

# Organisational Profiles

Alchemy Leather Pigment & Auxillaries Pvt. Ltd

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Mafatlal Dyes & Chemicals Ltd

National Chemical Laboratory

National Metallurgical Laboratory

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Priya Chemicals

Rashtriya Chemicals & Fertilizers Ltd

Regional Research Laboratory

Reliable Dye-Chem Pvt. Ltd

SK Formulations

SRF Limited

Schenectady Herdillia Ltd

Simalin Chemical Industries Ltd

Srides Arcolab Ltd

Sudarshan Chemical Industries Ltd

Vikas Chemicals

# Alchemy Leather Pigments & Auxiliaries Pvt. Ltd.

## DESCRIPTION

- Engaged in the production of "Finishing Chemicals" for Leather
- Products are available under the brand name of "Alchem"
- Wide sales and distribution network
- Setting leather centers in places like Kolkata, Kanpur and Ranipet

### Focus Areas

- Casein based Leather Pigment finishes
- Casein-free Leather Pigment finishes
- Casein/ Protein Binders
- Anionic & Cationic Dye- Solutions
- Resin Binders
- Syntans, Lacquer & Lacquer Emulsions

### R&D Capability / Infrastructure

- Technical team is headed by the Managing Director Mr. S. Ravindran who has 26 years of experience in leather pigment and finishes
- Facilities exist to provide the finishing chemicals as per client's specifications like colour matching
- Team of technicians is available to work jointly with clients technical team to satisfy their requirements
- Tied up with tanners nearby to test the products apart from testing in their own laboratories

### Financial Details

- Turnover of US \$ 0.3 Mn in FY02

### Key Achievements

- Products are Eco friendly as they are AZO- Dye free, PCP free and Chrome VI free
- Products are of international standards

### Technologies Cross Reference

- Technology Page 68

### CONTACT DETAILS

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# Ashok Organic Industries Limited

## DESCRIPTION

- The flagship company of Kadakia Group, currently engaged in the manufacture of organic chemicals such as Monochloro Acetic acid (MCA), Acetic acid, Alcohol, Acetaldehyde, Acetic anhydride, Ethyl acetate, and Carboxy methyl cellulose
- It also manufactures ethyl Alcohol, Chloro alkalies and exports all kind of chemicals, solvents and acids

### Focus Areas

- Chloro-Alkali Products
- Castor Oil derivatives and Fatty Acids
- Poly Aluminium Chloride
- Stable Bleaching Powder
- Paint Pigments-Intermediates
- Amines and Plasticizers

### R&D Capability / Infrastructure

- Acetic Acid Plant (grass-root) set up in 1982 with technology from Chematur A.G. Sweden
- Methane - gas plant of Distilleries at Pungam and Walchandnagar set up with technology from Aqua Technos Co. Ltd., Thailand
- Caustic Soda plant set up with latest environment-friendly and energy-efficient Membrane Cell Technology from the Chlorine Engineers Corporation Ltd., Japan (a Mitsui Group company)
- Company's locations have distinct advantage of having continuous and cost-efficient fuel in the form of natural gas or methane-gas, a non-conventional source of energy generated from Effluent Treatment Plant

### Financial Details

- Turnover of US \$ 0.3 Mn in FY02

### Technologies Cross Reference

- Technology Page 38

### Key Achievements

- Recipient of Gujarat Safety Council Award
- Johnson's Award for the Best Quality Suppliers
- Coveted Enviro Tech'93 Award instituted by Chemtech Foundation
- Export Award from CHEMEXCIL for the year 1992-93, 1993-94 & 1994-95

### CONTACT DETAILS

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# Bharat Petroleum Corporation Limited

## DESCRIPTION

- BPC is in the business of downstream oil refining and marketing
- It has a customer focused organization structure and has taken initiatives which include new technologies, guaranteed quality and quantity through "Pure for Sure" outlets

### Focus Areas

- Petrol & diesel
- Aviation fuels
- Lubricant
- LPG
- Fuels & solvents

### Key Achievements

- Recipient of Golden Peacock Award 2003 for quality and innovative services in IT
- An ISO-9001, ISO-14001 and OHSAS-18001 and ISRS-Level 8 certified company
- Recipient of several awards in the area of Safety, Health and Environment

### R&D Capability / Infrastructure

- Corporate Research and Development Centre (CRDC) has Hydro-processing Pilot Plant, Reformer pilot plant and Advanced Analytical Equipment such as Gas chromatograph-Mass Spectrometer
- Product and Application Development Centre (P&AD) working in the area of improved lubricants and additives
- Pursues collaborative research programs with national laboratories, IITs and other institutions

### Financial Details

- Turnover of US \$ 12 Bn in FY03

### Technologies Cross Reference

- Technology Page 24

### CONTACT DETAILS

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# Central Drug Research Institute

## DESCRIPTION

- CDRI is a pioneer research organization in the field of biomedical research to develop a drug right from its concept to market
- CDRI provides services in the form of contract research, collaborative projects, advisory consultancy services and licensing
- It was established in 1951 as a constituent laboratory of Council of Scientific and Industrial Research (CSIR)

### Focus Areas

- Reproductive health research
- CNS/CVS and other disorders
- Filariasis
- Malaria
- Natural products
- Microbial infections
- Leishmaniasis
- Newer approach in drug delivery and design
- Biological screening
- Technology development
- Clinical trials and Pharmacokinetic studies
- Preclinical safety evaluation & Regulatory toxicity

### Infrastructure

CDRI possesses the best possible technological capabilities and facilities for drug Research. The modern facilities are at par to the technologies available at best of the R&D laboratories all over the world. Some of the recently created facilities are:

- Combinatorial Chemistry set-up
- High Throughput Screening
- Macromolecular X-ray Crystallography
- DNA Microarray
- Proteomics
- 600 MHz NMR Spectrometer

### Technologies Cross Reference

- Technology Page 121

### Key Achievements

- In, 1987, the then Prime minister of India, Mr. Rajiv Gandhi released four drugs developed by the Institute
- It has developed over a dozen new drugs, apart from diagnostics for early detection of diseases have been developed
- It has filed over 500 patents (India & international) till date
- Published over 8000 articles & over 200 books

### Industry Interactions

- CDRI clientele includes Novo Nordisk, Krebs Biochemicals Ltd., Avon Organics Ltd., CIPLA Ltd., Dabur India Ltd., Duphar Interfran Ltd., IPCA Labs Ltd., Lupin Laboratories Ltd., Nicholas Piramal India Ltd., Ranbaxy Laboratories Ltd., Torrent Pharmaceuticals Ltd., Unichem Laboratories Ltd., Wockhardt Ltd., to name a few

### CONTACT DETAILS

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# Central Fuel Research Institute

## DESCRIPTION

- Premier research organization of international repute devoted to R&D work - both fundamental and applied on Indian fuel resources, especially coal and lignite
- Established in 1946 as a constituent laboratory of Council of Scientific and Industrial Research (CSIR)

### Focus Areas

- Coal gasification
- Fluid bed combustion
- Oil agglomeration
- Conversion to liquid fuels by hydrogenation and by Fischer-Tropsch route
- Formed coke
- Solvent refined coal
- Coal oil and coal-water slurry
- Environment friendly energy management systems for coal, power, steel, cement, chemical and other industrial and domestic sectors both within the country and outside

### Infrastructure

- The laboratory is equipped with latest Standard sophisticated instruments
- It also offers calibration service to industry, institutions and R&D laboratories

### Technologies Cross Reference

- Technology Page 33

### Key Achievements

- An ISO 9001 accredited institute
- It is the first in the CSIR chain of laboratories, to have made significant contributions to the industrial growth of the nation through concerted research efforts towards the utilization of coal
- Large number of Indian and international patents to its credit

### Industry Interactions

- Large number of projects have been done for numerous government organisation like Department of Science & Technology

### CONTACT DETAILS

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# Central Leather Research Institute

## DESCRIPTION

- CLRI, is a central hub in Indian leather sector with direct roles in education, research, training, testing, designing, forecasting, planning, social empowerment and leading in science and technology relating to leather
- CLRI is one of the few research laboratories of the World to have a strong Academy-Research-Industry partnership linkage. The linkages are not only strong, but it has been working effectively and profitably

### Focus Areas

Fundamental Research in being undertaken in:

- Biotechnology, Biomaterials, Bacteriology, Bio-products, Polymer Science & Technology, Chemistry, Biophysics, Environmental and Chemical Engineering, NMR

Applied Research in the areas of:

- Innovative techniques for leather processing, Technologies for manufacture of chemical auxiliaries, animal and tannery by-products utilization, biotechnology for leather processing, chrome recovery and reuse, cleaner production systems, tannery waste water treatment, effluent control and minimisation, surgical sutures and collagen for burn management

### Industry Interactions

Some of the valued customers of CLRI are:

- Chamundi Leathers, Gowthami Liquid Storage Pvt. Ltd., UNIDO, SPIC, Chennai Petroleum Corporation Ltd., Dharmasi Morarji Chemical Company Ltd., Marico Industries Ltd., Andhra Petrochemical Ltd., Quinn India Ltd., National Institute of Ocean Technology

### Technologies Cross Reference

- Technology Page 69 & 93 to 109

### Key Achievements

- CLRI has won several national & international awards. Some of these are AISHTMA Award, UNIDO Commemorative medal, CSIR Special Technology Award, Special Award of Council for Leather Exports for innovations
- Number of patents filed in 2002-2003 is 16

### R & D Capability/Infrastructure

- Shoe design and DePremier research organization of international repute devoted to R&D work - both fundamental and applied on Indian fuel resources, especially coal and lignite
- Established in 1946 as a constituent laboratory of Council of Scientific and Industrial Research (CSIR) controlled splitting machine, wet buffing, fini flex and transfer coating machine for finishing of split leathers
- State of the art facilities in the Excel lab, CLAD, Pilot plant and CISRA

### CONTACT DETAILS

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# Central Salt & Marine Chemicals Research Institute

## DESCRIPTION

- It was established in 1954 as a constituent laboratory of Council of Scientific and Industrial Research (CSIR)
- Its capabilities lie in the areas of biosciences, chemical transformation, process engineering, environmental monitoring, separation science and analysis

### Focus Areas

- Inorganic chemicals and catalysis
- Membrane science and separation technology
- Biosalinity
- Environment monitoring
- Inorganic chemicals and catalysis

### Infrastructure

- The Institute has facilities to develop chemical processes on bench and pilot scale with equipment like stirred tank reactors, filters, dryers, centrifuges and other assortment of equipments in their Process Design and Engineering Cell
- It has sophisticated analytical instrument facilities, including powder and single crystal X-ray diffractometers, wide assortment of spectrometers, electrochemical instrumentation, HPLC, GC, GC-MS, elemental analyzers and necessary instruments for characterization of particles and for environment monitoring

### Technologies Cross Reference

- Technology Page 74

### Key Achievements

- Institute has also developed and supplied elite strains of the oil yielding Jojoba plants for large scale plantations in Gujarat, Maharashtra, and Rajasthan
- It has made significant strides in development of halophytic plants and has nurtured the seaweed chemical industry in India through information and technology dissemination
- It has made India among the few countries to have developed state-of-art membranes for reverse osmosis and electro dialysis

### Industry Interactions

- Large number of projects have been undertaken for GSFC, GNFC, HLL and Pepsico, Department of Science & Technology, Deptt of Ocean Development, Ministry of Environment & Forests, UNIDO to name a few

### CONTACT DETAILS

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# Century Rayon

## DESCRIPTION

- A division of Century Textiles and Industries Ltd.
- One of the largest Manufacturers and Exporters of Viscose Filament, Yarn, Continuous Spun Yarn/ Industrial Yarn
- Backward Integrated for manufacture of basic chemicals like Sulphuric acid, liquid chlorine, compressed Hydrogen gas etc.

### Focus Areas

- Rayon Viscose Filament Yarn
- Viscose Tyre Yarn
- Continuous Spun Yarns
- Basic Chemicals like Sulphuric Acid, Carbon Disulphide, Caustic Soda, Liquid Chlorine, Hydrochloric Acid etc

### R&D Capability / Infrastructure

- Viscose rayon filament yarn is produced with the centrifugal pot spun process. The production capacity is to the tune of 40 tonnes per day. The plant produces viscose rayon filament yarn in the following deniers: 40D, 75D, 100D, 120D, 150D, 180 D, 225D, 300D, 360D, 450D and 600D in bright, dull and dyed form
- Technology of continuous spinning machines for tyre cord plant is from M/s. Akzo, Holland with a capacity of 16 tonnes per day
- The manufacturing process for continuous spun yarn is fully continuous and automated

### Financial Details

- Group Turnover of US \$ 480 Mn in FY 02

### Key Achievements

- An ISO 9002 Accredited organization
- Largest producer of Yarn in the India
- Quality of yarn is recognized worldwide
- Recipient of several awards and trophies for excellence in export performance of Rayon tyre cord from SRTEPC

### Technologies Cross Reference

- Technology Page 128

### CONTACT DETAILS

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# Chemverse Consultants

## DESCRIPTION

- Manufacturers and consultants in the field of functional chemicals and industrial aerosols

### Focus Areas

- Maintenance chemicals like cleaners
- Industrial aerosols like mould release agents
- Protective coatings like rust prevention

### R&D Capability / Infrastructure

- Group of highly qualified technical people having wide experience in the field of chemistry and engineering
- Full fledged oil blending and grease manufacturing plant
- Fully equipped quality control laboratory
- Aerosol filling lines, with well qualified staff and personnel to run the operations

### Technologies Cross Reference

- Technology Page 111

### Key Achievements

- ISO 9002 accredited company

### CONTACT DETAILS

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# DCM Shriram Consolidated Limited

## DESCRIPTION

- US \$ 245 Mn diversified business group
- Primary businesses are: Agribusiness, Plastics and Chemicals
- Other business interests comprises of: Cement, Textile and Energy Services

### Focus Areas

- Agri-Business-Urea Fertiliser, Sugar, Agri-retailing, Farm inputs marketing
- Plastics- PVC, PVC compounds and polymer building products
- Chemicals- Chlor- Alkali, Water Treatment Chemicals, Speciality Chemicals (ChemSPARC)
- Provide consultancy services in the area of Environment (SEAS) and Energy (ESCO)

### R&D Capability / Infrastructure

- Innovative Polymer Applications Centre (IPAC) focuses on development of specialty and value added polymer products
- A JV with BioSeed Genetics International Inc. Shriram BioSeed Genetics India Ltd that produces high quality hybrid seeds at Hyderabad, AP, India
- Resources available at SEAS include Analytical Testing Base Laboratory (with equipments like Atomic Absorption Spectrophotometer, Environmental Chamber, Bacteriological Incubator etc), Field Equipment (like Stack Monitoring Kit, Exhaust Gas Analyzer, Ultrasonic Thickness Meter, Personal Sampler etc) and a state of the art training center with modern audio-visual equipment and facility

### Financial Details

- Turnover of US \$ 245 mn in FY 03

### Key Achievements

- All main line locations and products have ISO 9000, 14000 certification and OHSAS 18001 : 1999 certified
- Recipient of multiple awards like TERI Corporate Environment Award, National Award for Oil Conservation and Energy Efficiency, to name a few

### Technologies Cross Reference

- Technology Page 76, 77

### CONTACT DETAILS

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## Elof Hansson (India) Pvt. Ltd.

### DESCRIPTION

- Subsidiary of Elof Hansson AB, Sweden, which is a global trading company with offices in all continents
- Actively engaged in marketing machinery & consumables to the Pulp and Paper, Packaging and Converting Industry

#### Focus Areas

- Bulk chemicals for pulp and paper manufacturing process
- Specialty chemicals like additives for paper making process (surface treatment, lint control, pitch and foam control etc)
- Engineering, engineered systems, technical services

#### Financial Details

- Turnover of US \$ 1.7 Mn in FY 02

#### R&D Capability / Infrastructure

- Team of application specialists to suggest suitable formulation and improve product performance

#### Technologies Cross Reference

- Technology Page 71, 131

#### CONTACT DETAILS

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Web-site: www.elof-hansson.se

## Glaxo Smithkline Pharmaceuticals Ltd.

### DESCRIPTION

- It is a leading, global, research-based healthcare and pharmaceutical company
- Other than pharmaceuticals, GSK has two businesses - Agrivet Farm Care (AFC) and Qualigens Fine Chemicals (QFC)

#### Focus Areas

- Therapeutic drugs and vaccines
- AFC: Feed supplements and medicines for livestock, poultry, sheep, equine, canine and aquaculture
- QFC: Lab grade, analytical grade and HPLC grade chemicals, stains, indicators, biochemicals and IP chemical

#### R&D Capability / Infrastructure

- GSK has four manufacturing units in India, located at Thane, Nashik, Mysore and Bangalore

#### Financial Details

- Turnover of US \$ 260 Mn in FY 03

#### Key Achievements

- Number One Pharmaceutical company of the country with a market share of 7% in May 2002
- AFC is the market leader in the animal health sector with a market share of 10%
- Named as India's most respected Pharmaceutical Company in a survey conducted by Businessworld and the Indian Market Research Bureau (IMRB)

#### Technologies Cross Reference

- Technology Page 118

#### CONTACT DETAILS

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# Gujarat Alkalies And Chemicals Limited

## DESCRIPTION

- Manufactures quality chemicals and are leaders in the field of Chloro-Alkali industry
- It is the single largest producer of Caustic soda in India
- Joint sector company promoted by Government of Gujarat

### Focus Areas

- Chemicals like Caustic Soda, Chloromethans, Hydrogen Peroxide, Sodium Cyanide, Phosphoric Acid, Scalewin and Sodium Ferrocyanide
- Consultancy in the area of operation and maintenance of process plants and project management

### R&D Capability / Infrastructure

- Well equipped R&D Center, recognised by the Department of Science and Technology, Govt. Of India constantly working on new and safer processes/technologies, value added products and import substitutes
- Qualified and experienced team of professionals
- Membrane cell technology for production of Caustic soda
- 35 MW captive power plant in Vadodara and 90MW in Dahej
- Two plant sites: Vadodara and Dahej

### Financial Details

- Turnover of US \$ 200 Mn

### Key Achievements

- An ISO 9002 certified company
- Recipient of national awards for
  - ij] R&D efforts in pollution control and environmental protection
  - ii] Conversion of toxic waste from the Sodium cyanide process, to a salable product, Sodium ferro cyanide
  - iii] Energy conservation and integration programme in chemical plant

### Technologies Cross Reference

- Technology Page 41, 67, 136

### CONTACT DETAILS

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# Gujarat State Fertilisers & Chemicals Limited

## DESCRIPTION

- A multi-location, multi-plant, multi-product, multi-services and multi-million fertiliser-petrochemical company
- Product mix ranging from more than 24 brands of fertilisers to petrochemicals, chemicals, industrial gases, plastics, Fibers and other products

### Focus Areas

- Chemical fertilisers like Urea, Diammonium Phosphate, Ammonium Sulphate
- Bio- fertilisers like Azotobacter Culture- N2 Fixer; Phosphate Culture- P2O5 Fixer
- Industrial products like Acrylics, Argon gas, Melamine Methane etc.
- Consultancy in the areas of basic engineering, R&D services, ISO, agro services, safety services and process automation

### R&D Capability / Infrastructure

- GSFC Research Centre is spearheaded by about 100 scientists and engineers
- Focus areas of the research centre includes fertilisers, polymers, renewable sources, biotechnology, chemistry and chemical processes, corrosion and material evaluation and environment
- GSFC science foundation is an autonomous scientific and research organisation working towards creating scientific awareness, sponsoring collaborations, discovering new technologies, playing a catalytic role in merging various scientific disciplines and fostering interaction on national and international levels
- 32 plants with technologies adopted from world-over

### Financial Details

- Turnover of US \$ 415 Mn in FY 03

### Key Achievements

- An ISO-9002 certified organisation
- Recipient of 40 state 12 national and 18 international safety awards
- Leaders in adoption of various technologies in India
- Developed several indigenous manufacturing processes

### Technologies Cross Reference

- Technology Page 48 to 51, 79, 62 to 65, 137

### CONTACT DETAILS

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# Gujarat Persalts Pvt. Ltd.

## DESCRIPTION

- Manufacturers of speciality chemicals

### Focus Areas

- Ammonium and Potassium persulphates
- Sodium chlorite
- Sodium chlorate
- Malachite Green and other dyes

### R&D Capability / Infrastructure

- Managed by group of technocrats specialising in Electro-chemistry and Chemicals for Explosive purposes
- Associated Concerns:
  - Maulikem Products, Vatva - Manufactures Sodium Chlorite- 50-80%
  - Shree Chlorates, Indore - Manufacturing Sodium Chlorate
  - Ripal Impex Pvt. Ltd.- Export oriented unit manufacturing Malachite Green and other dyes

### Technologies Cross Reference

- Technology Page 44, 45, 78

### Key Achievements

- Pioneers in manufacture of Ammonium and Potassium persulphates
- Doubled their production capacity in the second year of production

### CONTACT DETAILS

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Phone: 91 79 6463625/ 6441539  
Fax: 91 79 6568400  
E-mail: harshadshah@wilnetonline.net  
Web-site: -

# Hetal Chemicals

## DESCRIPTION

- Consultants, engineers and fabricators of pharma, chemical, food processing and material handling equipment
- Provide turnkey system support and maintenance
- Entenete International USA & Entech International India are associate consultants of Hetal for technology procurement

### Focus Areas

- Chemical vessels and allied products for chemical and petrochemical industry
- Plant and machinery (E.g. reactors, drum dryers, heat exchangers, processing vessels)
- Material handling and conveyor systems (E.g. screw conveyors, gravity conveyors, bucket lifters)

### Financial Details

- SSI Unit, Turnover of US \$ 0.99 Mn in FY 99

### R&D Capability / Infrastructure

- Team of skilled (Engineers), semi- skilled (welders, machinery fitters) and unskilled workers

### Technologies Cross Reference

- Technology Page 37, 113, 114

### CONTACT DETAILS

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# Hindustan Petroleum Corporation Limited

## DESCRIPTION

- India's second largest integrated oil refining and marketing company
- Petroleum products range from transportation to power plants, textiles to pharmaceuticals, consumer durables to heavy engineering industries
- One of the "Navratans" of Government of India

### Focus Areas

- Petrol
- Diesel
- Lubricants
- LPG
- Aviation

### Key Achievements

- Voted "**Best Managed Company**" in A.T. Kearney's and Business Today Best Managed Companies Study for the year 2003
- An ISO 140001 certified company
- Recipient of the Golden Peacock Award in 2001
- Recipient of several awards on Safety and Energy conservation

### R&D Capability / Infrastructure

- HPCL infrastructure boasts of refineries, cross-country pipelines, LPG bottling plants, lube blending plants, and other facilities
- Extensive network of retail outlets, regional offices, terminals and depots
- Two pronged approach in R&D pursuing in-house R&D programs as well as collaborative R&D projects with reputed R&D/academic institutes

### Financial Details

- Turnover of US\$ 11.5 Bn in FY 03

### Technologies Cross Reference

- Technology Page 25 to 27

### CONTACT DETAILS

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 Web-site: www.hindpetro.com

# Indian Oil Technologies Limited

## DESCRIPTION

- 100% subsidiary of Indian Oil Corporation Limited (A Fortune 500 Company)
- Marketing arm for the entire range of technologies developed at the R&D Centre of Indian Oil Corporation Limited

### Focus Areas

- Lubricant and grease formulations
- Fuels
- Refining processes
- Biotechnology
- Additives,
- Pipeline Transportations,
- Engine evaluation
- Tribological and emission studies
- Applied metallurgy

### Key Achievements

- First petroleum R&D organization in India to obtain ISO-9001 accreditation for quality system and
- ISO- 14001 for environment management
- Recipient of numerous national and International awards
- The centre has 93 patents to its credit of which 42 are international including 13 in USA
- Developed over 2000 formulations of lubricating oils and greases

### R&D Capability / Infrastructure

- R&D Centre is equipped with a number of unique world class laboratories and pilot plant facilities making it the only one of its kind in the Asia-Pacific region
- It is spread over 65 acres of lush green campus has state-of-the-art facilities and has carried out pioneering work in lubricants formulation, refinery processes and pipeline transportation
- Over 500 research scientists

### Financial Details

- Turnover of US \$25.22 Bn in FY02 (IOC Ltd.)
- Profits of US \$ 1287 Mn in FY02 (IOC Ltd.)

### Technologies Cross Reference

- Technology Page 14 to 23, 28, 122 to 127

### CONTACT DETAILS

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# Indian Institute of Chemical Technology

## DESCRIPTION

- Center for excellence in new product development with world class expertise in Frontier Areas of Chemical, Biological and Engineering Sciences
- Provides quick, cost-effective and quality services in the form of contract research, consultancy assignments, product development and technology transfer

### Focus Areas

It offers globally competitive technologies in the areas of:

- Product technologies: Agrochemicals, fluoro-organics, industrial organics & intermediates, inorganics & materials, oils/fats derivatives chemicals, catalysis, surface coating & polymer, synthetic drugs & pharmaceuticals, coal & gas based technology
- Knowledge based services in analytical testing & characterisation, process upgradation/restandardisation, new molecule/product development, process safety studies design/engineering & project viability studies

### R&D Capability / Infrastructure

- IICT is equipped with benchscale reactors, separation units, purification systems and process and quality control facilities. It is manned by highly qualified scientific and technical personnel with unique experience in microsynthesis
- The Research departments of IICT have extensive equipment support for chemical and material characterization, trace element analysis, automated micro synthesis of chemical entities, molecular modelling, thermokinetic analysis and modelling/simulation etc.

### Technologies Cross Reference

- Technology Page 34, 35, 36, 53, 112, 120

### Key Achievements

In the year 2000-2001, IICT has achieved the following:

- Filed 39 Indian & 74 Foreign patents
- Developed 30 technologies, transferred 25 new technologies and executed 30 license agreements

### Industry Interactions

- IICT has provided services to a large number of corporate clients including Smith kline Beecham, Monsanto, D&O Chem, Nippon Shokubai, UNESCO, Cytomed, Yamanouchi, ICI, Dupont, Searle and Cargil among others

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# Indian Institute of Petroleum

## DESCRIPTION

- Develops processes and products for petroleum refining and petrochemical
- Established in 1951 as a constituent laboratory of Council of Scientific and Industrial Research (CSIR)

### Focus Areas

- Petroleum refining technology
- Development of separation processes
- Conversion processes
- Petroleum products applications development of chemicals
- Biotechnology
- Catalysts
- Speciality chemicals
- Fuel quality & emission studies
- Alternative sources of hydrocarbons
- Development of fuel-efficient industrial & domestic appliances

### Infrastructure

- Pilot Plants: Dewaxing/deoiling visbreaking, delayed coking, propane deasphalting, 2" dia Old Rushton Column, rotating disc columns, high pressure equilibrium still, catalytic reforming, hydrocracking, glass lined 30 litre capacity reactor, autoclaves of various capacities, bench scale fermentor, micro reactor
- Analytical Facilities: Bench scale units for hydroprocessing, MAT unit for FCC catalysts, facilities for hydrocarbon analysis, facilities for catalyst characterization, facilities for petroleum products evaluation, facilities for crude evaluation, combustion chambers, incinerators, exhaust gas analyzer and anemometers for industrial and domestic appliances studies

### Technologies Cross Reference

- Technology Page 29, 70

### Key Achievements

- Over 20 technologies have been developed including solvent extraction processes, liquid phase adsorption, catalysts and catalytic reforming etc.
- Over 30 technologies have been transferred to the industry

### Industry Interactions

- Large number of technologies have been transferred to the industry. Some of these include Aromatics extraction from Lube Oil Base Stock, Deoxo catalyst, catalyst for dehydration of alcohols, Lube oil refining to name a few.

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# Indian Institute of Technology, Bombay

## DESCRIPTION

- IIT Bombay, set up by an Act of Parliament, was established in 1958
- Well known for its B Tech program, the institute offers masters and doctoral programs as well
- R&D projects undertaken fall under three broad categories: Sponsored/contract research, consultancy projects and sponsored student projects
- Large number of training programs are organized for industry personnel

### Focus Areas

- Biochemical & Food Processing Engineering
- Environmental Engineering & Process Safety
- Fluid Mechanics
- Heat Transfer
- Interfacial Science & Engineering
- Petroleum & Petrochemical
- Polymer & Material Science
- Process Engineering Control, CAD
- Separation Science & Engineering
- Reaction Engineering & Catalysis
- Thermodynamics

### Key Achievements

- IIT-B ranked 3rd in Asia's Best Universities 2000 (Asiaweek's Report)
- Continuing Education Program, IITB winner of "Golden Peacock National Award-2001" for excellence in Training
- The Chemical Engineering Department has multiple patents to its credit

### Technologies Cross Reference

- Technology Page 54, 80, 81, 82

### R&D Capability / Infrastructure

- Major equipment at the Chemical Engineering department includes:
- Isothermal Titration Calorimeter
- High Performance Liquid Chromatography
- Atomic Absorption Spectrometer
- Zeta meter and particle size analyzer
- Thermal Analyzer (DSC, DTA & TGA)
- Cryo-scanning electron microscope
- Image Analyzer & Electron Microscope
- Reaction injection mould machine
- Supercritical fluid extractor prototype plant
- Rotoviscometer
- Gas Chromatography
- UV-VIS Spectrophotometer
- Micromeritics
- Gel Permeation Chromatography

### Industry Interactions

- Has served large number of industrial clients

### CONTACT DETAILS

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# Institute of Microbial Technology

## DESCRIPTION

- IMT carries out basic and applied research and development in established and newly emerging areas of biotechnology including genetic engineering
- The institute undertakes contract work for development of microbial processes for useful products

### Focus Areas

- Molecular biology and microbial genetics
- Animal cell/tissue culture
- Protein engineering
- Fermentation technology

### Key Achievements

- Recipient of several national award for outstanding contribution in the field of research
- Has numerous national and international patents

### Industry Interactions

- IMTECH's clients include ONGC, IDPL, Themis Chemicals, Ranbaxy, Unichem, Lupin, Vittal Mallya Scientific Research Foundation, Godrej Soaps and Finowel Enzymes

### R&D Capability / Infrastructure

- Scanning & transmission electron microscopes
- Ultra and super speed centrifuges
- HPLC/FPLC and gas chromatography
- Amino acid analyzer
- Protein sequence & protein synthesizer
- Fermentation pilot platen and associated down stream processing equipment
- Alpha digital computer system
- Modern facilities for identification, preservation and maintenance of micro-organisms

### Technologies Cross Reference

- Technology Page 40

### CONTACT DETAILS

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# Mafatlal Dyes & Chemicals Limited

## DESCRIPTION

- Formerly known as Hoechst Dyes & Chemicals Limited
- Member of the Mafatlal Gagalbhai Group of Companies
- A reputed domestic and international marketing company.
- The Group consists of
  - Dyes & chemicals division and
  - EXIM & Specialty chemicals division, each headed by a techno-commercial manager

### Focus Areas

- Vat dyes for dyeing & printing of textiles and solvent soluble dyes
- Dyes and auxiliaries like direct dyes, naphthols and bases, vat pastes, softeners, enzymes for textile industries and emulsifiers
- Soil conditioner, leather and other specialty chemicals

### Financial Details

- Turnover of US \$ 6.1 Mn in FY02

### R&D Capability / Infrastructure

- MDC has a well equipped Technical Service and Development Laboratory in Mumbai
- Support staff of Technically qualified, experienced, competent and trained personnel for carrying out tests and rendering technical services to customers

### Technologies Cross Reference

- Technology Page 31

### CONTACT DETAILS

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# National Chemical Laboratory (NCL)

## DESCRIPTION

- NCL was established in 1950 as a constituent laboratory of Council of Scientific and Industrial Research (CSIR)
- Science based research, development and consulting organization
- Known internationally for its excellence in Chemical Sciences, Life Sciences and Engineering
- Pioneered multiple partnerships with industry from concept to commercialization

### Focus Areas

- Organic chemistry
- Bio-organic and biomimetic chemistry
- Heterogeneous and homogeneous catalysis
- Theory and computational science
- Polymer and materials modeling
- Polymer science
- Complex fluid and polymer engineering
- Fluid modeling & computational fluid dynamics
- Microbial technology
- Agricultural biotechnology and plant tissue culture
- Materials chemistry
- Nanomaterials
- Chemical engineering sciences and process design and development

### Key Achievements

- Single largest applicant of patents, both Indian & international amongst all institutions in India
- NCL's contribution to basic research is recognized world over
- NCL scientists are recipient of prestigious national awards
- Scientists have forged strong research collaborations with leading academic research scientists from world over

### Industry Interactions

- Some of the clients of NCL are Dow Chemicals, DuPont, Eastman Chem. Co., FMC Corp, GE Plastics, ICI, IRDCI, Ministry of Industry and Trade, Indonesia; JPCID, Neste Oil Corporation, Polaroid Corporation, Rhone Poulenc, Unilever, UOP Inc. to name a few.

### R&D Capability / Infrastructure

- Digital Information Resource Centre
- Research planning and business development
- Central NMR facility
- Catalyst pilot plant
- Combi-chem-bio resources center
- Centre for material characterization
- Skilled in-house glass blowing facility
- Engineering Services group (electrical, mechanical and instrumentation)
- Central library
- Human resource comprises of over 1000 people of which 350 are scientists and technical personnel with advanced degrees in science, technology and engineering

### Technologies Cross Reference

- Technology Page 117,132 to 135

### CONTACT DETAILS

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# National Metallurgical Laboratory

## DESCRIPTION

- NML, is one of the 40 constituent laboratories of CSIR
- It has been rendering its expertise to the industries in the form of consultancy, sponsored investigation, testing/material evaluation and technical services other than its thrust area and exploratory research programs
- It has two other field stations, one is located at Chennai and other is at Ahemdabad

### Focus Areas

- Materials - characterization, processing and evaluation
- Metal casting/Powder production
- Minerals processing/beneficiation
- Ferrous and non-ferrous processing/extraction
- Refractories, corrosion protection of materials
- Computer application and modelling
- Analytical chemistry/standard reference materials
- Project and process engineering/instrumentation/information services

### R&D Capability / Infrastructure

- National Metallurgical Laboratory has world class infrastructural facilities to support R&D activities the area of metals, minerals and materials
- Facilities available with NML includes:
  - Testing and analytical, calibration, equipment/instrumental, library, NDT and computation facilities

### Technologies Cross Reference

- Technology Page 83 to 92

### Key Achievements

- NML has developed state-of-the-art technologies for clients in India and abroad
- It is an ISO 9001:2000 R&D organization
- It has large number of patents to its credit

### Industry Interactions

- NML has executed projects for National Aluminium Company Limited, Ministry of Mines, Sardar Sarovar Narmada Nigam Ltd. to name a few

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# National Physical Laboratory

## DESCRIPTION

- NPL, is one of the earliest national laboratories set up under the Council of Scientific & Industrial Research
- It focuses on physics based technologies and assists industries, national and other agencies in their developmental tasks by precision measurement, calibration, development of devices, processes, and other allied problems related to Physics

### Focus Areas

- Measurement Standards
- Material Science
- Materials Characterization
- Radio and Atmospheric Science
- Super Conductivity and Cryogenics
- Provides Consultancy services in the area of: Assistance in establishing accreditation laboratories, Designing and fabrication of critical machine components, Automation solutions in certain areas, Interpretation and validation of test results and data, Risk and hazard/environmental impact analysis, Acoustic designing of halls, monitoring noise level, radio communication links, solutions to name a few

### R&D Capability / Infrastructure

- It has large number of sophisticated equipments like Atomic Absorption Spectrometers, Inductively Coupled Plasma, Scanning Tunneling Microscope, Triple Crystal X-Ray Diffractometer to name some
- It has over 300 Scientists and Technical Officers

### Technologies Cross Reference

- Technology Page 119

### Key Achievements

- NPL has undertaken large number of collaborative projects with national and international agencies

### Industry Interactions

- Some of the valued customers of CLRI are: Sabero Organics Gujrat Ltd, Central Board of Irrigation and Power, Bharat Aluminium Company Ltd, CMC Ltd and NTPC to name a few

### CONTACT DETAILS

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# Priya Chemicals

## DESCRIPTION

- Priya Chemicals is a large manufacturer of Amino Acids & Amino Acids based products for use in the field of Nutraceuticals, Agriculture, Veterinary, Poultry & Aquaculture
- Priya Chemicals was found in the year 1980

### Focus Areas

- Hydrolysed Proteins & chelates of Amino Acids
- Amino Acids & Amino Acids based products
- Consultancy on technology to set up Plants to Manufacture Amino Acids and Amino Acids Based Products

### R&D Capability / Infrastructure

- Six patents for processes developed by in-house R&D

### Financial Details

- Turnover of US \$ 0.8 Mn in FY 03

### Key Achievements

- Six patents for processes developed by in-house R&D

### Technologies Cross Reference

- Technology Page 55 to 60

### CONTACT DETAILS

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Web-site: <http://www.priyachem.com>

# Rashtriya Chemicals & Fertilisers Limited

## DESCRIPTION

- One of the largest fertiliser company in India
- 20 operating plants at Trombay (Mumbai) producing urea, complex fertilisers and industrial chemicals and 5 large capacity plants at Thal producing urea and industrial chemicals

### Focus Areas

- Fertilisers (Urea, complex fertilisers)
- Industrial Chemicals like Nitric Acids, Ammonium Bi-Carbonate, Sulphuric Acid, Methylamines etc
- Consultancy in construction, Pre-commissioning/commissioning, operations, maintenance of large size fertiliser and chemical plants

### R&D Capability / Infrastructure

- Has a well-knit team of qualified and experienced personnel in various technical and commercial disciplines with necessary capabilities to run large scale fertiliser and chemical plants with state of the art technologies and control systems
- Expertise in the areas of:
  - o Applied research and development
  - o Agricultural research and development
  - o Development of bio-fertilisers, micro-nutrients and 100% soluble fertilisers for drip irrigation

### Financial Details

- Turnover of US \$ 460 Mn in FY 03

### Key Achievements

- ISO 9002 & ISO 14001 accredited company

### Technologies Cross Reference

- Technology Page 46, 47, 52, 129, 130

### CONTACT DETAILS

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## Regional Research Laboratory

### DESCRIPTION

- RRL, Jammu is a constituent unit of Council of Scientific & Industrial Research, New Delhi, is one of the premier institutes engaged in two major areas of research namely, drug, design and development and microbial biotechnology
- It is recognized as a leading Institute in natural product chemistry and its chemical technology and biotechnology

#### Focus Areas

- Bioprospecting of natural molecules
- Biotechnology - fermentation and enzyme technology, microbial biodiversity, molecular biology and gene cloning
- Natural products Chemistry
- Cultivation & utilization of drugs and essential oil bearing plants
- Chemical engineering & design backup for packaging of technologies

#### R&D Capability / Infrastructure

- The Biotechnology division has pilot plant, with micro-processor controlled fermentors (1-4,000 ltr capacity), and state-of-art equipment required for Microbiology, Bio-Chemistry, Enzymology, Genetic Engineering and Bio-Chemical Engineering
- Botany, Pharmacology and Natural Product Chemistry R&D groups have state of art infrastructural facilities
- It has strong central instrumentation of latest generation, up-to-date library and informatics centres

#### Technologies Cross Reference

- Technology Page 30, 61

#### Key Achievements

- RRL has designed, fabricated and commissioned numerous technologies for overseas and domestic clients
- It has to its credit large number of national and international patents

#### Industry Interactions

- Some of the valued customers of CLRI are: Nicholas Piramal Ltd, Lupin Laboratories Ltd, Dhawan International Ltd, Zydus Cadila Healthcare Ltd, Bharat Biotech International Ltd, Andel Equipment Pvt. Ltd, Pratihista Industries Ltd to name a few

#### CONTACT DETAILS

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## Reliable Dye-Chem Pvt. Ltd.

### DESCRIPTION

- Manufacturers of Vinyl Sulphone series of dye intermediates
- Started as a small scale sector unit in 1990

#### Focus Areas

- Product range includes DMVAS-"D Ester"; OAVAS-"A Ester"; PCVS-"K Ester"; PAVS; Benzanilide VS Base; Benzanilide VS Ester; Meta Base; Meta Base Ester; Bronner's VS Base; Bronner's VS Ester; PMP VS Base; Fast Blue VV Base and 4HMQ
- Undertake Contract Manufacturing for: Acetylation; Sulphonation; Chloro Sulphonation; Nitration; Reduction; Oxidation; Ethylation; Methylation; Ethoxylation; Methoxylation; Esterification; Amidation; Benzoylation

#### R&D Capability / Infrastructure

- The company presently has a capacity to manufacture about 180 M Tons per month of Vinyl Sulphone derivatives with various bases
- It has a workforce of over 100 skilled and unskilled workers
- R&D team continuously endures to upgrade the quality of the product

#### Key Achievements

- Ranked as one of the best manufacturers of Vinyl Sulphone derivatives in India
- Rated as the fastest growing Dye and Intermediate manufacturer

#### Technologies Cross Reference

- Technology Page 43

#### CONTACT DETAILS

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# S. K. Formulations

## DESCRIPTION

- Manufacturers of polymeric based specialty formulations for industrial and domestic applications
- Undertake turnkey assignments of manufacturing & execution
- Provide a seven year guarantee for water- proofing solutions

### Focus Areas

- Waterproofing
- Insulation Coatings for Electrical and Electronic Industry

### R&D Capability / Infrastructure

- Team of qualified engineers in Polymer Technology

### Financial Details

- Turnover of US\$ 0.5 Mn

### Key Achievements

- Enjoy the trust of large number of clients: Larsen & Toubro, Novartis Ltd., Bayer India Ltd., Gabriel India Ltd. to name a few

### Technologies Cross Reference

- Technology Page 110

### CONTACT DETAILS

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Web-site: -

# SRF Limited

## DESCRIPTION

- Domestic market leaders in the areas of industrial synthetics, fluorochemicals and industrial fabrics
- Its strategy has been to identify core areas of business and build international competitiveness through cost leadership and TQM

### Focus Areas

- Nylon tyre cord fabric
- Fluorochemicals and Chloromethanes - Refrigerant Gases
- Belting and coating fabrics
- Business process outsourcing services to international customers

### R&D Capability / Infrastructure

- Operate out of its 14 locations in India, UAE and USA
- Belting fabrics are manufactured using the latest weaving and dipping technologies
- Technology from world leaders and world class manufacturing processes employed for manufacturing
- For coated fabrics, they have a technical collaboration with world leader Trelleborg Industry AB, Sweden and Val Mehler AG, Germany

### Financial Details

- Turnover of US \$187 Mn in FY03
- Profits of US \$ 6.8 Mn in FY03

### Key Achievements

- 5th largest manufacturer of belting fabrics in the world
- 7th largest manufacturer of nylon tyre cord fabric in the world
- SRF products exceed ARI-700 standards, the internationally accepted benchmark

### Technologies Cross Reference

- Technology Page 39

### CONTACT DETAILS

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# Schenectady Herdillia Limited

## DESCRIPTION

- Subsidiary of Schenectady International Group Inc., USA
- Largest producers of wide ranging petrochemicals and speciality chemicals having technological tie-ups with several large international corporation
- A safety conscious company - signatories to the Responsible Green Care Movement

### Focus Areas

- Speciality chemicals (E.g. Nonyl Phenol, Diphenyl Oxide, Hexylene Glycol)
- Permumery chemicals (E.g. Acetophenone, Phenyl Dimethyl Carbinol)
- Pharmaceutical Intermediates (E.g. Isobutyl Benzene and 2,6-Diisopropyl Phenol)

### R&D Capability / Infrastructure

- Founded in 1975, the R&D centre has a track record of commercializing indigenously developed processes for manufacture of speciality chemicals
- Expertise in:
  - Development of catalytic processes and products
  - Scale up of processes from bench to pilot to commercial scale
  - Development of basic engineering package to process commissioning
- Team of highly qualified, experienced scientists, engineers and technologists

### Financial Details

- Turnover of US\$ 56 Mn in FY 03

### Key Achievements

- A ISO 9001-2000 and 14001-1996 accredited company
- Alkyl Phenol facility is OSHAS- 180001 Certified
- R&D centre is recognized by Department of Scientific and Industrial Research, Govt. of India
- R&D centre has won several awards of appreciations

### Technologies Cross Reference

- Technology Page 42, 72, 73, 116

## CONTACT DETAILS

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# Simalin Chemical Industries Limited

## DESCRIPTION

- Manufacturers of Formaldehyde, Hexamine and Paraformaldehyde
- R&D Pharmaceutical division dedicated to basic R&D, Contract Research, Custom synthesis and Custom manufacturing and Bulk organic chemical division for manufacture of bulk and specialty chemical
- Exporters of manufactured products and conduct R&D for reputed international companies
- Merchant exporters of dyes intermediate

### Focus Areas

- Bulk and specialty chemicals
- Export of technical know-how from R&D pharmaceutical division

### R&D Capability / Infrastructure

- Plant set up under the technical guidance from Chematur, Sweden - the world leaders in Formaldehyde technologies
- Formaldehyde production capacity of 40,000 MT per annum, Hexamine capacity of 3,400 MT per annum and Paraformaldehyde capacity of 500 MT per annum
- Quality Assurance Laboratory is equipped with GC, Karl- Fisher, TLC analysis equipment, conductivity, electronic balances etc.
- Qualified technical team of engineers and chemists

### Financial Details

- Turnover of US \$14 Mn

### Technologies Cross Reference

- Technology Page 32, 66

## CONTACT DETAILS

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# Srides Arcolab Limited

## DESCRIPTION

- One of the largest manufacturers of soft gelatin capsules
- Manufacture and market a wide range of nutraceuticals and herbal products in over 30 countries globally

### Focus Areas

- Manufacture of soft gelatin capsules, hard gelatin capsules, tablets and injectables
- Formulation of new drugs, addition to existing drugs and defining new processes using non-patent infringing methodologies
- Undertake contract research and custom synthesis projects of new molecules and molecules for which processes are to be standardized

### R&D Capability / Infrastructure

- The R & D set-up has 24 well laid out Work stations; dedicated utility systems for pressure & vacuum, various filtration, evaporation, distillation facilities, high capacity glass columns capable of commercial scale column chromatography, hydrogenators, large capacity reaction set ups from 5 to 50 litre glass flasks and more
- Multidisciplinary R&D team comprises PhDs (organic, physical, analytical and polymer fields), chemical engineers, mechanical engineers and chemists who have considerable experience and expertise in the development of new products
- Partners with top 20 giants in the field of complex chemistries like Ciba Specialty Chemicals Ltd, Mumbai; Unibios, Italy; Brantford Chemicals, Canada; Chemi, Spa, Italy to name a few
- Plants in US, Mexico, Brazil and India

### Technologies Cross Reference

- Technology Page 138

### Key Achievements

- Recipient of Best Exporter and Best Plant Award from Govt. of India on numerous occasions
- All plants work to WHO's Good Manufacturing Practices and CGMP guidelines
- All plants are ISO certified

### Financial Details

- Turnover of US\$ 51 Mn in FY 02

### CONTACT DETAILS

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# Sudarshan Chemical Industries Limited

## DESCRIPTION

- One of the leading agrochemical companies and a major manufacturer of technical grade pesticides in India
- Largest manufacturer of pigments in India with a marketshare of 35%
- Over 25% of production is exported to more than 30 countries including the US, Europe and Japan
- Dainippon Inc. and Chemicals Inc, Japan; Josef & Jager GmbH, Germany; Ciba-Giegy Maastricht BV, Netherlands are partners in the field of pigments and intermediates

### Focus Areas

- Technical grade pesticides (E.g. Triazophos, Dichlorvos, Quinalphos)
- Insecticides
- Plant biostimulants
- Fungicides
- Biological product (Azadirachtin 0.15% EC)
- Yield enhancer (Amino Acid Concentrates)
- Adjuvant (Non Ionic wetting-spreading agent)

### R&D Capability / Infrastructure

- Team of 80 people which includes highly qualified scientists, chemical engineers, technicians
- R&D Department possess modern equipments like High Performance Liquid Chromatography, Gas Chromatography, Ultra violet Spectrophotometer (UV), Atomic Absorption, Inductively Coupled Plasma, Auto Titrator, Nanopure Water Purification, Colour Matching System to name a few
- Access to resources of other institutions working in the same field
- R&D Team recognized by Department of Scientific and Industrial Research, Govt of India

### Financial Details

- Turnover of the company has been growing at the rate of over 15% in the past 10 years
- Total assets amount to US \$ 60 Mn
- Turnover of US \$58 Mn in FY02

### Technologies Cross Reference

- Technology Page 139

### Key Achievements

- First Indian chemical company to get ISO 9001 certification
- Winner of "ChemTech Trophy and citation for Pollution Abatement and Sustainable Development"
- Winner of Export Excellence Award 1997-98 for export effort by DGFT, Pune and Maratha Chamber of Commerce and Industries, Pune
- Consistent winner of Industrial Safety Award

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# Vikas Chemicals

## DESCRIPTION

- Manufacturers of fine chemicals (micro crystalline cellulose powder and Glucosamine Sulphate)
- Started operations in 1999

### Focus Areas

- Fine Chemicals
- Excipients

### Financial Details

- Annual Turnover of US\$ 0.25 Mn

### R&D Capability / Infrastructure

- R&D in developing product like CMC, Ethyl Cellulose, Cellulose

### Technologies Cross Reference

- Technology Page 115

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# COUNTRY

# PROFILES