

TOWARDS FRONTIERS OF  
TECHNOLOGY AND BEYOND .....



**SPEC**

Specialists in Turnkey Projects in  
Vegetable Oil and Chemical Industries

- Oil Mill • Solvent Extraction • Refinery • Vanaspati
- Bakery Shortening • Margarine • Dry Fractionation
- H<sub>2</sub> Gas Generation • Process Equipment • Hydrogenation
- Refrigeration • Esterification • Bio Diesel





Infinite Possibilities, Infinite Opportunities

### SPEC Philosophy

The foundation of SPEC's commitment is simple. The company helps its customers by meeting their goals and targets for profitability by -  
**Sincerity Professionalism Efficiency Capability**

### About SPEC



Rajvinder Singh  
Director

### Turn key Process Plants

SPEC entered the field in 1994 by executing large projects for vegetable oil refinery, solvent extraction and vanaspati. The company is managed by Mr. Rajvinder Singh, Oil Technologist with over two decades of dedicated working in the industry. With a team of known professionals from the industry, the company has handled many prestigious projects for oil milling, vanaspati, physical refining, process equipment, solvent extraction plant, refinery, H<sub>2</sub> gas generation, hydrogenation, process instrumentation, refrigeration, cold storage etc.

- Batch neutralizing, bleaching & deodorizing • Continuous chemical refining, bleaching & deodorizing • Continuous physical refining • Batch & semi cont hydrogenation
- Hydrogen production • Dry fractionation • Winterisation/dewaxing • Margarine & Bakery shortening • Seed & fruit oil milling • Bio-Diesel • Solvent Extraction

### Project & Engineering Services

- Designing of custom-built Plants & support systems • Improvements & Upgradations of Existing Plants • Consultancy • Feasibility Reports • Project planning-scheduling, monitoring & execution • General factory & non factory layouts • Design for civil engineering works • Designing of utilities & services systems • Piping & electrical designs • Supervision & Erection • Plant start up • Staff training • After sales services

Energy Efficient Plants

**SPEC**

Speciality

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# VISION

Creating  
world class  
Plants and  
technology for  
providing quality  
and hygienic  
products



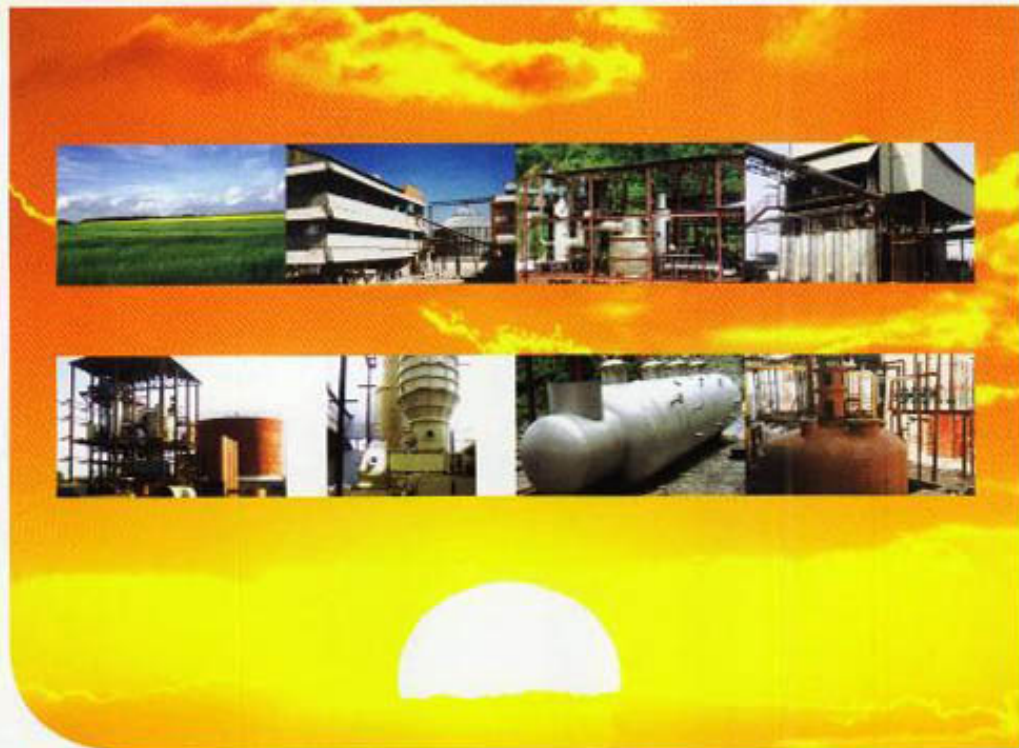
# MISSION



Build projects  
on-time in a  
cost-effective  
manner while  
maintaining  
high quality to  
the maximum  
satisfaction of  
clients.

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#### OIL MILL

Oil milling is seed storage, seed cleaning, cooking and conditioning followed by mechanical crushing. The crude oil may be directly consumed after filtration and oil cakes go further for oil extraction & deoiled cake go to cattle feed.

#### SOLVENT EXTRACTION PLANT

SEP is seed preparation, oil extraction, solvent recovery and meal desolventisation.

- Seed Preparation: The seed is first cleaned and passed through cracker mill to give four to six pieces of seed. These pieces are cooked and flaked to bring free oil to surface for easy extraction. Flaked material goes to Expander Extruder for free oil recovery and further oil cell rupturing to give porous extruded collets ready for extraction.



- Collets & N-Hexane are fed to extractor in counter current flow and oil extraction is carried out in different stages to give Miscella & Meal
- Miscella is passed through distillation to separate vegetable oil and recover N-Hexane;
- Meal is desolventised and toasted for removal and recovery of solvent.



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## REFINERY

Refinery is complete plant consisting of :

- Degumming & gum conditioning to remove the phosphatides.
- Alkali refining - Batch/Continuous alkali refining to remove free fatty acid and modify color fragments by caustic treatment followed by water washing and vacuum drying.
- Bleaching - Batch/ Continuous bleaching to decolorise the oil under vacuum condition followed by filtration to remove bleaching media.
- Deodorisation - Batch/ Continuous deodorisation to remove odouriferous material and last traces of fatty acid, tocopherols, color fragments etc.
- Physical Refining - Continuous Physical Refining to remove free fattyacid, color & odouriferous materials etc.



## HYDROGENATION

Hydrogenation plant is to hydrogenate edible neutral & bleached oils for vanaspati manufacture and bakery shortening and of non-edible oil to give industrial hard oil for soap manufacture.

Edible neutral and bleached oil is dried under vacuum and hydrogenated under  $H_2$ - Gas pressure in presence of Ni-catalyst to give product which has higher keeping quality and better digestibility.

Non-edible high FFA oil is subjected to hydrogenation under high pressure of  $H_2$ - Gas in presence of Ni-Catalyst to give product with higher Titre.



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### GAS GENERATION

Complete plant consisting of battery of Knowel's type electro-lytic cells, low pressure gas storage, compression & high pressure storage for  $H_2$  &  $O_2$  Gas.  $H_2$  Gas is used in hydrogenation and  $O_2$  Gas is used for industrial gas cutting and welding.



### REFRIGERATION & COLD STORAGE

The plant is complete with compression of ammonia or freon gas as refrigerant and air handling units for vanaspati graining & freezing; fruit & vegetable cold storage, brine & water chilling for crystallization and concentration in other chemical industries.

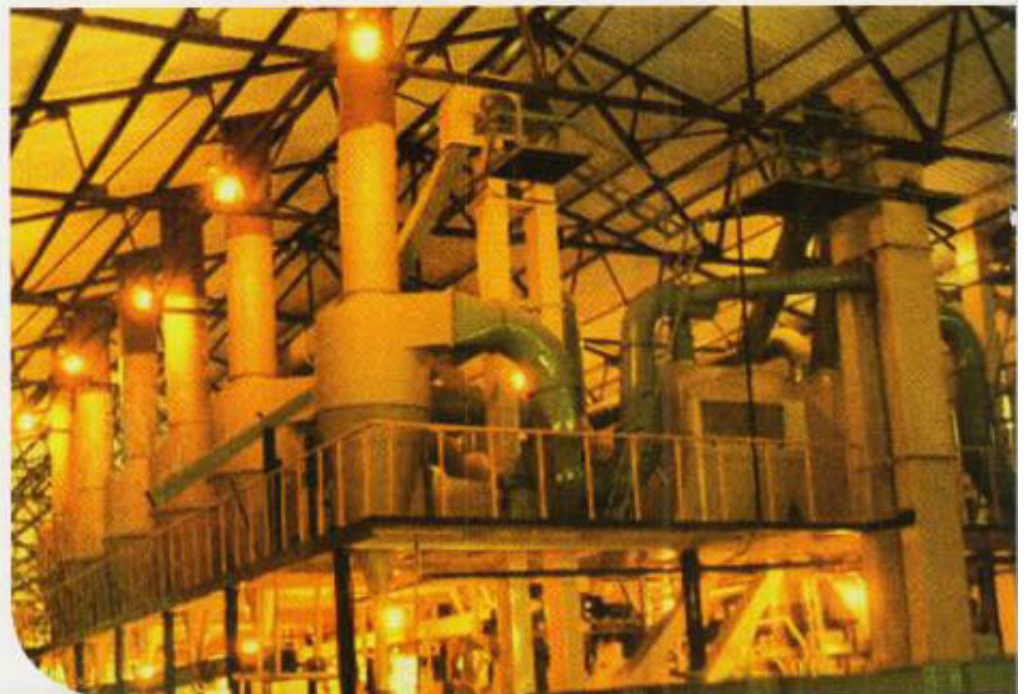


### PROCESS INSTRUMENTATION

Process Instrumentation forms the backbone of Process Industry. The pace at which science, technology and engineering have advanced and have been advancing during the few decades, it could not have been imagined without appropriate sophistication and application of process instrumentation.

Awareness regarding productivity and effective plant utilization is growing in the industry. Ever-rising fuel costs and energy costs have compelled people to conserve energy as much as possible.

SPEC has pioneered process instrumentation to give the most energy efficient technologies.



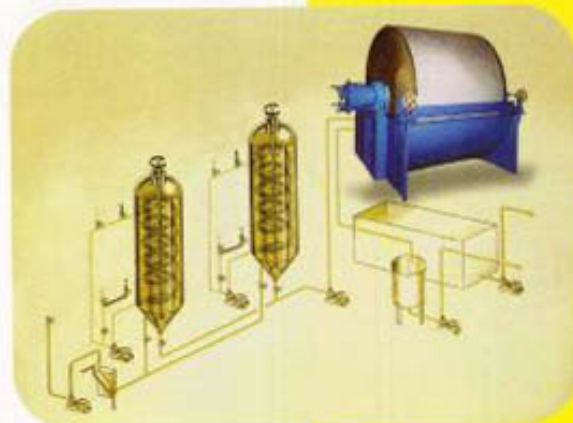
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## DRY FRACTIONATION

Dry fractionation is the process to separate high melting stearines from low melting oliens to give crystal clear oils. The stearines can be used as hard fraction for margarine manufacture or otherwise for soap manufacture.

Fractionation is controlled cooling of oil to crystallize out the high melting fractions which are separated in Membrane Press or Vacuum Drum Filters.



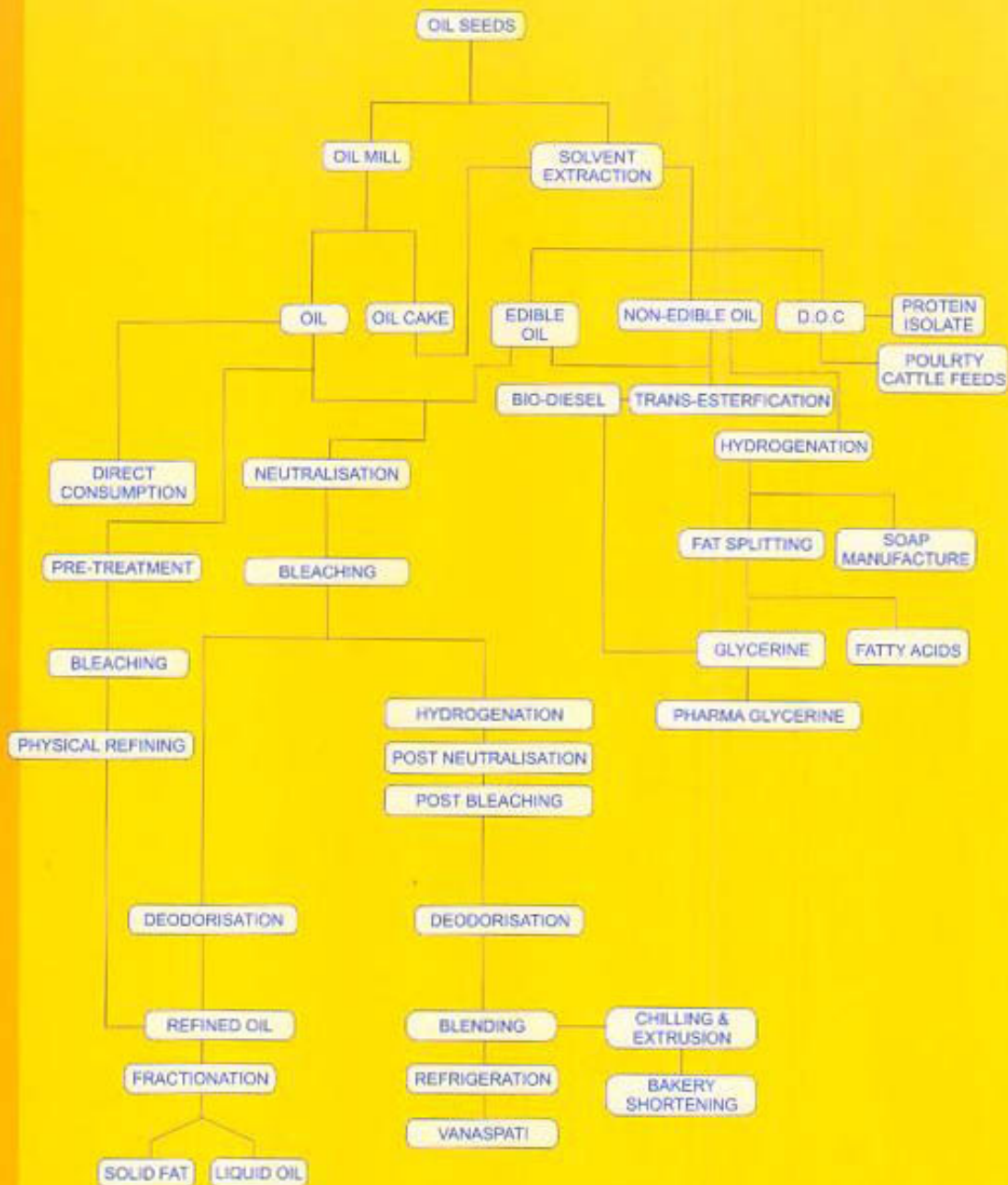
## MAJOR CUSTOMERS

- ANIL MODI OILS LTD., Pilibhit
- BHAGWAN VANASPATI MILL LTD., Ujhani
- CHENAB AGRO CHEM LTD., J&K
- COSTAL ENERGY LTD., Kolkotta
- DAILY FOODS LTD., Kundli
- DEE PHARMA LTD., Bhiwadi
- DINESH OILS LTD., Kanpur
- HINDUSTAN LIVER LTD., Trichy
- KANHA VANASPATI LTD., Ujhani
- KARNAL MILK FOODS LTD., Karnal
- MANTORA AGRO INDUSTRIES LTD., Kanpur
- MANTORA OIL PRODUCTS LTD., Kanpur
- MEGA PRIVATE LTD., Bhutan
- MIHIJAM VANASPATI LTD., Mihijam
- MILK CRAFT PROJECTS, Noida
- MILK SPECIALITIES LTD., Chandigarh
- NARATHA AGRO INDUSTRIES P. LTD., Sri Lanka
- OJAS IMPEX (P) LTD., Sikandrabad
- PATLIPUTRA INDUSTRIES LTD., Patna
- PARUL FOODS LTD., Kurukshetra
- PURECHEM INDUSTRIES LTD., Nigeria
- RADHA VANASPATI LTD., Kichcha India
- RICHI RICH AGRO LTD., Jodhpur
- RITIKA PROJECTS INTERNATIONAL, Jordan
- RITIKA PROJECTS / NAJIB BARAKAT, Syria
- ROSES & FLORICULTURE LTD., Amritsar
- SENA MILLS REFINERIES LTD., Sri Lanka
- SHEEL CHAND AGROILS (P) LTD., Rudrapur
- SINGYE GRP OF COMPANIES PVT. LTD., Bhutan
- SMC FOODS LTD., Saharanpur
- SUKHANAD COLD STORAGE, Tapa Mondli
- SUMAN SYNDET PVT. LTD./S.R.L., Mozambique
- SURAJ INDUSTRIES LTD., Sansarpur
- UNITED VANASPATI LTD., Chandigarh
- VINDA VASHINI OILS PVT. LTD., West Bengal

PHYSICAL REFINERY  
 VANASPATI  
 VANASPATI  
 BIODIESEL  
 DEODORISATION  
 PHARMA  
 REFINERY  
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 DEO & FRACTIONATION  
 SOLVENT EXTRACTION  
 CONT. DEODORISATION  
 REFINERY  
 FLORICULTURE  
 ENGINEERING GOODS  
 PHYSICAL REFINERY  
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