Feasibility Studies for chemicals which shall give complete analysis and direction for setting up a project.
- The Studies shall give details of product and its applications, market, project cost & means of finance, raw materials & their costs, man power & their costs, working capital, financial projections and profitability analysis.
- In addition to the above a detailed study of latest as well as time tested technologies available for manufacture of product along with their suitability to clients unique positioning is done
- Multiple inputs gathered from diverse resources are evaluated in detail for the technical, commercial and financial influence on the project to facilitate decision making process of client.

2. *Project Planning and Management*: Some of the Project management Services undertaken by us include:

- *Project Cost Estimates and Cost Control*

- Project cost estimates for various plant capacities, different process routes can be undertaken.
- Optimized solutions to control costs are evolved in the right mix by our highly experienced personnel with technical capabilities.

- *Acting as Project Management Consultant (PMC) for the Client*

- We can undertake on behalf of the client complete Project Management activities from concept to commissioning of the project.

- *Project planning and progress Control using **PRIMAVERA/ MICROSOFT PROJECT***

- Project planning and progress control is aided by using **PRIMAVERA / MICROSOFT PROJECT** software for increasing efficiency in handling of projects.

3. *Process Simulation Services*: For complex controls projects, simulation of the process is often necessary to develop the most effective control scheme. We have experience with all aspects of control system design and modeling. We specialize in modeling techniques using **ASPEN+ / HYSYS** which:

- Use the Workbook and Process Flow Diagram (PFD) interfaces for quick and effective modeling
- Allows rapid flow sheet construction and intuitive, bi-directional calculations
- Customizes the Workbook to track additional stream and operating parameters
- Investigates how templates and sub flowsheets can streamline and organize simulation efforts
- Evaluates the performance of existing equipment with the Rating utilities
- Improves the convergence performance of a simulation, troubleshoot common problems.

4. *Basic Engineering*: Our approach to basic engineering of any process is very systematic and it starts with Process Flow Diagrams inclusive of material and energy balance which helps in further design of plant equipments correctly. Our Basic Engineering package typically comprises of items related to Equipment, Civil & Structural Designs, Instrumentation, Piping within the Plant Battery Limits. However we also carry out basic engineering of Offsites and Utilities, Laboratory facilities, Pollution Control Plants and Infrastructure & Manpower requirements as an optional package.

5. *Detailed Engineering*: We have resources and trained engineers for preparing complete detailed engineering package from the basic engineering developed by our in-house team or submitted by client or process licensors. Deliverables include documents related to Equipment, Civil & Structural Designs, Instrumentation, Electrical and Piping.

6. *3-D Services:* Our 3D modeling services cover all plant engineering disciplines such as Structural, Civil, Equipment, Material Handling and Transportation, Electrical, Instrumentation, and Piping. We can generate 'Interference/Clash Detection' reports, General Arrangement Drawings (GADs), detailed isometric drawings, and detailed 'Material Take Off' lists (MTOs) for use at the construction site.

7. *Piping Stress Analysis:* Piping Stress analysis is a term applied to calculations, which address the static and dynamic loading resulting from the effects of gravity, temperature changes, internal and external pressures, changes in fluid flow rate and seismic activity. Codes and standards establish the minimum requirements of stress analysis. The Purpose of piping stress analysis is to ensure:
 - Safety of piping and piping components.
 - Safety of connected equipment and supporting structure.
 - To keep piping deflections within the limits

8. *Process Equipment Design:* Our team of design engineers offers services to the client for design of process equipment including pressure vessels, heat exchangers, distillation columns, storage tanks, silos etc. Engineering is carried out using international and local codes like ASME, API, TEMA, BIS etc as required by client. Latest software like PV Elite, e-Tank, TEMA for Mechanical Design and AutoCAD, MicroStation, Intergraph SmartSketch for Drafting can be used as specified by client. We provide Datasheets, Mechanical Specifications, and Design calculations.

9. *Procurement Assistance:* We provide Procurement Assistance services such as furnishing the list of likely, competent and qualified vendors, floating enquiries, technical and commercial evaluation of the offers, negotiation with vendors, submitting draft purchase orders, assisting in placement of order. We also take up procurement services and buy chemical plant and machinery including bulk materials on behalf of client.

10. *Inspection Services:* Inspection services at onsite vendor workshops, stage-wise & final inspection of static and rotary equipments, inspection and witnessing performance test for proprietary items like pumps, blowers, motors and systems such as dryers, chilling plants, boilers etc. Our area of expertise includes design appraisal, scrutiny of drawings and design calculations for all equipments. Our team is highly qualified with expertise in inspection as per international codes such as BIS, BS, ASME, TEMA, DIN, API, JIS and NACE.

11. *Plant Erection and commissioning Supervision Services:* In the construction of projects, systems and works, the application of engineering does not end with the delivery of project design drawings to the owner or developer. The production of a competent engineering design does not assure the owner that the project will be safely constructed in accordance with the sound

engineering principles and practice. Design of projects, systems and works, is an initial phase of engineering; supervision of construction is another, equally important phase. Engineering supervision of construction is required to ensure, among other things, correct interpretation and application of the design, and of the engineering principles which are expressed in it. In addition all engineering details cannot be totally addressed in the design phase—even in the most comprehensive drawings and specifications. Accordingly, it is necessary for engineering judgments to be made during the course of construction. Our Erection and Commissioning Supervisory team is capable of doing that with high level of competency and field experience. We also take up erection and commissioning assistance for the project on per diem rate basis besides lump sum or part of EPC contract.

II. Production Optimization Solutions

Some of the Plant / Production Optimisation Services undertaken by us include:

1. Process and Energy Benchmarking for achieving cost reduction, yield and capacity increase and waste reduction:

- Process benchmarking shall guide plant managements through analyzing current processes vis-à-vis known best benchmarks through process mapping and using tools such as Root cause analysis, Six sigma methods, Value analysis and Mistake proofing. By thorough analysis of existing plant data and through theoretical approach, interactive discussions and activities thereafter, you will be able to see which processes need improvement and which need redesigning
- The above activity is backed by **Process Simulation Services**, which reduces the implementation time and need for trial and error approach. Involvement of shop floor personnel as team with our engineers ensures a “hands on” approach to the problems.
- A Preliminary Energy benchmarking highlights energy costs and identifies wastages in major equipment processes which sets priorities for optimizing energy consumption. **Pinch analysis** is used to identify specific process steps for reduction of energy consumption.
- A detailed Energy benchmarking covers estimation of energy input for different processes, losses, collection of past data on production levels and specific energy consumptions. It is a comprehensive energy audit action plan to be followed effectively by the industry. The scope of this audit is to formulate a detailed plan of action on the basis of quantitative and control evaluation, to achieve on sustainable basis the reduced total energy consumption and costs for the product manufactured.
- It is a formal system for the management of energy use, to improve their energy efficiency. It help industries to systematically identify opportunities for improving energy efficiency regularly
- The potential benefit of the Energy Audit Scheme is substantial as it could result in potential cost savings, that in turn help to improve the company's competitiveness.

2. *Trouble Shooting and Optimizing Process Parameters*

- With the highly experienced and skilled personnel aided by available software, we can take up process optimization assignments and provide guidance in trouble shooting, yield improvement, de bottlenecking, time cycle analysis, capacity improvement and process optimization projects of various operations in existing plants.
- Our in-house R&D capabilities and Pilot plant help us carry out requisite trials and experiments to achieve the set objectives.

3. *Product Yields and Quality Enhancement*

- Our thorough knowledge of Chemical processes both continuous and batch as well as experience in handling unit operations like distillation, separation, crystallization etc besides kinetics for reaction control help us step into your processes at plant floor levels and advise on improving yields and specifications of your end products.

4. *Process Simulation Services*

- For existing chemical plants, simulation of the process is using the available plant data as well as reported / theoretical data gives a most effective method to benchmark & implement Yield & Quality Improvement across the production process. Simulation of the process reveals the bottlenecks & potential areas for improvement, *without the need for carrying out actual modifications / experiments on Plant Scale.* We specialize in simulation / modeling techniques using **ASPEN+ / HYSYS / CHEMCAD etc.**

5. *Design and Execution of Effluent Treatment Plants and Recovery of Valuable Products from Effluents*

We design and execute effluent treatment plants to meet strict environmental stipulations of many countries. Our approach in finding solution to the effluent treatment is more towards recycling and recovery of valued added products rather than end of the pipe treatment. We take up projects for recovery of valuable products from effluents and provide economically viable solutions to increase profits. This is backed by our R&D laboratory for analytical and experimental work.

6. *Undertaking HAZAN, HAZOP and Risk Analysis*

- Quantitative Risk Assessment Studies of Offsites, Storage Tanks, Hazardous process plants and other facilities. We use globally acceptable methods for carrying out such assignments using state of the art software.
- Our team of well experienced process and plant engineers carry out or assist the client in carrying out **HAZard and OPerability (HAZOP)** Study for any process industry including Petrochemicals, Fertilizers & Refineries. We use the guideword approach for the HAZOP study, which apart from being internationally adopted is formal, systematic & rigorous in examining the process and engineering intentions of various facilities.
- HAZAN (**HAZard ANalysis**) technique quantitatively evaluated the hazard, enabling development of a control plan for the same.

Process Technologies Offered

Alcohol Based Process Technologies

Formaldehyde

Paraformaldehyde

Urea Formaldehyde

Hexamine

Pentaerythritol, Sodium Formate, Formic Acid

Pyridines & Picolines

UF/PF/MF Glue Powders & Resins

Formaldehyde Sulfoxylates

Dialkyl Phthalates

Acetaldehyde

Formic Acid

Acetic Acid & Acetic Anhydride

Alcoholic Solution of Formaldehyde

Ethyl/ Butyl Acetate

Vinyl Acetate

Inorganic Chemicals Process Technologies

Hydrofluoric Acid

Inorganic Fluorides

Sodium Perborate

Sulphuric Acid & Alum

Sulfamic Acid

Potassium Permanganate

Sodium Hydrosulphite

Phosphoric Acid & Super Phosphates

PVC Stabilisers & Paint Dryers

Bulk Drugs & Intermediates Process Technologies

Oxalic Acid Diethyl Oxalate

Acetanilide

Paracetamol

Acetyl Salicylic Acid

Aluminium Hydroxide-Gel

Pectin from Lemon/ Orange/Apple Fruits

Miscellaneous Organic Chemicals Technologies

Chlorinated Paraffin Wax

LABS, AOS, FAS

Dimethyl Aniline

Benzoic Acid

Ethanol amines

2, 4 D Sodium Salt, Amine salt, Acid and Ethyl ester

Mono Chloro Acetic Acid

n-Butyl Chloride

REFERENCES

No.	Client	Country	Project	Year	Scope
PROJECT SERVICES					
1	Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Pentaerythritol	1997	PM (Project Report)
2	Modern Décor and Wood Products Mfg. Co. Ltd.	Saudi Arabia	Decorative / Industrial Laminates	2000	PM (Technical Audit)
3	Uni Arab Engineering and Oilfield Services	U.A.E.	PVC Stabiliser	2001	PM (Project Report and technical Services)
4	Libra Agencies Pvt. Ltd.	Ghana	Aluminum Sulphate and Sulphuric Acid Project in Ghana	2002	PM (Techno Economic Feasibility Report)
5	Al Ghanim International (Through Lahmeyer International Pvt. Ltd.)	Kuwait	Al Khafji Joint Operations, addition of 4 th gas turbine generator	2009	Simulation of Engineering and Process Design
6	Indofil Chemicals Co	India	Mancozeb (fungicide)	2009	Verification and certification of completed works
7	Indofil Chemicals Co	India	Confidential	2010	Techno Economic Feasibility Report
8	Godavari Biorefineries Ltd	India	Confidential	2010	Detailed Project Report
9	Assam Petrochemicals Ltd	India	Acetic Acid	2010	Techno Economic Feasibility Report and Technology tie-up
10	Confidential	India	Triphenyl Phosphite	2010	Process Improvement
11	African Fertilizers & Chemicals Ltd.	Nigeria	Sulphuric Acid and Alum Plant	2011	Technical Audit
12	Gujarat Organics Limited	India	Energy Audit	2011	TS

PROCESS PLANTS					
1	M/s. Konkan Chemicals Pvt. Ltd.	India	Formaldehyde first plant	1971	PL, KH, BE, DE, PM
2	M/s. Konkan Chemicals Pvt. Ltd.	India	Formaldehyde expansion	1974	PL, KH, BE, DE, PM
3	M/s. Konkan Chemicals Pvt. Ltd.	India	Hexamine First Plant	1975	PL, KH, BE, DE, PM
4	M/s. Konkan Chemicals Pvt. Ltd.	India	Hexamine Expansion	1977	PL, KH, BE, DE, PM
5	M/s. Konkan Chemicals Pvt. Ltd.	India	Paraformaldehyde - Semi Commercial Plant	1978	PL, KH, BE, DE, PM
6	M/s. Konkan Chemicals Pvt. Ltd.	India	Rubber Blowing Agent	1979	PL, KH, BE, DE, PM
7	Claro India Ltd.	India	Paraformaldehyde	1993	PL, KH, BE, DE, PM
8	Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Hexamine	1995	PL, KH, BE, DE, PM, ES
9	Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Paraformaldehyde	1997	PL, KH, BE, DE
10	Claro India Ltd.	India	Formaldehyde	1996	PL, KH, BE, DE, PM
11	Bida Pharm	Bahrain	Pharmaceutical Formulations	1997	ES
12	Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Methanolic / Butanolic Solutions	1999	PL, KH, BE, DE, PM, ES
13	Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Hexamine Additional Facility	2002	KH, BE, DE, PM, ES
14	Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Hexamine Recovery from Effluents	2002	KH, BE, DE, PM, ES
15	Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Formaldehyde Recovery from Effluents	2002	KH, BE, DE, PM, ES
16	Modern Décor and Wood Products Mfg. Co. Ltd.	Saudi Arabia	Solid Waste Incinerator System	2002	KH, BE, DE, PM, ES
17	Eurotechnica Contractors and Engineers	Italy	Paraformaldehyde plant for Nantong Jiangtian Chemical Co. Ltd. China	2002	PL, KH, BE
18	Tavouni 1621	Iran	Formaldehyde	2004	PL, KH, BE
19	Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	New Hexamine	2004	KH, BE, DE, PM, ES
20	International Industrial Chemical Park	Egypt	Chlorinated Paraffin Wax	2005	PL, KH, BE, DE
21	Fonterra Group	New Zealand	Agitated Nutche Filter Under "U" Stamp.	2005	ES
22	Eurogulf Construction Chemicals Company Ltd.	Saudi Arabia	Admixture, Resin and Powder plant	2007	ES

23	(Chemanol) Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Acetaldehyde	2009	PL, KH, BE, DE, ES
24	(Chemanol) Saudi Formaldehyde Chemical Co. Ltd.	Saudi Arabia	Pentaerythritol	2009	DE, ES
25	Indofil Industries Ltd	India	Emulsion Plant	2010	BE, DE
26	Confidential	Saudi Arabia	Mechanical Design of Tanks using COADE TANK, STAADPRO and in house developed spreadsheets	2010	DE
27	Gulf Stabilizers Industries	Saudi Arabia	Design & Supply of process equipments	2011	DE, ES
28	Oman Formaldehyde Company Ltd.	Oman	Supply of equipments	2011	ES

Legend:

PL = Process Licensing

KH = Know-How

BE = Basic Engineering

DE = Detailed Engineering

ES = Equipment Supply

PM = Project Management

Certificates of Completion and Satisfaction can be provided for the above projects on specific request.

SFCCL (Chemanol), Excess Water plant



SFCCL (Chemanol), New Hexamine Plant



IICP Egypt, Chlorinated Paraffin Wax Plant



Nantong Jiantian Chemical Co., Paraformaldehyde Plant



Chemanol – Saudi Arabia , Effluent Treatment Plant.



Chemanol – Saudi Arabia, Pentaerythritol Plant, North View.