

# HI-TECH PROJECTS

*(An Industrial Monthly Magazine on New Project Opportunities and Industrial Technologies)*

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***(E-copy)***



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# MOST DEMANDABLE PROJECTS

## SOLAR POWER PLANT [CODE NO.3266]

Power supply in most of the cities and towns is unreliable, which has forced the people to use small generators. These generators are operated with fossil fuels like kerosene, petrol or diesel cause pollution. It also leads to increase dependence on oil imports. Solar PV power plant consists of SPV modules in arrays (total wattage being 1 kW or more), rechargeable battery bank, power conditioning unit (inverter & charge controller) etc. When sunlight falls on the SPV module, DC current is produced, which is stored in a battery bank. The inverter converts the DC current from the battery into AC current which, in turn, is used for operating various loads, such as, lights, fans or other electrical appliances in the building, subject to the total load (watts) being restricted to the capacity of the module (Wp).

### COST ESTIMATION

Plant Capacity	27360.00 KWH/Day
Land & Building	Rs. 32.00 Lacs
Plant & Machinery	Rs. 24.89 Cr.
W.C. for 1 Month	Rs. 10.21 Lacs
Total Capital Investment	Rs. 25.64 Cr.
Rate of Return	4%
Break Even Point	80%

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## CAR SEAT COVERS AND RELATED PRODUCTS [CODE NO 3267]

A car seat is the seat used in automobiles. Most car seats are made from inexpensive but durable material in order to withstand prolonged use. The most common material is polyester. A bucket seat is a separate seat with a contoured platform designed to accommodate one person, distinct from a bench seat that is a flat platform designed to seat up to three people. Individual bucket seats typically have rounded backs and may offer a variety of adjustments to fit different passengers. Early touring cars featured folding auxiliary seats to offer additional passenger capacity. Some early automobiles were available with an exterior rumble seat that folded open into an upholstered seat for one or two passengers. Some sedan models offer fold-down rear seats (e.g. Chevrolet Corvair), to gain cargo space when they are not occupied by passengers. A fold-down front-passenger seat was a feature on the Chrysler PT Cruiser to fit longer items such as a 8-foot (2.4 m) ladder inside the vehicle. The National Traffic and Motor Vehicle Safety Act enacted by the U.S. in 1966 established standards of strength for automobile seats. These included requirements for proper anchorage and construction of automobile vehicle seat assemblies. The legal requirements in some jurisdictions for a child to sit up

front is 5'0 and they must weigh more than 80 lbs. Some studies have shown that drivers have an aversion towards carrying the full capacity amount of passengers due to concerns over insufficient vision through the back window. An anti-submarine seat is a kind of seat that incorporates specially shaped panels in the forward edge of the seat cushion, reducing the tendency for the occupant to slide beneath the seatbelt in a severe frontal collision. Anti-submarine seating is a safety feature that may be more important for the front seats than the rear seats. A child safety seat or child restraint system is a restraint which is secured to the seat of an automobile equipped with safety harnesses or seat belts, to hold a child in the event of a crash. All 50 states require child seats with specific criteria. Requirements vary based on a child's age, weight and height. The National Child Passenger Safety Board, managed by the National Safety Council, maintains the quality and integrity of the National Child Passenger Safety Certification Training Program. The program is used to train and certify child passenger safety technicians and instructors in order to assist caregivers in safe transportation of children. Side airbags are often built right into the side of the seat. Seats so equipped should not be covered which impedes the operation of the airbag Car seat covers are accessories that protect the original seat upholstery from wear and add a custom look to a vehicle's interior. They can help to maintain the resale value of the vehicle and maximize the comfort of the driver and passengers. Car Seat Covers and related products are most vibrant and demandable Automobile accessories. The sizes and Dimension is depends upon the different cars available in the market and its manufacture in different sizes.

### COST ESTIMATION

Land & Building (600 Sq.Mt)	Rs. 79 Lacs
Plant & Machinery	Rs. 16.00 Lacs
W.C. for 2 Months	Rs. 1.12 Cr.
Total Capital Investment	Rs. 2.12 Cr.
Rate of Return	26%
Break Even Point	55%

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## n-PROPYLACETATE [CODE NO.3268]

Normal propyl acetate (also known as n-propyl acetate or 1-propyl acetate) is an organic compound with a molecular formula of C<sub>5</sub>H<sub>10</sub>O<sub>2</sub>. It is commonly used as a solvent in coatings and printing inks. This product is a clear, colourless liquid that has a distinguishable acetate odour. This product is highly flammable with a flash point of 14°C and a flammability rating of 3. It is highly miscible with all common organic solvents (alcohols, ketones, glycols, esters) but has only slight miscibility in water. The

most common method for chemically manufacturing normal propyl acetate is through the esterification of 1-propanol and acetic acid which are heated in the presence of a strong acid. A chemical wholesaler would have a bulk petrochemical storage facility to regulate this product. Storage is normally in a cool, dry and well ventilated facility away from oxidizing agents. Normal propyl acetate should be kept out of direct sunlight, heat and open flames. Solvents such as normal propyl acetate should be stored in drummed containers such as isotanks made of stainless steel, aluminium or carbon steel. A bulk chemical exporter would normally distribute this solvent in bulk vessels or tank trucks. For transportation purposes, normal propyl acetate is classed as a flammable liquid with a fire hazard rating of 2. A full bulk chemical distributor would export the solvent throughout regions such as the UK, Europe, Africa and America. This product is a packing group 2. The major use of normal propyl acetate is as a solvent in the coatings and printing industries. It is a good solvent for these industries because it has the ability to thin many other organic compounds. Normal propyl acetate dissolves a host of resins which make it a suitable solvent for wood lacquers and industrial finishes. Within the printing industry it is mainly used in flexographic and special screening prints. It is also used in aerosol sprays, nail care and as a fragrance solvent. It can also be used as a flavouring additive due to its odour similar to pears. The main user end markets are the printing, coatings, lacquers, cosmetic and flavouring industries.

### COST ESTIMATION

Plant Capacity	10 MT./Day
Land & Building (3000Sq.Mt)	Rs. 3.64Cr.
Plant & Machinery	Rs. 4.00 Cr.
W.C. for 1 Month	Rs. 1.92 Cr.
Total Capital Investment	Rs. 9.74 Cr.
Rate of Return	21%
Break Even Point	57%

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## MINERAL WOOL (STONE WOOL) [CODE NO.3269]

Mineral wool is described as insulation material made of wool of glass and stone wool. It is applicable from the cellar up to the roof in a new building or at the renovation of old buildings. Mineral wool often is defined as any fibrous glassy substance made from minerals (typically natural rock materials such as basalt or diabase) or mineral products such as slag and glass. Mineral wool has a unique range of properties combining high thermal resistance with long-term stability. Mineral wool can be divided into two main categories: glass wool and the stone/slag wool. The products are used in essentially the same applications and differ mainly in the raw materials and melting methods

# Edible Oils, Essential Oils and Lubricating Oils Industry

<p>Aerosol Agarbatti &amp; allied Agarbatti perfumery compound Air/oil/fuel filter Ajowan extraction from ajowan seeds Bees wax manufacture Bees wax refining &amp; bleaching Bio-diesel from algae Blending of lube oil (blending of lubricating oils &amp; manufacture of greases) Brake oil (brake fluid) Calcium base grease Camphor Candles (semi automatic) Cardamom oil Cardom oil (cap:20 kg/day) Castor oil Castor oil &amp; its derivatives oleoresin,Turkey red oil, dco, hco, sebacic acid, 12- hydroxy stearic acid Castor oil and its derivatives oleo resin,Turkey red oil, dco, hco, sebacic acid 12-hydroxy stearic acid Castor oil derivative oleoresins Chilli oil Citronella oils Clove oil Compressor oils Concentrate of rose, jasmine &amp; lily etc. Core oil from cashewnut shell Corn oil Corn oil (maize oil) Cotton seed oil solvent extraction plant (capacity 150Ton/day) Crude edible oil refining (refining of edible oils) Crude edible oil refining (refining of edible oils) Crude oil refining Curcumin &amp;Turmeric oil fromTurmeric Cutting oil Decolourisation of refined rice bran oil (edible grade) Dehydrated castor oil Dhoop batti Dot-4 brake oil Edible oil extraction &amp; refining Edible oil extraction and refining Edible oil manufacturing 200Tpd Essential oils distillation unit (basil &amp; cornmint) Essential oils from wood flex and chips (cyperus wood oil, rose wood oil, sandal wood oil) Essential oils manufacturing Ethanol (bio fuel) from rice straw Eucalyptus oil Eugenol from cinnamon leaf oil Eugenol from cinnamon oil Extra highTemperature lubricating grease (2500-30000C) Extraction &amp; distillation of essential oils, oleoresins, flavours &amp; fragrances Extraction of essential oils (by super critical method) Extraction of essential oils (cardamom, jeera, ajowan, ginger oils, etc. &amp; packaging of ground spices) Extraction of essential oils/natural</p>	<p>extracts oil Extraction of jasmine essence Extraction of large cardamom oil Extraction of oil from oil seed expander extrusionTechnology) Extraction of wild apricot (chulli) oil Fat liquor sulphated oil Fish oil Food grade lubricant or grease Fractional distillation of crude oil Fractional distillation of crude oil Fractional distillation of essential oil &amp; medicinal plant extract Fuel oil from jatropa (jatropa bio-diesel oil extraction from jatropa seed) Garlic oil &amp; powder Geraniol citronellal &amp; hydroxy citronellol Ginger oil, sandalwood oil &amp; nagarmotha oil Grease manufacturing Ground nut oil Ground nut oil mill Ground nut processing Hair removing wax HighTemperature grease Integrated wax complex Ionone from lemon grass oil Jasmine &amp; lilly flower oil Jatropa bio-diesel Jatropa biodiesel oil extraction from jatropa seed Kesh kalaTel (vasmol or godrej keshkalaTelType) Lemon grass oil Lemon grass oil production Liquid paraffin Lube oil &amp; grease Lube oil &amp; grease from used engine oils Lube oil blending greases plant Lube oil blending with greases Lubricating oil Lubricating oil repacking and manufacture of greases Margarine butter (low cholesterol) from vegetable oil Marorphali powder and oil (powder and extraction of oil frommarorphali) Menthol crystals Menthol oil &amp; crystal Micro crystalline wax MineralTurpentine oil (m.t.o.)from petroleum (superior kerosene oil or other material) Mustard oil (edible oil) Mustard oil (expeller) Mustard oil and flour mill (integrated unit) Mustard oil extraction &amp; refining plant Mustard oil plant Mustard oil processing (expeller process) Neem oil captive consumption in production of neem coated urea (plant capacity 2.00 mt per day) Oil filling plant Oil from artemisia herbs Oil seed &amp; procurement, processing,preservation and storage Oil service of cars Oil soap Oils and storage Oilseeds procurement, processing,</p>	<p>preservation and storage Oleoresin from spices Olive oil plant Palm kernel oil extraction from palm kernel expeller (pke) Palm oil Palm oil Palm oil crushing unit Palmrosa oil from grass Paraffin wax Paraffin wax from slack wax Peppermint oil Phenyl pine oil based &amp; black and white Pouches filling and packaging of edible oil Rajnigandha oil Re-refining of used engine oil Re-refining of used lubricating oils Reclamation of hydraulic oils Reclamation ofTransformer oils Reclamation of used engine oil (by vacuum distillation process) Reclamation of used engine oils Refined oil- sunflower oil, groundnut oil, staff flower oil &amp; cotton seed oil Refined vegetable oil Refining of palm oil, sunflower oil &amp; groundnut oil Refining of palm oil, sunflower oil and cottonseed oils Rice bran oil (rbo) Rose crystals Rose oil Rust prevention lubricating oil Rust prevention oils Seed oil extraction unit Seeds grading and processing Silicon grease Silicone oil Silicone oil manufacturing Smokeless candle Solvent extraction &amp; refining (soyabean) Solvent extraction &amp; refining (soyabean) (capacity 250 mt/day &amp; 50 mt/day oil refining) Solvent extraction of rice bran oil Solvent extraction plant (oil cake based) Soya oil and cattle feed from soyabean Spice oil &amp; oleoresins Spice oils or oleoresins (extraction of essential oil (cardamon, jeera, ajowan, ginger oil &amp; other spice) Sunflower oil Synthetic almond oil Synthetic ghee Synthetic musk Synthetic wax Teflon grease Transformer oil Turbine oil Turmeric oil extraction from dryTurmeric Turmeric oil oleoresin Vanaspati unit Vegetable oil extraction &amp; refining Virgin coconut oil Wax crayons Wax emulsion forTextiles Wetting oil (non ionic) Wire drawing lubricant</p>
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for the  
demanded

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following the melting stage, the processes and environmental issues are essentially identical.

## COST ESTIMATION

Plant Capacity	93.33 Tons/Day
Land (50000 Sq.Mt)	Rs. 19.99 Cr.
Plant & Machinery	Rs. 118.00 Cr.
W.C. for 2 Months	Rs. 12.54 Cr.
Total Capital Investment	Rs. 156 Cr.
Rate of Return	24%
Break Even Point	62%

## PROCESS SPICES AND HERBS FROM CLEANING, GRADING, SORTING AND GRINDING AND ALSO DO STEAM STERILIZATION AND FINALLY TO DO EXTRACTIONS OF OIL FROM SPICES, OIL SEEDS AND HERBS [CODE NO.3270]

Spices which are basically plant products, have a definite role to play in enhancing the taste flavour, relish or piquancy of any food, most of the spices are fragrant, aromatic and pungent. They comprise seeds, barks, rhizome, leaves fruits and other parts of plants, which belong to variegated species and genera since time immemorial, India is renowned to be the home of spices. Most important spices like black pepper (king of spices) cardamom (queen of spices) cardamom (queen of spices), ginger, chillies and turmeric, which are produced in India import it great reputation, and these constitute. The major group of spices. In the list of spices, clove, nutmeg, cinnamon and cassia are known as tree spices. However, spices like fennel, fenugreek, garlic, onion, coriander, cumin, vanilla, saffron etc. There are a number of spices used along with food, namely; 1. Common Salt, 2. Coriander, 3. Chill, 4. Haldi, 5. Ajwain & Maithee, 7. Onion and so on; These spices are not used at a time. For preparation of any dish may be Indian or European, may be vegetarian or non-vegetarian we use more than are spices for its preparation. The combination of all the spices but together for the use of one particular dish as known as 'masala' of the spices, the bulk of the dry matter consists of carbohydrates, proteins, tannins, resins, volatile oil, fixed oil, for pigments, mineral, elements etc. These constituents differ greatly in their composition and content in different spices. They have varied physical and chemical properties. Due to this reason, the processing method of different spices, differ widely and required individual expertise in variety operation like curing, drying, cleaning, grading and packing. Harvesting of each spice is done at a particular stage of maturity in a particular manner suitable for it avoiding any sort of damage before processing. It is

transported to the processing centre as quickly as possible and stored properly before it is taken to up for processing.

## COST ESTIMATION

Land (17200 Sq.Mt)	Rs. 4.83 Cr.
Plant & Machinery	Rs. 3.45 Cr.
W.C. for 1 Month	Rs. 70.59 Cr.
Total Capital Investment	Rs. 79.24 Cr.
Rate of Return	49%
Break Even Point	24%

## CARDANOL FROM C.N.S.L. OIL (CASHEWNUT SHELL LIQUID) [CODE NO 3271]

Cardanol oil, a renewable raw material well known by product of the cashew industry, has been used as the starting material for the synthesis of novel fulleropyrrolidines cardanol based. In this work, cardanol has been used as building block for the preparation of target cardanol based precursors obtained by the way of the convenient transformation of the functional groups (aromatic ring, -OH group or the double bonds of the side chain) of the cardanolic structure. Pure 3-n-pentadecylphenol and its derivatives having homogeneous chemical composition, used as the precursor of any fulleropyrrolidines, have been prepared by hydrogenation of the un-saturated side chain and subsequent alkylation of the aromatic ring of cardanol. The reactivity of olefinic double bond present in the side-chain which can undergo easy transformation i.e. oxirane formation as well as metathesis reactions affording various interesting fulleropyrrolidines is also described. Cashew nut shell liquid or oil obtained by heat treatment contains about 10% cardol and about 90% cardanol (a vesicant oil liquid) resulting from decarboxylating anacardic acid and its polymers. Formerly, a moisture product of the cashew kernel industry in southern India, Cashew nut shell oil has become a valuable raw material in the manufacture of many industrial product. It condenses with formaldehyde and other chemicals into resin that can be used in many unique combination for the manufacture of brake lining, clutch and other friction facings, insulating and water proofing varnishes and coating laminating resins, molding composition oil & acid proof cement & industrial floor tile, type writer rolls, and myriad other products, varnishes made with these resin are resistant to acid and alkalis and possess unusual resistance to the softening action of mineral oil; they are used to coat paper for bottle cap liners and for many other water proofing and insulating purposes. The polymerized liquid is used as a potting compound for magnetoelectric machine armatures in air planes because of its high heat resistance subsequent treatment of the polymerized product with

formaldehyde, trioxymethylene, paraformaldehyde or furfuraldehyde at room temperature for 24-72 h produced a substantially infusible solid resin that retains high binding power at elevated temperature without softening hydrogenation of the phenol in the oil produced many useful products such as a cosolvent for rotovore in the preparation of insecticides. The hydrogenated oil has none of the vesicant action of the original liquid cashew nut shell oil also is used in India for protecting wood and paper against termites and for motor roofing and preserving fish nets, textiles and lumber. The cashew nut shell liquid (CNSL) is a by product & the cashewnut processing industry cashew nut trees are found in Karnataka, Kerala, and Tamil Nadu, Maharashtra etc. About 60,000 tons of nuts are collected annually for processing into kernels; and in addition 50,000 tons and received from East Africa. Oil is extracted from 1/3 rd of the available nuts. Almost all the cashew processing factories are in the small scale sector. These units adopt either the Drum Roasting Method & nut-oil Butts Process while processing cashew nuts. It is reported that raw cashewnuts contain over 20% oil in the shells. In the old Drum Roasting Process, such if the oil gets burnt during roasting where as in the oil-Bath process about 10% good quality shell oil can be recovered from the oil in the process itself as a by-product. This oil is of good quality and finds ready market. The shell still contains 10 to 12 percent oil which can be recovered either by solvent extraction or by using expellers. Cashew nut shell liquid is a versatile raw material. The potential availability by CNSL is estimated at 40,000 tons but the actual average production is only by the order by 9,000 tons, primarily due to lack of market. The industrial application & CNSL are based open its polymerization to a rubber like material under the influence by acids and on the formation of a wide range of condensation products with aldehydes.

## COST ESTIMATION

Plant Capacity	10 MT/Day
Land & Building (4000Sq.Mt)	Rs.1.37 Cr.
Plant & Machinery	Rs. 1.26 Cr.
W.C. for 2 Month	Rs. 1.77 Cr.
Total Capital Investment	Rs. 4.51 Cr.
Rate of Return	34%
Break Even Point	49%

## HERBAL MEDICINAL FOOD SUPPLEMENTS [CODE NO.3272]

Dietary supplement, any vitamin, mineral, herbal product, or other ingestible preparation that is added to the diet to benefit health. Omega-3 fatty acid pills are an example of a dietary supplement. Dietary supplements are used worldwide

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<p><b>STATEMENT ABOUT OWNERSHIP AND OTHER PARTICULARS ABOUT THE JOURNAL</b></p> <p><b>HI-TECH PROJECTS</b> From IV (See Rule 8) Place of Publication Delhi</p> <p>Periodicity of Publication: Monthly Printer's Name : Sudhir Kumar Gupta Whether Citizen of India: Yes Address : 4449 Nai Sarak, Delhi- 6</p> <p>Publisher's Name : Sudhir Kumar Gupta Whether Citizen of India: Yes Address : 4/35, Roop Nagar, Delhi- 7</p> <p>Editor's Name : Sudhir Kumar Gupta Whether Citizen of India: Yes Address : 4/35, Roop Nagar, Delhi- 7</p> <p>Name &amp; Address : Engineers India Research Institute, 4449, NaiSarak, Delhi - 6</p> <p>Statement of individuals who own the newspaper and partners of shareholders more than one percent of the total capital. I, Sudhir Kumar Gupta hereby declare that the particulars given above are true to the best of my belief.</p> <p>Dated _____ Sudhir Kumar Gupta Signature of _____ Publisher</p>	<p>report regular use of these products. Nutritional supplement, in foods, any vitamin or mineral added during processing to improve nutritive value and sometimes to provide specific nutrients in which populations are deficient. Flour and bread products are often enriched with iron and the B vitamins thiamin, riboflavin, and niacin; and citrus-fruit beverages, naturally containing vitamin C, may be fortified with additional vitamin C units. Addition of iodine to salt has eliminated goitre in some areas in which it was formerly common; and vitamin D may be added to baby foods to combat rickets.</p>	<p>shock resistant which may be there is case of metal electrical fittings. Electric fittings are manufactured in different sizes as required by the customer. They may be of two or three pin. Three pin sockets and plugs have one major advantage over two pin one's since they are earthed also. Also various combinations are practiced in the 5-15 ampere range. These combinations are (1) 5 amp. switches, sockets, Bell push &amp; Flush type fuses (2) 15 amp. and 5-15 amps. combination etc. can imagine the scope of this industry. To make it more clear due to the development in electric production more industries will be installed, more and more electricity, as well as industrial purposes which in turn will require more fittings. Most of the bakelite electrical fittings consist essentially of three parts. i. The bakelite or plastic body. ii. Metal inserts and screws, springs etc. iii. Ceramic base. A switch is a device to cut the electric circuit when not desired. A general use switch is a switch intended for use in general distribution and branched circuits. It is rated in amperes and is capable of interrupting its rated current at its rated voltage.</p>																								
<p>and represent a broad category of ingestible products that are distinguishable from conventional foods and drugs. In the United States, dietary supplements are defined as products (other than tobacco) intended to supplement the diet that contain at least one of the following ingredients: vitamin, mineral, herb or botanical (including extracts of herbs or botanicals), amino acid, metabolite, or any combination thereof. In short, products such as multivitamins, garlic tablets, fish oil capsules, probiotics, natural weight-loss aids, and certain types of energy drinks are examples of dietary supplements. In the United States, dietary supplements must be labeled as such and must be intended for oral administration only, whether as tablets, capsules, powders, or liquids. In addition, dietary supplements must not include chemical compounds that have been approved as drugs or licensed as biologics, unless the compound was previously marketed as a dietary supplement or a food. Supplements are often sold alongside conventional over-the-counter medications in retail outlets. While dietary supplements are not intended to treat, cure, mitigate, or prevent any disease, many consumers often view them as substitutes for conventional medications. More than 50 percent of the U.S. population uses some type of dietary supplement on a regular basis. Surveys of supplement usage in other countries indicate that between 40 and 60 percent of Asian respondents use dietary supplements, and about 30 percent of consumers in Europe and Latin America</p>	<p><b>COST ESTIMATION</b></p> <table border="0"> <tr> <td>Land &amp; Building (1800Sq.Mt)</td> <td>Rs.1.12 Cr.</td> </tr> <tr> <td>Plant &amp; Machinery</td> <td>Rs. 90.00 Cr.</td> </tr> <tr> <td>W.C. for 2 Month</td> <td>Rs. 4.80 Cr.</td> </tr> <tr> <td>Total Capital Investment</td> <td>Rs. 7.03 Cr.</td> </tr> <tr> <td>Rate of Return</td> <td>51%</td> </tr> <tr> <td>Break Even Point</td> <td>44%</td> </tr> </table> <p>*****</p>	Land & Building (1800Sq.Mt)	Rs.1.12 Cr.	Plant & Machinery	Rs. 90.00 Cr.	W.C. for 2 Month	Rs. 4.80 Cr.	Total Capital Investment	Rs. 7.03 Cr.	Rate of Return	51%	Break Even Point	44%	<p><b>COST ESTIMATION</b></p> <table border="0"> <tr> <td>Land (450 Sq.Mt)</td> <td>Rs. 83.10 Lacs</td> </tr> <tr> <td>Plant &amp; Machinery</td> <td>Rs. 21.05 Lacs</td> </tr> <tr> <td>W.C. for 1 Month</td> <td>Rs. 7.79 Lacs</td> </tr> <tr> <td>Total Capital Investment</td> <td>Rs. 1.13 Cr.</td> </tr> <tr> <td>Rate of Return</td> <td>31%</td> </tr> <tr> <td>Break Even Point</td> <td>49%</td> </tr> </table> <p>*****</p>	Land (450 Sq.Mt)	Rs. 83.10 Lacs	Plant & Machinery	Rs. 21.05 Lacs	W.C. for 1 Month	Rs. 7.79 Lacs	Total Capital Investment	Rs. 1.13 Cr.	Rate of Return	31%	Break Even Point	49%
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	<p><b>ELECTRIC SWITCHES MANUFACTURING [CODE NO.3273]</b></p> <p>The switches are of high quality and are used in hot plates, coolers, washing machines, electric cooking ranges etc. Rotary Switches are to 5 Amps and 15Amps rating and are fitted with very fine quality contracts for long lasting. The contacts close or open. The switches consist of Bakelite body except for the hot plate switch. The hot plate switch has a ceramic base to withstand high temperature. The switches have a 360° rotation. The switches are provided with a black or white knob with proper marking. Single hole fixing is provided by a threaded brush. The switch is secured by a single center fixing nut. Electric switches, plugs, sockets, etc. are nothing but electric fittings which are quite familiar to the people as it is found in every home. They can be manufactured using different major raw materials e.g. steel, brass, thermosetting or thermoplastic resins. However this report is totally based on bakelite powder or resin which is thermosetting type. Bakelite powder is also known as phenol formaldehyde resin. also other electrical accessories e.g. plates, lamps holders, may be manufactured from phenol formaldehyde resin and same plant and machineries making the industry highly flexible and profitable. Besides electrical fittings radio cabinets, inks stands, table lamps, door and cabinets, handles, power relay components, camera shutters, textile bobbins and other accessories may also be manufactured with little or no change. As mentioned earlier though electrical fittings may be manufactured from other materials also it may be noted that bakelite electrical fittings are best and economical. Also bakelite is bad conductor of electricity making them</p>	<p><b>READYMADE DRY MORTAR MANUFACTURING PLANT (2 TON/HOUR) [CODE NO.3274]</b></p> <p>Dry Mortar Mix is gaining eminence in modern times owing to its versatile superiority in regard to characteristics over the conventional in-situ mortars viz. better performance easy to uses easy to set and the quality of leaving no cracks and voids. Besides it has preferably better and wider field of application as patching &amp; repairing materials for plastering purposes and other construction works viz. internal/ external plastering masonry work etc. It is a very good substitute for conventional in-situ mortars. Various types of Ready mix dry mortar comprise internal plaster mortar, external plaster mortar masonry mortar, quick setting mortar high strength mortar repair mortar self leaving flooring mortar pre-mix RCC mortar etc. One specific advantage regarding manufacture of these ready mix dry mortar is that they can be manufactured in a single unit by variation in composition proportions as per different formulations. Ready mix dry mortar is particularly useful on congested sites or in road construction where little space for the mixing plant and for extensive aggregate stockpile is available but the greatest single advantage of ready mix dry mortar is</p>																								

# Top Industries to Start

that it may be made under better conditions of control than are normally possible on any large construction sites. These consist of finely ground refractory grain and plasticizers that can be thinly spread on brick during construction. For air - setting mortars sodium silicates or phosphates provide strength at room temperature. Heat setting mortars contain no additives and develop strength only when a ceramic bond is formed at high temperatures. A refractory composition containing chemical agents that sure hardening at temperatures below that of ceramic bonding but above room temperature sometimes called "air hardening". A refractory mortar material which requires relatively high temperature for the development of a bond. Masonry cements are cements for use in mortars for masonry construction. They are formulated to yield easily workable mortars and contain special additives that reduce the loss of water from the mortar to the prours masonry units.

#### COST ESTIMATION

Plant Capacity	20.00 Ton/Day
Land & Building (3000Sq.Mt)	Rented
Plant & Machinery	Rs. 48.50 Lacs
W.C. for 1 Month	Rs. 43.46 Lacs
Total Capital Investment	Rs.1.04 Cr.
Rate of Return	109%
Break Even Point	45%

#### STAINLESS STEEL BUTT AND BALL BEARING HINGES FOR WOODEN DOOR [CODE NO.3275]

Hinges are devices that are made out of two symmetrical or none symmetrical sheet metal pieces pivot joined together with wire rod for free swinging of the two parts and are used to support doors or windows of buildings and furniture allowing a swing about the support frames. A hinge is a relatively simple bearing, usually involving two plates that meet at a fulcrum which allows a limited amount of rotation. Doors are the most common hinge application, but they are used in so many different situations that to make a comprehensive list would take too long. Zinc Plated & Electro Brass Plain Bearing Butt Hinges

#### COST ESTIMATION

Plant Capacity	3 MT./Day
Land (2000 Sq.Mt)	Rs. 2.16 Cr.
Plant & Machinery	Rs. 1.07 Cr.
W.C. for 2 Months	Rs. 4.10 Cr.
Total Capital Investment	Rs. 7.83 Cr.
Rate of Return	88%
Break Even Point	24%

#### SCHOOL UNIFORM & LADIES GARMENTS (READYMADE GARMENTS) [CODE NO. 3276]

As the name itself implies the readymade garments are garments ready for wearing.

Wearing garment is a basic need for every human being. The trend for using ready made garments is increasing day by day. Ready to wear garments have been finding more and more acceptance in the indigenous as well as export markets mainly due to low cost of fabrication. Sewing, of cloth as well as saving of time. Manufacture of readymade garments is very simple and easily manageable. Machinery and Raw Materials required to start this industry are indigenously available. The scheme envisages for setting up a unit of readymade garments. viz. Cotton Shirts, Pajamas, Petticoats and blouses which shall be quite acceptable in the rural markets. The readymade garments industry is a highly diversified one consisting of a large number of items based on various fabrics either woven or knitted, for ladies and girls, for men and for boys for sports and swimming. Under-garments, Outer garments, traditional institutional and also industrial garments. The Rs 172,000-crore private education market in India is estimated to be growing at 11 per cent a year — this segment represents 51 per cent of this market. Thus, the market for school uniforms is huge and growing at a fast pace. At present, uniforms are almost 40 per cent of the Rs 32,000-crore kidswear market, with growth of 15 per cent over last year.

#### COST ESTIMATION

Plant Capacity	200 Nos/Day
Land & Building (546 Sq.Mt)	Rs. 26 Lacs
Plant & Machinery	Rs. 57.00 Lacs
W.C. for 2 Months	Rs. 1.09 Cr.
Total Capital Investment	Rs. 2.03 Cr.
Rate of Return	38%
Break Even Point	60%

#### HYDRATED LIME [CODE NO.3277]

Hydrated lime is a stable, dry, fine powder produced by the chemical combination of quicklime with water. This is the most concentrated form of lime. Hydrated lime, apart from building industries, is also largely used in chemical industries as a cheapest alkali available. It is consumed in hundreds of solidliquid phase reactions. Hydrated lime requirements definitely exceed the vast tonnage of quick lime required in dry, thermal processes such as sintering, smelting, and fluxing etc. Hydrated lime is used for neutralization, coagulation, canticization, dehydration, hydrolyzation and absrption. It is also used as a flux in metallurgy, as a specified lubricant, as a bonding agent, as a filler, as a raw material and also in the manufacture of refractories. The present existing manufacturing capacity in the country for the manufacture of hydrated lime is not sufficient to meet the growing demand of its dependent chemical and other industries as also in building industry. Raw materials, process equipments, and

the necessary know-how involved in the manufacture of hydrated lime are available indigenously. The term lime has broad connotation and frequently is used in refering to limestone. According to precise definition lime can only be a burned form: Quick lime and hydrated lime. These products are oxides or hydroxides of calcium and magnesium, expect hydraulic types in which the CaO & MgO are chemically combined with impurities. The oxide is converted to a hydroxide by slaking on exothermic reaction in which the water combines chemically with the lime.

#### COST ESTIMATION

Plant Capacity	100 MT./Day
Land & Building (6000Sq.Mt)	Rs. 3.08 Cr.
Plant & Machinery	Rs. 1.50 Cr.
W.C. for 2 Months	Rs. 2.28 Cr.
Total Capital Investment	Rs. 7.05 Cr.
Rate of Return	39%
Break Even Point	48%

#### AYURVEDIC HOSPITAL 40 BEDED [CODE NO.3278]

PanchaKarma is the cornerstone to Ayurvedic management of disease. Pancha Karma is the process which gets to the root cause of the problem and corrects the essential balance of 'Tridosha' in body. Pancha Karma is not only good for alleviating disease but is also a useful tool in maintaining excellent health. Ayurveda advises undergoing Pancha Karma at the seasonal changes to clean the body, improve the digestion and to improve the metabolic processes. Panchakarma is a Sanskrit word that means "five actions" or "five treatments". This age-old science of purifying the body is an ancient branch of Ayurveda, The Treatment in Ayurveda consists of two main types. One is Shaman Chikitsa, used to subdue the vitiated Doshas, due to which any ailments may be produced. It is administered by using various medicinal herbo-mineral preparations. However, if the Doshas are vitiated beyond a particular level, they give rise to various endotoxins, which have a tendency to be accumulated in the minute channels. These are beyond the level of pacification and hence need to be eliminated or removed from the body. In such cases, the second type of treatment, which is Shodhan Chikitsa or cleansing therapy, is indicated. Since it consists of the five types of main therapies, it is known as the Panchakarma Chikitsa. Ayurveda, the perfect science or knowledge of life is believed to be the oldest treatment method which evolved around 600 BC in India. The word Ayurveda originated from the two Sanskrit words, 'Ayur' meaning life and 'Veda' meaning knowledge. Ayurveda practiced by special physicians called 'Vaidyas' is known to promote positive health, natural beauty and long life. Life, according to Ayurveda, is a

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combination of senses, mind, body and soul. The medicinal system believes that human beings and nature should be in perfect harmony and that disease occurs when the equilibrium between these two is disrupted. Restoration of this fundamental balance, through the use of nature and its products is the main goal of this medical system. The concept is not just on curing bodily ailments but also on preventing. Ayurveda emphasizes that 'Prevention is better than cure'. In Ayurveda, which is basically a humoral medical system, diseases are understood as an imbalance between the body's three humors, Vata (nerve energy), Pitta (catabolic fire energy) and Kapha (anabolic nutritive energy). Natural herbs and minerals are used for preparing medicines. Apart from herbs, purification and detoxification, dietary changes, body massages and meditation are used to promote health and prevent and treat illness. Ayurvedic medicines are rapidly gaining acceptance all over the world as they have no side effects and is found to have cures for even rare ailments. Check out the link Ayurveda to know more about the system. Central Council for Research in Indian medicine and Homoeopathy (CCRIMH) was established in 1969 by the Government of India for a systematic research in Ayurveda. In the year 1978, CCRIMH was split into four separate councils, one each for Ayurveda & Siddha, Unani, Yoga & Naturopathy and Homoeopathy.

### COST ESTIMATION

Land (12000 Sq.Mtr)	US\$ 18.56 Lacs
Plant & Machinery	US\$ 8.33 Lacs
W.C. for 3 Months	US\$ 2.02 Lacs
Total Capital Investment	US\$29.47 Lacs
Rate of Return	30%
Break Even Point	50%

### ALUMINIUM EXTRUSION PLANT CAPACITY 10 TON/Day

[CODE NO.3279]

Extrusion is a plastic deformation process in which a block of metal (billet) is forced to flow by compression through the die opening of a smaller cross-sectional area than that of the original billet. Extrusion is an indirect-compression process. Indirect-compressive forces are developed by the reaction of the workpiece (billet) with the container and die; these forces reach high values. The reaction of the billet with the container and die results in high compressive stresses that are effective in reducing the cracking of the billet material during primary breakdown from the billet. Extrusion is the best method for breaking down the cast structure of the billet because the billet is subjected to compressive forces only. Extrusion can be cold or hot, depending on the alloy and the method used. In hot extrusion, the billet is preheated to facilitate plastic deformation

### COST ESTIMATION

Plant Capacity	12 MT./Day
Land & Building (5000Sq.mt)	Rs. 4.70 Cr.
Plant & Machinery	Rs. 4.88 Cr.
W.C. for 2 Months	Rs. 10.96 Cr.
Total Capital Investment	Rs. 21.77 Cr.
Rate of Return	76%
Break Even Point	28%

### EXTRA NEUTRAL ALCOHOL WITH MAIZE AS RAW MATERIAL [CODE NO.3280]

Neutral spirit is ethanol, which will only have the characteristic taste and odour of ethanol. It is manufactured from molasses, grains and other carbohydrate raw materials. In order to classify the different types of neutral spirit according to the raw materials used for the manufacture, the value of the raw material should be prefixed as follows. Molasses Neutral Spirit Neutral spirit made from molasses will be called molasses neutral spirit. Grain Neutral Spirit Neutral spirit made from grain or malt will be named as grain neutral spirit. Similarly prefix will be used according to raw material used for manufacture. Pure Ethyl Alcohol C2 H2O also known as absolute alcohol is a colourless mobile inflammable liquid. The term alcohol was first applied to the spirits of wine ethyl alcohol and now it refers to a series of substances with similar characteristics ethyl alcohol is the active constituent of all intoxicating liquors obtained by the fermentation of starchy materials. It is present in the days prepared in immense quantities chiefly by fermentation and finds numerous industrial uses, and is also being used as a motor fuel. Starch bearing materials potatoes, rice wheat maize, etc. form another important source of alcohol potatoes were extensively used for the manufacture of alcohol in Germany before the War 1st. Alcohol produced from grains costs more than that produced from molasses and grains are chiefly used for the production of potable liquors. Alcohol possesses excellent solvent properties, and it is used for the extraction of several drugs and for the manufacture of tinctures and others medicinal preparation. It is also employed for the extraction of essential oils, and for the preparation of perfumes, essences and flavours. For a developing country like India, where the basic organic chemical industry had to take a start from the available source, ethyl alcohol has been found to be a suitable raw material for a variety of products.

### COST ESTIMATION

Plant Capacity	60 KL/Day
Land & Building (35 Acres)	Rs. 24.80 Cr.
Plant & Machinery	Rs. 44 Cr.
W.C. for 3 Months	Rs. 17.51 Cr.
Total Capital Investment	Rs. 89.31 Cr.
Rate of Return	20%
Break Even Point	58%

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# Start Your Own Industry

## **COLD STORAGE FOR POTATO AND ONIONS [CODE NO. 3281]**

Onion, being high in water content, is a delicate commodity to store and requires special procedure and parameters, giving rise to the concept of Onion cold storage. The proposed project envisions setting up of an onion cold storage unit in Gujarat to tackle the problem of post harvest storage. It will be an essential infrastructure for onion exporters, both in private and public sector. CA Cold storage is used to Onions and Potato. Once they are kept in the cold storage, they do not get spoiled even after many months. Some times, in production season of certain vegetable or fruit crop, the demand for that thing decreases, which in turn decreases their consumption in surplus amount of that particular item is kept in a cold storage. So this item, when needed, can be taken from the cold storage & can be made available to consumers very easily. Onion is an important vegetable crop grown in India and forms a part of daily diet in almost all households throughout the year. It is also used for medical purpose. But due to non-availability of appropriate post-harvest storage facilities, 20-25% of the total produced onions are wasted, which in terms of value amounts to crores of rupees. Building up of the cold storage unit would minimize the waste upto the level of 3 to 4% that would in turn help the onion growers, and stabilize onion prices in market for all types of consumers. A major challenge in India is potato storage as potato production that takes place in the cold months of October-November to February-March (about four-fifths of total production) is followed by hot summer months; this makes refrigeration necessary for storage. 2 Cold storage takes place on a large scale. It is estimated that there were about 3,400 cold storage facilities in the beginning of the 2000s in India (CIP, 2006) but they had increased to 5,386 units in 2008 that could store over eighteen million tons of crops.3 Most of the cold storages in India are used towards potato storage. CIP (2006) estimates that approximately three-fifths of potatoes in cold storages are table potatoes, intended for consumption, while the other two-fifths are used for seed. Using average storage fees from our survey (and assuming 80% of cold storage use by potatoes), it is estimated that about 0.4 billion USD is spent yearly by traders and farmers on storage for these potatoes in India, indicating the considerable size of this business. Selection of location for the cold storage is a very important task. So, this should be done very carefully. While selecting a location for the cold storage the following factors should be accounted for:- 1. Market and production field should be near the cold storage so that the expenditure incurred in to and for

transportation is less and it is convenient also. 2. Cold storage should be near a highway so that the transportation to other cities is not difficult. 3. At the site of the cold storage, the cost of the land should be less. 4. There should be a convenient arrangement of water and electricity at the location, where cold storage is to be established.

### **COST ESTIMATION**

Plant Capacity	5000 MT Cold Storage	
Land & Building (68.80Sq.Mt)		Rs.3.04Cr.
Plant & Machinery		Rs. 2.61 Cr.
W.C. for 1 Month		Rs. 11.92 Lacs
Total Capital Investment		Rs. 5.94 Cr.
Rate of Return		13%
Break Even Point		69%

## **ICE TUBE MANUFACTURING [CODE NO. 3282]**

Tube Ice Tube ice, commonly called cylinder ice, is formed by freezing potable water on the inside of a series of vertical metal cylinders around which refrigerant is evaporating at a low temperature. When the cylinders are nearly full of ice, hot gas is used to loosen the ice from the cylinder walls. The ice falls downward and is broken into pieces by a spinning breaker bar or other apparatus. The ice is then usually fed up a screw conveyer or auger to a mechanical storage bin or "rake," where it is stored until it can be bagged or processed. Tube ice is recognizable from the trademark hole in the middle of each "tube." The density of tube ice in storage is approximately 32 lb/ft3 (0.41 kg/m3). Because of the hot gas thawing system employed, tube ice is harvested wet. In order to deliver a superior product that does not freeze together, the ice should be refrozen, which dries the surface of the ice and prevents sticking together. This may be accomplished through the use of a drying system or by placing in a cold room immediately after bagging. Ice cube is a well known product and the commercial ice cube is made in the ice plant while the ice can be prepared at homes also in the refrigerators. Only the water is filled in trays and these trays are kept in refrigerators. After a certain period the water will freeze and ice cube can be obtained. The method of refrigeration of water into ice cube is almost similar on commercial scale refrigeration are mostly used for the production of ice cube. Medium and small scale freezing equipments are used in conjunction with the large capacity refrigerators. Ice cube is produced and marketed usually in the form of cubes which may be either crystal-clear or opaque, the latter is considered to be inferior. The opaqueness is due to the presence of minute bubbles of air released during the cooling process. The water employed for ice cube making should be preferably free from dissolved solids. formerly when steam was used as a source

of powers for driving refrigeration machines the exhaust steam was condensed after filtration and the distilled water so obtained was frozen into ice cube. Electricity is now used for running refrigeration plants and economic production of clear ice cube from raw water without proof distillation has gained importance. Various methods of treatment have been developed for this purpose and it now possible to use water containing dissolved solids up to 1300 p.p.m. to yield ice cube of good marketable quality.

### **COST ESTIMATION**

Plant Capacity	20 MT/Day	
Land & Building (2000Sq.Mt)		Rs. 2.47Cr.
Plant & Machinery		Rs. 1.22 Cr.
W.C. for 3 Months		Rs. 48.98 Lacs
Total Capital Investment		Rs. 4.59 Cr.
Rate of Return		41%
Break Even Point		47%

## **WOOD PLASTIC COMPOSITE BOARD (WPC) [CODE NO. 3283]**

Wood-plastic composites (WPCs) are a form of composite combining wood-based elements with polymers. The processes for manufacturing WPCs include extrusion, injection molding, and compression molding or thermoforming (pressing). Newer manufacturing processes for WPCs include additive manufacturing via fused layer modeling and laser sintering. An important constraint for polymers used in WPCs is requiring process conditions (melt temperature, pressure) that will not thermally degrade the wood filler. Wood degrades around 220 °C; thus, general-purpose polymers like polyethylene and poly vinyl chloride are typically used for manufacturing WPCs. Wood fibers are inherently hydrophilic because of the hydroxyl groups contained in the cellulose and hemicellulose molecular chains. Thus, modification of the wood fiber via chemical or physical treatments is very critical to making improved WPCs. The most abundant profiles made from wood-plastic composites are boards or lumber used in outdoor decking applications. Although early WPC products were mainly extruded for profiled sections, nowadays, many injected parts made of WPC are being introduced for various industries, including electrical casings, packaging, daily living supplies, and civil engineering applications. Mold and mildew and color fading of WPCs tend to be the durability issues of prime importance for WPCs. Most recent research on WPC durability focuses on studies to better understand the mechanisms contributing to various degradation issues as well as methods to improve durability. Most WPC products in the USA are utilized in building materials with few exceptions for residential and commercial building applications, which means that building codes are the most important national rules for the WPC



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manufacturers. New developments are being made especially in the area of nano additives for WPCs including nanocellulose. Recently, the trend of patent registrations for WPCs has shifted to new products or applications instead of the materials itself. Wood-plastic composites (WPCs) are composite materials made of wood fiber/wood flour and thermoplastic(s) (includes PE, PP, PVC etc.). In addition to wood fiber and plastic, WPCs can also contain other ligno-cellulosic and/or inorganic filler materials. WPCs are a subset of a larger category of materials called natural fiber plastic composites (NFPCs), which may contain no cellulose-based fiber fillers such as pulp fibers, peanut hulls, bamboo, straw, digestate etc. Chemical additives seem practically "invisible" (except mineral fillers and pigments, if added) in the composite structure. They provide for integration of polymer and wood flour (powder) while facilitating optimal processing conditions. In recent years, people in the flooring industry starts referring to WPC as a type of floor that has a basic structure of top vinyl veneer plus a rigid extruded core (the core can be made without any wood fiber). WPC is now an established product category within LVT. This type of WPC is different than the WPC decking and is not intended for outdoor usage.

## COST ESTIMATION

Plant Capacity	1024 sq.ft./Day
Land & Building (500 Sq.Mtr)	Rented
Plant & Machinery	Rs. 30.00 Lacs
W.C. for 1 Month	Rs. 10.69 Lacs
Total Capital Investment	Rs. 43.69 Lacs
Rate of Return	52%
Break Even Point	61%

## SULPHATE OF POTASH [CODE NO. 3284]

Potassium sulfate (K<sub>2</sub>SO<sub>4</sub>) (in British English potassium sulphate, also called sulphate of potash, arcanite, or archaically known as potash of sulfur) is a non-flammable white crystalline salt which is soluble in water. The chemical compound is commonly used in fertilizers, providing both potassium and sulfur. When potassium sulfate is heated in water and subjected to swirling in a beaker, the crystals form a multi-arm spiral structure when allowed to settle. Potassium sulfate could be used to study spiral structures in the laboratory. Two crystalline forms are known. Orthorhombic β-K<sub>2</sub>SO<sub>4</sub> is the common form, but it converts to α-K<sub>2</sub>SO<sub>4</sub> above 583°C. These structures are complex, although the sulfate adopts the typical tetrahedral geometry. It does not form a hydrate, unlike sodium sulfate. The salt crystallize as double six-sided pyramids, classified as rhombic. They are transparent, very hard and have a bitter, salty taste. The salt is soluble in water, but insoluble in solutions of potassium

hydroxide (sp. gr. 1.35), or in absolute ethanol. The dominant use of potassium sulfate is as a fertilizer. K<sub>2</sub>SO<sub>4</sub> does not contain chloride, which can be harmful to some crops. Potassium sulfate is preferred for these crops, which include tobacco and some fruits and vegetables. Crops that are less sensitive may still require potassium sulfate for optimal growth if the soil accumulates chloride from irrigation water. The crude salt is also used occasionally in the manufacture of glass. Potassium sulfate is also used as a flash reducer in artillery propellant charges. It reduces muzzle flash, flareback and blast overpressure. It is sometimes used as an alternative blast media similar to soda in soda blasting as it is harder and similarly water-soluble. Potassium sulfate (K<sub>2</sub>SO<sub>4</sub>) mineral name arcanite forms colorless, no hygroscopic crystal. It occasionally occurs in nature in the pure state in salt deposit, but is more widely found in the form of mineral double salts in combination with sulfates of calcium, magnesium, and sodium. Potassium sulfate is after potassium chloride the most important potassium containing fertilizer being used mainly for special crops. Potassium sulfate constitutes 5% of the world demand for potash fertilizer. Prior to 1939, the German potash industry was the chief source of potassium sulfate for American chemical and fertilizer industries, although considerable tonnages were being produced in this country by the interaction of potassium chloride and sulfuric acid as a side product of salt-cake manufacture. With the termination of European imports, the production of the salt was undertaken on a larger scale by the American Potash and Chemical Corp. through the interaction of burkeite (Na<sub>2</sub>CO<sub>3</sub> 2Na<sub>2</sub>SO<sub>4</sub>) with potassium chloride followed in turn by the successful recovery of this salt from langbeinite by the International Minerals and Chemical Corp. In agricultural use potassium sulfate is preferred for the tobacco crop of the Southeast and the citrus crop of Southern California.

## COST ESTIMATION

Plant Capacity	200 Ton/Day
Land (40,000 Sq.Mt)	Rs.21.20 Cr.
Plant & Machinery	Rs. 32.00 Cr.
W.C. for 2 Months	Rs. 45.63 Cr.
Total Capital Investment	Rs. 99.73 Cr.
Rate of Return	32%
Break Even Point	47%

## CITRIC ACID FROM SUGARCANE MOLASSES [CODE NO.3285]

Citric acid (C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>, 2 - hydroxy - 1,2,3 - propane tricarboxylic acid), a natural constituent and common metabolite of plants and animals, is the most versatile and widely used organic acid in the field of food (60%) and pharmaceuticals (10%). It has got several other applications in various other fields. Currently, the global production

of citric acid is estimated to be around 736000 tones/year (Química e Derivados, 1997), and the entire production is carried out by fermentation. In Brazil, almost the entire demand of citric acid is met through imports. There is constant increase (3.5-4%) each year in its consumption, showing the need of finding new alternatives for its manufacture. Citric acid was first isolated by Karls Scheels in 1874, in England, from the lemon juice imported from Italy. Italian manufacturers had monopoly for its production for almost 100 years, and it was sold at high cost. This led extensive attempts all over the world to find alternatives way for its production, which included chemical and microbial techniques. In 1923, Wehmer observed the presence of citric acid as a by-product of calcium oxalate produced by a culture of *Penicillium glaucum*. Other investigations showed the isolation of two varieties of fungi belonging to genus *Citromyces* (namely *Penicillium*). However, industrial trials did not succeed due to contamination problems and long duration of fermentation (Rohr et al., 1983). The industrial process was first open by Currie, in 1917, who found that *Aspergillus niger* had the capacity to accumulate significant amounts of citric acid in sugar based medium. He also showed that high concentrations of sugar favoured its production, which occurred under limitation of growth. In the thirties, some units were implanted in England, in Soviet Union, and in Germany for the commercial production. However, the biochemical basis was only cleared in the fifties with the discovery of the glycolytic pathway and the tricarboxylic acid cycle (TCA). Consequently, an improved process employing submerged fermentation was developed in United States. Although methods were well developed to synthesis citric acid using chemical means also, better successes were achieved using microbial fermentations, and over the period of time, this technique has become the method of ultimate choice for its commercial production, mainly due to economic advantage of biological production over chemical synthesis. Much attention has been paid on research to improve the microbial strains, and to maintain their production capacity. Citric acid was first isolated from lemon juice and crystallized as a solid by Scheele in 1784. It is found as natural constituent of citrus fruits, pine apples, peaches, figs and other fruits and tissues.

## COST ESTIMATION

Plant Capacity	40 MT/Day
Land (20,000 Sq.Mt)	Rs. 20.61 Cr.
Plant & Machinery	Rs. 29.87 Cr.
W.C. for 2 Months	Rs. 12.87 Cr.
Total Capital Investment	Rs. 64.21 Cr.
Rate of Return	22%
Break Even Point	56%

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- \* SODIUM HYDRO SULFITE THROUGH FORMALDEHYDE ROUTE CAP-20 TPD
- \* SODA ASH PLANT FROM SOLVAY PROCESS
- \* ONION, AND GARLIC POWDER WITH GRAPE DEHYDRATION (RAISINS)
- \* FLUSH DOORS
- \* DI-METHYL PHTHALATES (DMP)
- \* GLUTEN FREE BEER

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- \* PVC AND PP FILES AND FOLDERS
- \* SULFAMIC ACID PURE CRYSTAL AND OTHER GRADE (GP,SR & TM GRADE)
- \* DECORATIVE LAMINATED SHEET (SUNMICA)
- \* ALPHA CELLULOSE POWDER FROM COTTON WASTE
- \* CAST POLY PROPYLENE FILMS ( CPP FILM)
- \* CASHEW NUT PROCESSING
- \* BIOGAS PRODUCTION (1500 CUBIC METER PER DAY)
- \* SOYA MILK AND PANEER
- \* MINERAL TURPENTINE OIL (MTO)



*EIRI is an expert Industrial Consultant working over 35 years and specialized to prepare all types of Detailed Project Reports based on clients requirements. Do Contact Today at: [eiritechnology@gmail.com](mailto:eiritechnology@gmail.com)*

## Highly Profitable Projects for New Entrepreneurs “EIRI Market Survey Cum Detailed Techno Economic Feasibility Reports”

<ul style="list-style-type: none"> <li>* STEEL FABRICATION</li> <li>* STEEL ROLLING MILL (REINFORCEMENT BAR)</li> <li>* ACRYLIC BATH TUB BY ACRYLIC SHEET</li> <li>* FABRICATION OF HEAT EXCHANGER</li> <li>* KITCHEN PRODUCTS MADE OF STAINLESS STEEL</li> <li>* ALUMINIUM BEVERAGE CAN</li> <li>* STEEL ROLLING MILL (BY INDUCTION FURNACE FROM STEEL SCRAP &amp; SPONGE IRON</li> <li>* M.S. BILLET CASTING WITH INDUCTION FURNACE FROM STEEL SCRAP &amp; SPONGE IRON</li> <li>* PROCESSING OF LOW GRADE TUNGSTEN ORE FULL BODY &amp; CHASSISS BUS PLANT</li> <li>* ASSEMBLY OF AIR – CONDITIONER/CHEST FREEZER/REFRIGERATOR</li> <li>* G.I.LADDER &amp; PERFORATED TRAYS</li> <li>* ALUMINIUM DOORS &amp; WINDOWS (ALUMINIUM FABRICATION)</li> <li>* LEAF SPRINGS FOR TRACTOR DRAWN TROLLEYS &amp; FOUR WHEELER TEMPOS</li> <li>* STEEL BRIGHT BARS</li> <li>* AUTOMOTIVE ENGINE VALVE</li> <li>* AUTOMOTIVE BRAKING SYSTEM</li> <li>* DISPLAY COOLER</li> <li>* ERW STEEL PIPES &amp; TUBES</li> <li>* STEEL INGOTS</li> <li>* TMT STEEL BARS (SARIYA)</li> <li>* AUTOMOBILE TRACTORS</li> <li>* ACTIVATED ALUMINA BALLS</li> <li>* ALUMINIUM FOIL</li> <li>* STONWARE PIPE (S.W.PIPE)/ CLAY PIPE</li> <li>* IRON ORE PELLETIZATION</li> <li>* ELECTRIC CONTROL PANEL</li> <li>* SOLAR PV POWER PLANT</li> <li>* MACHINE SHOP (FOR OIL AND GAS ENGINEERING INDUSTRY, AEROSCAPE ENGINEERING INDUSTRY)</li> <li>* STEEL BRIGHT BARS</li> <li>* CEILING FAN</li> <li>* COPPER STRIP COILS FROM SCRAPS</li> <li>* PRODUCTION OF PV PANELS (SOLAR PV PANELS)</li> <li>* ROTARY AIR LOCKS, SCREW CONVEYOR, MOTORIZED/ PNEUMATIC DAMPER, FLAP VALVES, AIR SLIDES REQUIRED IN CEMENT PLANTS AND THERMAL POWER PLANT</li> <li>* ALUMINIUM EXTRUSION</li> </ul>	<ul style="list-style-type: none"> <li>* ALUMINIUM COIL COATING FOR ACP AND ROOFING IND.</li> <li>* PAVING BLOCK</li> <li>* WIRE NAILS</li> <li>* TMT STEEL BARS</li> <li>* FASTENERS/NUT &amp; BOLTS (INDUSTRIAL &amp;AUTOMOBILE)</li> <li>* HYDRAULIC CYLINDERS</li> <li>* DISPOSABLE SYRINGES WITH NEEDLE PLANT</li> <li>* FABRICATION UNIT (PRESSURE VESSEL, REACTOR VESSEL &amp; AGITATORS, HEAT EXCHANGERS) &amp; SEAMLESS PIPES AND TUBES</li> <li>* COPPER POWDER FROM COPPER SCRAP</li> <li>* STONE CRUSHER</li> <li>* PRODUCTION OF ALL TYPES OF FANS SUCH AS AXIAL FANS,CENTRIFUGAL FANS (SMOKE EXTRACT FANS &amp; FRESH AIR SUPPLY FANS), BATHROOM FANSETC.</li> <li>* STONE MINING</li> <li>* MAHINDRA CAR DEALERSHIP WITH AUTOMOBILE SERVICE STATION/GARAGE</li> <li>* AUTO FILTERS (AIR FILTERS, OIL FILTERS &amp; FUEL FILTERS)</li> <li>* AAC &amp; ACSR ALUMINIUM CONDUCTORS</li> <li>* MANGANESE ORE JIGGING</li> <li>* STEEL TRANSMISSION LINE TOWERS AND ROLLING MILL TO PRODUCE STEEL SECTIONS</li> <li>* FERRO SILICON (FROM MINERAL INGREDIENTS) STAINLESS STEEL TUBES</li> <li>* M.S.FASTENERS AND S.S. FASTENERS</li> <li>* PREFABRICATED STEEL FRAMED BUILDING MANUFACTURING PLANT</li> <li>* LEAD ACID BATTERY</li> <li>* GALVANISED WIRE</li> <li>* POWER TRANSFORMER (50 KVA TO 2000 KVA)</li> <li>* M.S. PIPE</li> <li>* GALVANISED IRON SHEETS</li> <li>* M.S.BILLETS</li> <li>* STEEL GRATING (GALVANISING ELECTRO FORGED STEEL GRATING)</li> <li>* ALLOY WHEELS PLANT</li> <li>* ESTABLISHMENT OF MANUFACTURING OF REFRIGERATING APPLIANCE</li> <li>* WELDED WIRE MESH</li> <li>* ALUMINIUM COLD ROLLING MILL FOR SHEETS &amp; CIRCLES</li> <li>* ALUMINIUM ROLLING MILL FOR MANUFACTURING ALUMINIUM CIRCLES</li> </ul>	<ul style="list-style-type: none"> <li>REQUIRED FOR PRESSURE COOKERS, NON STICK COOKWARES &amp; CIRCLES</li> <li>* LPG CYLINDER</li> <li>* ALUMINIUM COMPOSITE PANNELS</li> <li>* DEEP FREEZER</li> <li>ENVIRONMENTAL CLEARANCE FOR EXPANSION OF INGOTS/ BILLETS PLANT</li> <li>* FERRO SILICON BY SMELTING PROCESS</li> <li>* ALUMINIUM CONDUCTOR</li> <li>* PRESTRESSED CONCRETE POLES</li> <li>* FASTENERS (NUT &amp; BOLT) USED IN OIL AND GAS</li> <li>* ALUMINIUM ALLOY PLANT</li> <li>* STAINLESS STEEL SINKS</li> <li>* ALUMINIUM ALLOY PLANT</li> <li>* P.V.C BATTERYSEPARATOR</li> <li>* AUTOMOTIVE TYRE AND TUBE VALVES (VALVES MANUFACTURING)</li> <li>* PRESSURE COOKWARE ALUMINIUM, STAINLESS STEEL &amp; HARD ANODIZED</li> <li>* ELECTRIC WATER HEATER</li> <li>* SOLAR WATER HEATER DOMESTIC &amp; INDUSTRIAL</li> <li>* CORRUGATED COLOURED ROOFING GALVANISED IRON SHEET</li> <li>* PRESSURE DIE CASTING</li> <li>* G.I.WIRE AND BARBED WIRE</li> <li>* G.I.WIRE &amp; M.S. BINDING WIRE</li> <li>* HOT DIP GALVANIZING PLANT FOR STRUCTURAL STEEL AND PIPES</li> <li>* COLD ROLLING MILL</li> <li>* DOOR HINGES (MILD STEEL AND STAINLESS STEEL)</li> <li>* PRESSURIZED AEROSOLS (LIKE BODY SPRAYS, PERFUMES, SHAVING FOAM AND SHAVING LOTIONS ETC.)</li> <li>* ANHYDROUS SODIUM DITHIONITE PRODUCTION (SODIUM FORMATE PROCESS)</li> <li>* SODA ASH PLANT (FROM SOLUTION BRINE)</li> <li>* SISAL FIBRE REINFORCED</li> <li>* CEMENT ROOFING SHEET</li> <li>* HIGH ALUMINA REFRACTORY BRICK PLANT</li> <li>* CATHETERS MANUFACTURING</li> <li>* SURGICAL RUBBER DISPOSABLE GOODS</li> </ul>	<ul style="list-style-type: none"> <li>* POULTRY AND HATHERY FARMING</li> <li>* MILK PROCESSING PLANT</li> <li>* ROASTED, SALTED ALMONDS, PEANUTS FOR PACKING IN 25g, 50g,250g &amp; 500g SACHET-S</li> <li>* BEER FROM POTATOES</li> <li>* GUAR GUM POWDER</li> <li>* AUTOMATIC WHITE BREAD MAKING PLANT</li> <li>* AUTOMATIC BISCUIT MAKING PLANT</li> <li>* FROZEN FOOD BY IOF TECHNOLOGY</li> <li>* WALNUT PROCESSING PLANT</li> <li>* WHIPPING CREAM FRUITS &amp; VEGETABLES POWDER UNIT (EXPORTS ORIENTED UNIT)</li> <li>* NATURAL MEDICINE &amp; RESEARCH INSTITUTE WITH 150 BEDS HOSPITAL</li> <li>* PACKAGED DRINKING WATER (PACKED IN 330 ml CUP, 500ML BOTTLE, 1500 ML BOTTLE AND 20 LTR. JAR)</li> <li>* COLD STORAGE (CONTROLLED ATMOSPHERE OR CA) FOR POTATO CAP: 1,00,000 BAGS (50 Kg/Bag), STORING CAP: 5000 Mt, SOLVENT EXTRACTION &amp; REFINING (SOYABEAN) (Cap- 250mt/day &amp; 50mt/Day oil Refining)</li> <li>* BOTTLING PLANT (WHISKY, BRANDY, RUM, VODKS, GIN) FROM RECTIFIED SPIRIT/ENA LUBE OIL BLENDING AND GREASES PLANT</li> <li>* COLD STORAGE FOR POTATO 1,00,000 BAGS (50 KG/BAG)</li> <li>* MAIZE FLOUR &amp; BY PRODUCT MANUFACTURING PLANT</li> <li>* CUT FLOWER (GLADIOLI, MARIGOLD, STATICE, CHRYSANTHEMUM ROSE WITH GREEN HOUSE)</li> <li>* CATTLE FARMING AND DAIRY PRODUCTS</li> <li>* COLD STORAGE FORPOTATO AND OTHER HORTICULTURE PRODUCTS Cap:- 5000 Mt or 100000 Bags (50 Kg/Bag)</li> <li>* DEXTROSE PLANT</li> <li>* SBR RUBBER SHEETS AND SHOE MANUFACTURING</li> <li>* CASHEW NUT PROCESSING</li> <li>* PLYWOOD AND PLYBOARD PARTICLE BOARD AND LAMINATED PARTICLE BOARD</li> <li>* VENEER MAKING, PLYWOOD &amp; PLYBOARD MAKING</li> <li>* WALNUT &amp; PINUS(CHILGOZA) OIL, SHELL POWDER PROCESSING PLANT</li> <li>* COUNTRY LIQUOR BOTTLING PLANT (1,00,000 BOTTLES/ DAY)</li> </ul>
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<ul style="list-style-type: none"> <li>* PLASTIC GRANULES FROM PLASTIC WASTE</li> <li>* ROPE AND SUTLI MAKING PLANT</li> <li>* BOTTLING PLANT (COUNTRY LIQUOR) 10,000 LTRS./DAY)</li> <li>* I.V. FLUID (FFS OR BFS TECHNOLOGY)</li> <li>* TOXIN PAN MASALA, TOBACCO LESS GUTKHA AND ZARDA</li> <li>* RUBBER &amp; FLAT TRANSMISSION BELT CONVEYOR BELT</li> <li>* UPVC DOORS &amp; WINDOWS FABRICATING PLANT (Fixing and Installation of Door and Windows of uPVC profiles)</li> <li>* RUBBER &amp; FLAT TRANSMISSION BELT CONVEYOR BELT</li> <li>* MUSTARD OIL PROCESSING PLANT (EXPPELLER PROCESS)</li> <li>* MEDICAL COLLEGE WITH 750 BEDS HOSPITAL FACILITY</li> <li>* MICRO IRRIGATION PRODUCT MANUFACTURING PLANT</li> <li>* HOT DIP GALVANIZING MUSTARD OIL PROCESSING PLANT (EXPPELLER PROCESS)</li> <li>* CEMENT TILES, CANAL LINE SLAB, KERV STONE, PAYER RCC PIPE, MANOHOLE COVER, ENTERLOCKING ETC. MANUFACTURING PLANT</li> <li>* MEDICAL COLLEGE (100 STUDENT INTAKE CAP. MEDICAL COLLEGE WITH 500 BED HOSPITAL)</li> <li>* ESTABLISHMENT OF A PRIVATE UNIVERSITY</li> <li>* DIGITAL INKS</li> <li>* GALVANIZING PROCESS PLANT FOR ELECTRICAL POLES</li> <li>* MAIZE PROCESSING PLANT</li> <li>* STARCHES / MODIFIED STARCHES/ LIQUID GLUCOSE / DEXTROSE MONOHYDRATE /GLUCOSE SYRUPS / CORN SYRUP SOLIDS / HIGH MALTOSE CORN SYRUPS / MALTO DEXTRINE POWDER / CORN GLUTEN MEAL (60%) MAIZE OIL / SORBITOL.</li> <li>* BABY CARE PRODUCTS</li> <li>* FAT LIQUOR (CHLORINATED PARAFFIN WAX)</li> <li>* BOTTLING OF WHISKY</li> <li>* UPVC DOORS &amp; WINDOWS PROFILES</li> <li>* EPDM RUBBER PROFILES</li> <li>* FAT LIQUOR (CHLORINATED PARAFFIN WAX)</li> <li>* FAST FOOD RESTAURANT WITH CENTRALISED KITCHEN</li> </ul>	<ul style="list-style-type: none"> <li>* READY MADE GARMENT (T-SHIRT/POLO GOLFER/ WOVEN SHIRTING &amp; SUITING FOR UNIFORMS/SWEATERS) MANUFACTURING</li> <li>* BIO-DIESEL EXTRACTION FROM JATROPHA, SOYABEAN, SUNFLOWER, RICE BRAN, ALGE &amp; CULTIVATION OF JATROPHA</li> <li>* FAST FOOD RESTAURANT CHAIN WITH CENTRALISED KITCHEN</li> <li>* GUAR SPLIT POWDER AND OTHER BY PRODUCTS</li> <li>* SOLVENT EXTRACTION PLANT (COTTON SEED)</li> <li>* RASGULLA MANUFACTURING AND CANNING</li> <li>* CULTIVATION OF RICE &amp; WHEAT COMMERCIAL &amp; MECHANISED DEVELOPMNT</li> <li>* MAIZE &amp; BY PRODUCTS PROCESSING -STARCH MODIFIED STARCHES/LIQUID GLUCOSE/DEXTROSE MONOHYDRATE/GLUCOSE SYRUPS/CORN SYRUP SOLIDS/HIGH MALTOSE CORN SYRUPS/ MAITO DEXTRINE POWDER/CORN GLUTEN MEAL (60%) MAIZE OIL/SORBITOL</li> <li>* TEAK FARMING</li> <li>* ARTIFICIAL MARBLE (SYNTHETIC)</li> <li>* POTATO STARCH CARDANOL FROM C.N.S.L. (CASHEWNUT SHELL LIQVID</li> <li>* INTEGRATED SCRAP YARD</li> <li>* POTATO STARCH</li> <li>* MANGO PULP (5 TON/HOUR 200 KG ASEPTIC PACKAGING)</li> <li>* BOTTLING PLANT (WHISKY, BRANDY, RUM, VODKA, GIN) FROM RECTIFIED SPIRIT/ENA</li> <li>* COW DAIRY FARMING (AYRSHIRE/HOLSTEIN) AND MILK PROCESSING MILK/DAY CAP-50,000 LTR/DAY</li> <li>* WHEAT FLOUR MILL</li> <li>* CHAKKI FLOUR MILL</li> <li>* I.V. FLUID (FFSTECHNOLOGY)</li> <li>* LIQUID GLUCOSE FROM POTATOES</li> <li>* SORBITOL FROM MAIZE STARCH</li> <li>* WALNUT PROCESSINGPLANT</li> <li>* SOLVENT EXTRACTION AND OIL REFINERY CUM PACKING OF RICE BRAN OIL</li> <li>* COTTON SEED OIL SOLVENT EXTRACTION PLANT</li> <li>* MARINE TRAINING INSTITUTE &amp; PLACEMENT SERVICE PROVIDING AGENCY</li> <li>* I.V.FLUID (FFS TECHNOLOGY)</li> <li>* CERAMIC FIBERS, CERAMIC</li> </ul>	<ul style="list-style-type: none"> <li>FIBRE BLANKET, CERAMIC FIBRE BOARD AND CERAMIC FIBRE ROPE</li> <li>* COLD SUPPLY CHAIN</li> <li>* LAMI TUBE MANUFACTURING</li> <li>* EYE DROP 3 PIECES (PLASTIC VIALS)</li> <li>* PET BOTTLES (CAMBER/ CLEAR IN COLOUR) CAP: 15ML,60ML 100ML,135ML, 200ML &amp; 500ML</li> <li>* BENZYL ALKONIUM CHLORIDE (BKC)</li> <li>* NATURAL SUGAR WAX</li> <li>* MARGARINE BUTTERFROM VEGETABLE OIL</li> <li>* GREEN HOUSE FOR CROP PRODUCTION</li> <li>* ORGANIC DAIRY FARMING</li> <li>* E-WASTE</li> <li>* BIO-DIESEL FROM ALGAE</li> <li>* VANADIUM PENT OXIDE GRAPHITE MINING AND BENEFICIATION PLANT</li> <li>* VITAMIN WATER</li> <li>* PET PREFORM CUM PET BOTTLES</li> <li>* ORGANIC DAIRY FARMING AND PRODUCING WHOLE MILK POWDER (WMP)</li> <li>* HDPE BOTTLES</li> <li>* CAUSTIC SODA FROM SODIUM CHLORIDE</li> <li>* COAL TAR PITCH</li> <li>* MOSQUITO REPELLANT</li> <li>* WRIST BAND</li> <li>* CASTOR OIL AND ITS DERIVATIVES OLEO RESIN, TURKEY RED OIL, DCO, HCO, SEBACIC ACID, 12-HYDROXY STEARIC ACID</li> <li>* PAPAIN FROM PAPAYA</li> <li>* PROCESSED CHEESE</li> <li>* MONOCHLOROBENZENE</li> <li>* EUGENOL FROM CINNAMON OIL</li> <li>* SULPHUR 80% WDG</li> <li>* CERAMIC FIBERS, CERAMIC FIBRE BLANKET, CERAMIC FIBRE BOARD AND CERAMIC FIBRE ROPE</li> <li>* SCREEN PRINTING</li> <li>* DI CALCIUM PHOSPHATE FROM ROCK PHOSPHATE &amp; HAIFA PROCESS</li> <li>* PVC FLEXIBLE PIPE</li> <li>* FLEX BANNER USED IN DIGITAL PRINTING</li> <li>* PIGMENTS BINDERS FOR TEXTILE PRINTING</li> <li>* POULTRY &amp; HATCHERY FARM</li> <li>* ALOEVERA JUICE AND GEL</li> <li>* LIME PUTTY</li> <li>* AUTOMOBILE WORKSHOP/ GARAGE</li> <li>* EGG TRAY FROM PULP</li> <li>* CARDANOL FROM C.N.S.L.</li> <li>* OXYGEN GAS</li> </ul>	<ul style="list-style-type: none"> <li>* POLYALUMINIUM CHLORIDE</li> <li>* NAMKEEN INDUSTRY (BHUIJA, CHANACHUR ETC.)</li> <li>* POLYOL USED FOR POLYURETHANES</li> <li>* POLYSTYRENE POLY PROPYLENE OXIDE</li> <li>* DIETHYL PHTHALATE</li> <li>* UREA FORMALDEHYDE AND MELAMINE</li> <li>* FORMALDEHYDE MOULDING POWDER</li> <li>* INSTANT COFFEE</li> <li>* ANNATTO SEED COLOUR EXTRACTION</li> <li>* FRUITS AND VEGETABLES DRYING BY (FREEZE DRYING METHOD)</li> <li>* BIO GAS PRODUCTION AND BOTTLING PLANT</li> <li>* JAM, JELLIES, FRUIT JUICE AND ALLIED PRODUCTS</li> <li>* MATERNITY NURSING HOME</li> <li>* CANNING &amp; PRESERVATION OF VEGETABLES</li> <li>* CURCUMIN &amp; TURMERIC OIL FROM TURMERIC</li> <li>* DETERGENT WASHING POWDER (ARIEL TYPE)</li> <li>* GRANITE SLAB AND TILES</li> <li>* TEA PACKAGING</li> <li>* PAN MASALA &amp; GUTKHA</li> <li>* PRESTRESSED CONCRETE ELECTRIC POLES</li> <li>* LEATHER SHOES</li> <li>* ROTOGRAVURE PRINTING (FOR FLEXIBLE PACKAGING)</li> <li>* AUTOCLAVED AERATED CONCRETE BLOCKS</li> <li>* OXYGEN AND NITROGEN GAS PLANT</li> <li>* MANGANESE ORE BENEFICATION</li> <li>* MINERAL WOOL</li> <li>* CALCIUM SILICATE</li> <li>* TOUGHENED GLASS</li> <li>* HUMIC ACID</li> <li>* OFFSET PRINTING UNIT (5 COLOUR)</li> <li>* CASTOR OIL AND ITS DERIVATIVES OLEORESIN</li> <li>* TISSUE PAPER PULPING FROM SAW DUST</li> <li>* KNITTED GLOVES</li> <li>* RADIATOR COOLANT</li> <li>* LATEX FOAM RUBBER (SPONG RUBBER)</li> <li>* GARLIC OIL AND POWDER</li> <li>* ACTIVATED CARBON &amp; SODIUM SILICATE FROM PADDY/ RICE HUSK</li> <li>* TRIETHYLENE GLYCOL</li> <li>* RAMMING MASS</li> <li>* WOOD PEELING &amp; VENEER MAKING</li> <li>* PETROLEUM JELLY</li> <li>* DAIRY FARM (COW &amp; BUFFALO) TO PRODUCE</li> </ul>
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Market Survey Cum Detailed Techno Economic Faeasibility Report on all Projects are available contact:

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## Highly Profitable Projects for New Entrepreneurs “EIRI Market Survey Cum Detailed Techno Economic Feasibility Reports”

<ul style="list-style-type: none"> <li>MILK &amp; PACKAGING IN POUCHES</li> <li>* CUTTING OIL LIQUID GOLD (IN PASTE FORM)</li> <li>* P.V.C. LEATHER CLOTH (REXINE)</li> <li>* COAL TAR DISTILLATION</li> <li>* ALUMINIUM LABEL PRINTING</li> <li>* FOLDING CARTNS/MONO CARTONS</li> <li>* SURGICAL DISPOSABLE GLOVES (DIPPED RUBBER GOODS)</li> <li>* AGRICULTURAL CHEMICAL (PLANT GROWTH PROMOTER AND PLANT GROWTH REGULATOR)</li> <li>* MENTHOL BOLD CRYSTALS FROM MENTHOL FLAKES</li> <li>* ORGANIC FARMING</li> <li>* CORRUGATED POLYCARBONATE SHEET</li> <li>* COLD STORAGE</li> <li>* FLAT PVC LAMINATED</li> <li>* SAFTY GLASS/TOUGHENED GLASS</li> <li>* PLASTIC GRANULES FROM WASTE</li> <li>* DRY WALL PUTTY (WHITE CEMENT BASED)</li> <li>* CHARCOAL BRIQUETTE</li> <li>* OXALIC ACID FROM MOLASSES</li> <li>* POTATO GRANULES</li> <li>* SANITARY NAPKINS &amp; BABY DIAPERS</li> <li>* CORRUGATED BOXES</li> <li>* PLASTER OF PARIS</li> <li>* RUBBER ROLLER FOR PRINTING MACHINE</li> <li>* LACTIC ACID</li> <li>* EMERY PAPER (SAND PAPER)</li> <li>* RUBBER RECLAIM SHEET FROM USED BUTYL TYRE AND TUBE</li> <li>* MANGO PULP</li> <li>* PARTICLE BOARD FROM BAGASSE AND RICE HUSK</li> <li>* TOILET PAPER &amp; NAPKINS</li> <li>* TENDER COCONUT WATER</li> <li>* CALCIUM CARBONATE</li> <li>* LIME CALCINATION PLANT</li> <li>* INJECTION MOULDED PLASTIC COMPONENTS</li> <li>* HYDRATED LIME</li> <li>* BLACK PEPPER</li> <li>* MULTIAXIAL GLASS FABRIC</li> <li>* LIQUID TOILET CLEANER (HARPIC TYPE)</li> <li>* LIME &amp; PRECIPITATED</li> <li>* CALCIUM CARBONATE</li> <li>* LIQUID GLUCOSE FROM BROKEN RICE</li> </ul>	<ul style="list-style-type: none"> <li>* MEDICAL DISPOSABLE PLASTIC SYRINGES</li> <li>* METAL POLISHING BAR</li> <li>* SANITARY NAPKINS &amp; BABY DIAPERS</li> <li>* PERFUMES/ATTAR</li> <li>* GEMS AND JEWELLERY</li> <li>* MULTIAXIAL GLASS FABRIC</li> <li>* ACTIVE ZINC OXIDE</li> <li>* COPPER PHTHALOCYANINE</li> <li>* TURMERIC OIL EXTRACTION FROM DRY TURMERIC</li> <li>* CNSL BASED RESIN IN LIQUID &amp; POWDER FORM</li> <li>BOPP FILM</li> <li>* BETA IONONE</li> <li>* BIO-FERTILIZER</li> <li>* ZINC &amp; COPPER SULPHATE</li> <li>* PAPER BASED PHENOLIC SHEET (FOR ELECTRICAL APPLIANCE)</li> <li>* THINNERS (WHITE SPIRIT BASED)</li> <li>* SINGLE SUPER PHOSPHATE &amp; SULPHURIC ACID</li> <li>* MONO CALCIUM PHOSPHATE &amp; DI-CALCIUM PHOSPHATE</li> <li>* FLEXIBLE P.U. FOAM</li> <li>* ASPIRIN</li> <li>* SORBITOL FROM MAIZE STARCH</li> <li>* SPICE OIL &amp; OLEORESIN</li> <li>* ANTI-FOAMING AGENT (SILICONE BASED) FOR DISTILLERY, SUGAR, PAPER PLANT ETC.</li> <li>* LAUNDRY &amp; DRY CLEANER</li> <li>* BRICKS FROM STONE DUST</li> <li>* CARBOXY METHYL STARCH</li> <li>* TITANIUM DIOXIDE</li> <li>* UNDECYENIC ACID</li> <li>* PSA BASED NITROGEN GENERATOR</li> <li>* SYNTHETIC IRON OXIDE</li> <li>* PVC INSULATION TAPE</li> <li>* TAMARIND KERNEL POWDER</li> <li>* ORGANIC CHEMICAL &amp; SOLVENTS</li> <li>* PLASTICIZERS</li> <li>* ICE PACK (SOLUTIONS TYPE, VIOLET-SEMI SOLID POLYMER TYPE)</li> <li>* GUM FROM TAMARIND</li> <li>* PEARL SUGAR CANDY (MISHRI)</li> <li>* GOAT &amp; SHEEP FARMING</li> <li>* GYPSUM PLASTIC BOARD (AUTOMATIC PLANT)</li> <li>* NON-WOVEN INDUSTRY (CARRY BAGS, SURGICAL GOWN, FACE MASK, ROUND CAPS, SHOE COVER, GLOVE)</li> <li>* COTTON SPINNING, SIZING,</li> </ul>	<ul style="list-style-type: none"> <li>YARN, DYEING &amp; WEAVING</li> <li>* CALCIUM CHLORIDE</li> <li>* AMINES &amp; ALLIED PRODUCT</li> <li>* SPINNING COTTON</li> <li>* SILICONE FROM RICE HUSK</li> <li>* ADHESIVE (FEVICOL TYPE)</li> <li>* CAUSTIC SODA FROM ELECTROLYSIS</li> <li>* CAMPHOR TABLETS</li> <li>* CERAMIC GLAZED WALL AND FLOOR TILES</li> <li>* ZINC SULPHATE MONO</li> <li>* ETHANOL (BIO FUEL) FROM RICE STRAW</li> <li>* GYPSUM MOULDING AND GYPSUM BOARD</li> <li>* SMOKELESS COAL</li> <li>* ACID (SILICA) AND BASIC RAMMING MASS</li> <li>* UNSATURATED POLYESTER RESINS</li> <li>* DAIRY (BUFFALO) FARMING</li> <li>SILICONE FROM RICE HUSK</li> <li>* N-ACETYL THIOZOLIDINE-4-CARBOXYLIC ACID (NATCA)</li> <li>* PE BASED CARBON BLACK COMPOUND</li> <li>* ONION DEHYDRATION</li> <li>* PVC PIPES &amp; FITTING</li> <li>* GLASS REINFORCED</li> <li>* GYPSUM MOULDINGS</li> <li>ABSORBENT COTTON &amp; SURGICAL BANDAGES</li> <li>* CALCIUM STEARATE BY FUSION PROCESS</li> <li>* MANGO POWDER &amp; OTHER FREEZE DRIED PRODUCTS</li> <li>* MENTHOL OIL FROM LEAVES AND MENTHOL</li> <li>* CRYSTALS (PEPPERMINT) MANUFACTURE OF CELLULOSE ACETATE</li> <li>* ANTIFOAMING / DEFOAMING AGENT</li> <li>* ALOEVERA CULTIVATION &amp; PROCESSING</li> <li>* SYNTHETIC MAGNESIUM SILICATES</li> <li>* EPHEDRINE</li> <li>HYDROCHLORIDE</li> <li>* ACTIVATED BLEACHNG EARTH</li> <li>* TECHNICAL TEXTILES</li> <li>* FORMALIN FROM METHANOL</li> <li>* CATIONIC SOFTNER (STEARIC ACID BASED)</li> <li>* PRECIPITATED SILICA</li> <li>* PU BASED FOOT WEARS</li> <li>* FORMALDEHYDE RESIN (UREA, PHENOL, MELAMINE)</li> <li>* HDPE MONO FILAMEN NET</li> <li>* POTATO &amp; ONION FLAKES</li> </ul>	<ul style="list-style-type: none"> <li>* DUSTLESS CHALK (SCHOOL CHALK)</li> <li>* TOMATO POWDER</li> <li>* BIODEGRADABLE / COMPOSTABLE PLASTICS</li> <li>* ACRYLIC CO POLYMER EMULSION</li> <li>* ESTER GUM (FOOD GRADE)</li> <li>* PROTEIN BASED FOAMING AGENT</li> <li>* LECITHIN (SOYA BASED)</li> <li>* SOYA OIL AND CATTLE FEED FROM SOYA BEAN</li> <li>* COMPARISON BETWEEN FLY ASH AND CELLULAR LIGHTWEIGHT CONCRETE (CLC) BRICKS</li> <li>* CELL CAST ACRYLIC SHEET</li> <li>* ACRYLIC BATH TUB AND SHOWER TRAY</li> <li>* THERMOCOLE BASED DISPOSABLE PLATES</li> <li>* SODIUM SILICATE FROM RICE HUSK</li> <li>* ETHYL METHACRYLATE</li> <li>* SODIUM LAURYL ETHER SULPHATE</li> <li>* LATEX GLOVES, CONDOMS &amp; CATHETER</li> <li>* CALCIUM NITRATE</li> <li>GRAIN BASED ALCOHOL DISTILLERY</li> <li>* BULK DRUGS</li> <li>* MARBLE QUARRYING</li> <li>* CULTIVATION OF CAPSICUM IN GREEN HOUSE</li> <li>* SULPHUR 90% WDG</li> <li>* EGG POWDER</li> <li>* WOOD PLASTIC</li> <li>* COMPOSITE BOARD LINE</li> <li>* SODIUM LAURYL SULPHATE AND SODIUM LAURYL ETHER SULPHATE</li> <li>* FISH PROCESSING</li> <li>* BABY CEREAL FOOD &amp; MILK POWDERS (BABY FOOD)</li> <li>* GUR (JAGGERY)</li> <li>* DAIRY PRODUCTS</li> <li>* CHLORINATED PARAFFIN WAX (CPW)</li> <li>* HAND WASHING DETERGENT POWDER USING THE DRY MIX PROCESS INCLUDING FORMULA OF DIFFERENT TYPES QUALITIES (LOW/ MEDIUM/HIGH COST)</li> <li>* HANDWASHING DETERGENT POWDER USING THE DRY MIX PROCESS INCLUDING</li> </ul>
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<p>FORMULA OF DIFFERENT TYPES QUALITIES (LOW/ MEDIUM/HIGH COST)</p> <ul style="list-style-type: none"> <li>* DIGITAL PHOTOPAPER/ INKJET PHOTOPAPER</li> <li>* KAOLIN FOR ROAD MAKING</li> <li>* PEPPERMINT CULTIVATION &amp; PROCESSING</li> <li>* PEPPERMINT CULTIVATION &amp; PROCESSING</li> <li>* HDPE PIPE</li> <li>* ACTIVATED CARBON FROM RICE HUSK</li> <li>* HT &amp; LT INSULATOR, HT AIR BRAKE SWITCH D.O. FUSE, LIGHTENING ARRESTOR</li> <li>* PET BOTTLES IN CAP: 500ML, 1 LTR, 2 LTRS, 5 LTRS, USED FOR PACKAGED DRINKING WATER, EDIBLE OILS</li> <li>* ALCOHOLIC BEVERAGES (COUNTRY LIQUOR &amp; IMFL)</li> <li>* QUARTZ BASED INDUSTRIES (QUARTZ POWDER SILICA SAND SILICA RAMMING MASS FUSED SILICA)</li> <li>* BEEDI (BIDI) BY MACHINE</li> <li>* RICE SHELLER</li> <li>* FRUIT RIPENING CHAMBER</li> <li>* MINERAL WATER AND PET BOTTLING PLANT</li> <li>* DIAGNOSTIC LAB AND</li> <li>* ONLINE TRADING BUSINESS</li> <li>* CEREAL MILLING</li> <li>* MINI OIL PLANT SUITABLE FOR GROUNDNUT OIL AND COTTON SEED OIL</li> <li>* CHANACHUR, BHUJIA, GANTHIA (AUTOMATIC PLANT)</li> <li>* KHADYA SURAKSHA (FOOD SECURITY)</li> <li>* PLASTIC WATER STORAGE TANKS</li> <li>* ZINC SULPHATE, MONOHYDRATE &amp; HEPTA HYDRATE</li> <li>* CIGARETTE MANUFACTURING UNIT</li> <li>* CATTLE FEED PELLETS PLANT FOR COW &amp; BUFFALOE FOR BOOSTING MILK AND GROWTH</li> <li>* TYRE RECYCLING UNIT</li> <li>* PAPAIN EXTRACTION INDUSTRY</li> <li>* CAKE SHOP</li> <li>* BUSINESS PROCESS</li> </ul>	<p>OUTSOURCE (B.P.O.)</p> <ul style="list-style-type: none"> <li>* EMPTY HARD GELATINE CAPSULES</li> <li>* BIOFERTILIZER</li> <li>* PLASTIC MOULDING UNIT (CHAIR, TABLES &amp; VEGETABLE TRAYS)</li> <li>* GOLD POTASSIUM CYANIDE (G.P.C.)</li> <li>* HDPE, PVC &amp; CPVC PIPES AND FITTINGS</li> <li>* NO CARB PASTE (ANTICARBURIZING PASTE-WATER SOLUBLE) FOR HEAT TREATMENT</li> <li>* CONVERSION WASTE PLASTIC WITH TYRE INTO ACTIVATED CARBON AND INDUSTRIAL FUEL</li> <li>* PYROLYSIS PLANT FROM PLASTIC &amp; RUBBER</li> <li>* COMPARISON BETWEEN FLY ASH AND CELLULAR LIGHTWEIGHT CONCRETE (CLC) BRICKS</li> <li>* AGAR AGAR</li> <li>* NAIL POLISH</li> <li>* PLASTIC GRANULES FROM WASTE</li> <li>* AGARBATTI SYNTHETIC PERFUMERY COMPOUNDS &amp; AGARBATTI COMPOUNDS LIKE (CHAMPA, MOGRA, SANDAL WOOD &amp; LOBAN)</li> <li>* PET PREFORM AND PET JARS (20 LTRS CAPACITY)</li> <li>* KRAFT PAPER FROM 100% WASTE PAPER</li> <li>* PRIVATE UNIVERSITY</li> <li>* LIQUID GLUCOSE AND MALTODEXTRIN FROM BROKEN RICE</li> <li>* DRY WALL PUTTY (WHITE CEMENT BASED)</li> <li>* CONSTRUCTION CHEMICALS OT PASTE</li> <li>* FUSED SILICA FROM SILICA SAND</li> <li>* BANANA CHIPS, BANANA PULP &amp; BANANA POWDER (BANANA PRODUCTS)</li> <li>* CONFECTIONERY UNIT (TOFFEE, CANDY /LOLLIPOP CHEWING GUM, BUBBLE GUM CHOCOLATE)</li> <li>* FORMALDEHYDE RESIN (UREA, PHENOL, MELAMINE &amp; THEIR MODIFIED RESINS)</li> </ul>	<ul style="list-style-type: none"> <li>* EPDM RUBBER PROFILES (WEATHER STRIPS, INDUSTRIAL MONOSTRIPS ETC)</li> <li>* GRANITE CUTTING AND POLISHING UNIT (100% EOU)</li> <li>* SURGICAL COTTON, ROLLER BANDAGE, CREPE BANDAGE &amp; PLASTER CART (READY MADE) E.G. GYPSONA 3M CART</li> <li>* ENTERTAINMENT CLUB, HOLIDAY RESORT, 4 STAR HOTEL, AMUSEMENT PARK CUM WATER PARK, MUSHROOM &amp; ITS PRODUCTS, FISH FARMING, LAKE FOR BOATING, DEER PARK ETC.</li> <li>* HDPE, PVC, LLDPE PIPES/ TUBES AND FITTING</li> <li>* EPOXIDIZED SOYABEAN OIL (SECONDARY PLASTICIZER) USED IN PVC COMPOUND</li> <li>* POULTRY PROCESSING PLANT</li> <li>* B.O.P.P. SELF ADHESIVE TAPES</li> <li>* I.V.SET</li> <li>* MANGANESE OXIDE AND MANGANESE SULPHATE</li> <li>* ODOURLESS NYLON GRANULES FROM FIBER OF WASTE TYRE WITHOUT CHANGING PROPERTIES OF NYLON</li> <li>* PARTICLE BOARD FROM RICE HUSK OR WOOD WASTE OR SUGAR CANE BAGASSE OR MIXED OF ALL ABOVE</li> <li>* POULTRY LAYER AND BROILER FARMING</li> <li>* TOMATO, GUAVA AND MANGO PULP</li> <li>* GREEN HOUSE</li> <li>* HYDROXY PROPYL GUAR (HPG) AND CARBOXY METHYL HYDROXY PROPYL GUAR</li> <li>* BATHSOAP MANUFACTURE</li> <li>* PLASTIC MOULDED CHAIRS</li> <li>* FROZEN POTATO PATTY</li> <li>* CALCIUM ALUMINATE</li> <li>* ACTIVATED CARBON FROM COCONUT SHELL</li> <li>* RIGID PVC FILM MANUFACTURE FOR PHARMACEUTICALS BLISTER</li> </ul>	<p>PACKAGING</p> <ul style="list-style-type: none"> <li>* NYLONE 66 CURING TAPE USED IN RUBBER HOSE PIPE WRAPPING</li> <li>* ANTIFOAMING/DEFOAMING AGENT LIKE ANTAROL T-709</li> <li>* SOY AND GLUTEN BASED MOCK MEAT</li> <li>* KRAFT PAPER USING WASTE PAPER AND OLD CORRUGATED CARTONS</li> <li>* GLASS BOTTLE FOR BEER AND BEER MUG (TUMBLER)</li> <li>* DISPOSABLE SYRINGES AND NEEDLE PLANT (Single Use Syringes, Single Use Needles &amp; As Syringes)</li> <li>* DIRECT FILLED BALL PEN (USE AND THROW)</li> <li>* BENZALKONIUM CHLORIDE</li> <li>* SPINNING COTTON (COTTON SPINNING PLANT)</li> <li>* CALCIUM CHLORIDE USING LIME STONE AND HYDROCHLORIC ACID</li> <li>* RUBBER POWDER FROM WASTE TYRES</li> <li>* CALCINATION PLANT FOR PYROPHYLLITE AND DIASPORE MINERALS BY VERTICAL SHAFT KILN PROCESS</li> <li>* ONION, GARLIC &amp; GINGER DEHYDRATION PLANT</li> <li>* POTASSIUM NITRATE</li> <li>* POTASSIUM SULPHATE</li> <li>* N.P.K. FERTILIZER</li> <li>* CHICORY EXTRACT (ROASTED CHICORY GRANULES/CUBES, LIQUID EXTRACT ETC.)</li> <li>* SOLID WASTE SEGREGATION</li> <li>* LAMITUBE MANUFACTURE</li> <li>* BOARDING SCHOOL</li> <li>* CERAMIC FUSE TUBE/ BARRELS USED IN HRC FUSE</li> <li>* SODIUM POLYACRYLATE DISPERSANT FOR USE IN WATER BASED PAINT WITH DISPERSANT FOR PIGMENT</li> <li>* NAIL POLISH, LIPSTICKS, NAIL POLISH REMOVER</li> <li>* SOYA PRODUCTS (MILK, PANEER, TOFU, BUTTER, CHEESE CURD/YOGURT, ICE CREAM) WITH PACKAGING UNIT</li> <li>* GREASE MANUFACTURING</li> </ul>
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* Industrial Chemicals Technology Hand Book 1100/-110		<b>PRINTING &amp; PACKAGING</b>		* Injection Moulding of Plastics750/-75	
* Modern Technology of Organic & Inorganic Chemicals 1400/-140		* Complete Hand Book on Packaging Technology & Industries 1100/-110		* Plastic Processing & Packaging Industries 975/-100	
* Electroplating, Anodizing & Surface Finishing Tech. 1100/-110		* Printing Process Tech&Indt. 375/- 40		* Plastic Waste Recycling Tech.750/-75	
* Hand Book of Agro Chemical Indust.(Insecticide/Pesticide)900/- 90		* Hand Book of Printing Technology (Offset, Screen, Flexo, Gravure, Inkjet & Digital) 975/-100		* Technology of Plastic Films 650/- 65	
* Technology of Synthetic Dyes, Pigments Intermediates 1100/-110		* Hand Book of Offset Printing Technology 500/- 50		* Rotational Moulding Technology HandBook 750/- 75	
* Petrochemicals, Lubricants, Greases & Petroleum Refining900/-90		* Screen Printing with Processes & Technology 350/- 35		* Plastic Compounding, Master Batches, PET & Other Plastics750/-75	
* H.B.of Lubricants, Greases & Petrochemicals Technology 750/- 75		* Hand Book of Prepress 800/- 80		* Synthetic Resins Technology with Formulations 800/- 80	
<b>GUMS, ADHESIVES &amp; SEALANTS</b>		* H. Bookof Packaging Ind. 1300/-130		* Technology of PVC Compounding & Its Applications 900/- 90	
* Technology of Gums, Adhesives & Sealants with Formulations950/-95		* Modern Packaging Technology for Processing Food, Bakery, Snack Foods, Spices and Allied Food Products 900/- 90		* Polymer & Plastic Technology950/-90	
* Hand Book of Adhesives with their Formulae (2ndEdn.)900/-65		* Food Packaging Tech. 900/- 90		* H.B. of Fibre Glass Moulding450/-45	
* Adhesives Technology & Formulations Hand Book 975/- 98		* Tech. of Printing Inks 1150/-115		* Techn. of Reinforced Plastics750/- 75	
* Technology of Glue & Adhesives with Adhesives Bonding & Formulations 1100/-110		* Packaging Technoloy 1150/-115		* Plastic Additives Technology 950/- 95	
* Complete Hand Book on Adhesives and Adhesion Tech. with Project Profiles 900/- 90		* Corrugated Boxes 1100/-110		* Technology of PET Bottles, Preform and PET Recycling 850/- 85	
<b>SMALL SCALE INDUSTRIES, STATIONERY, PAPER, INKS, CANDLES &amp; EXPORT BUSINESS</b>		<b>PAINT, VARNISH, SOLVENTS, POWDER COATING &amp; LACQUERS</b>		* Modern Technology of Extrusion & Extruded Prod. 800/- 80	
* Start Your Own Export Business (How To Export) 450/- 45		* Paint Pigment Varnish & Lacquer Manufacturing 450/- 45		* Technology of Synthetic Resins & Emulsion Polymers975/-100	
* Start Your Own Small Business and Industry 350/- 35		* Paint Varnish Solvents & Coating Technology 800/- 80		* Technology of Plastic Additives with Processes & Packaging 900/- 90	
* Candle Making Processes & Formulations Hand-Book 750/- 75		* Paint, Pigment, Solvent, Coating, Emulsion, Paint Additives & Formulations 950/- 95		* Complete Technology Book On Identification Of Plastics And Plastic Products Materials 975/-100	
* Stationery, Paper Converting & Packaging Industries 400/- 40		* Technology of Coatings, Resins, Pigments & Inks Industries 975/-100		* Identification Of Plastics & Other Plastic Process Industries 950/- 95	
* Modern Inks Formulaes & Manufacturing Industries 325/- 35		* Mfg. Tech. & Formulations H.B. on Thinners, Putty, Wall & Indu. Finishes & Synthetic Resins 900/- 90		* Complete Technology Book Of Plastic Processing And Recycling Of Plastics With Project Profiles 1250/-125	
* Profitable Businesses to Start for Entrepreneurs 400/- 40		* Technology of Synthetic Resins & Emulsion Polymers 975/-100		* Complete Hand Book Of Blow Moulding Plastics Technology With Project Profiles 975/- 98/-	
* Modern Small & Cottage Scale Industries 650/- 65		* Technology of Paints and Coating with Formulations 1750/-175		* Modern Technology Of Injection Moulding, Blow Moulding,Plastic Extrusion,Pet & Other 975/-100	
* Profitable Small Cottage Tiny & Home Industries (2nd Edn.)900/-90		* Powder Coating Technology 750/- 75		<b>BEE-KEEPING &amp; HONEY PROCESSING</b>	
<b>BIO FUEL, BIO GAS &amp; BIOPROCESSING</b>		* Paint Technology Hand Book with Formulations (Acrylic Emulsion, Powder Coating, Leveling Agents, PU Ink Binders, Dispersing Agents,Formaldehyde, Polyester Resin, Acrylic Binders and PU Coatings) 1100/- 110		* Tech Book On Beekeeping And Honey Products With Project Profiles 975/- 98	
* Technology of Bio-Fuel (Ethanol & Biodiesel) 975/-100		* Complete Hand Book on Paints, Varnish, Resins, Copolymers and Coatings with Manufacturing Process, Formulations/Tech 900/-90/-		* Complete Technology Book on Honey Processing and Formulations (Harvesting, Extraction, Adulteration, Chemistry, Crystallization, Fermentation, Dried Honey, Uses, Applications and Properties) 1100/- 110	
* Mod.Tech.of Bioprocessing1475/-150		* Manufacture Of Nitrocellulose Lacquers, Pu Lacquer, Vacuum Metallizing Lacquers And Other Lacquers With Formulations And Project Profiles 750/- 75/-		* Modern Bee Keeping & Honey Processing 375/- 40	
* ModTech.of BioGas Production1975/-		<b>PLASTIC/POLYMER PROCESSING, COMPOUNDING, INJECTION MOULDING, ROTATIONAL MOULDING, PLASTIC FILM, FIBRE GLASS, PLASTIC WASTE RECYCLING, MOULDS, PET &amp; RESINS, ADDITIVES INDUSTRIES</b>		<b>STARCH MANUFACTURING</b>	
<b>SWEETS, NAMKEEN &amp; SNACK</b>		* Tech of Sweets (Mithai) 1050/-110		* Technology of Starch Manufacturing (Applications, Properties and Composition) with Project Profiles 1100/- 110	
* Technology of Sweets (Mithai), Namkeen and Snacks Food with Formulae 1750/- 175		* Mfr. of Snacks Food, Namkeen, Pappad & Potato Products 900/- 90			



<b>SPICE, SEASONING, CONDIMENTS &amp; COLD STORAGE</b>	<b>MINERAL AND MINERALS</b>	<b>ORGANIC FARMING &amp; FOOD/NEEM</b>
* Technology of Spices and Seasoning of Spices with Formulae 975/- 98	* Hand Book of Minerals and Minerals Based Industries 975/- 100	* Hand Book of Organic Farming and Organic Foods with Vermi-Composting & Neem Product 1100/-
* Technology Of Spices (Masala) And Condiments With Project Profiles (Cultivation, Uses, Extn, Composition etc) 1100/-110	<b>RUBBER CHEMICALS, COMPOUNDS</b>	<b>FISH FARMING &amp; FISHERY PRODUCTS</b>
* Spices & Packaging with Formula 900/- 90	* Rubber Chemicals & Processing Industries 400/- 40	* Hand Book of Fish Farming and Fishery Products 650/- 65
* Start Your Own Cold Storage Unit 900/- 90	* Modern Rubber Chemicals, Compounds & Rubber Goods Technology 1500/- 150	<b>TEXTILE AUXILIARY &amp; CHEMICALS</b>
<b>NON WOVEN TECHNOLOGY</b>	* Technology of Rubber & Rubber Goods Industries 900/- 90	* Textile Auxiliaries & Chemicals with Processes/Formula 1050/- 105
* Complete Tech. of Nonwovens Fabrics, CarryBags, Composite, Geotextiles, Medical Textiles, Fibres, Felts, Apparels, Spunlace and Absorbent Nonwoven1175/- 120	<b>AYURVEDIC/HERBAL MEDICINES</b>	* Tech of Textile Chemicals with Formulations 1450/- 145
<b>PHARMACEUTICALS &amp; DRUGS</b>	* Ayurvedic & Herbal Medicines with Formulae 750/- 75	* Modern Technology of Textile Auxiliary and chemicals with formulations 1100/- 110
* Tablets, capsules, Injectables, Dry Strups, Oral & External Preparations, Eye, Ear ....1575/- 155	* Hand Book of Ayurvedic Medicines with Formulations 900/-90	* Textile Processing Chemicals, Enzymes, Dye Fixing Agents and Other Finishes with Project Profiles 1275/- 125
<b>LEATHER &amp; LEATHER PRODUCTS</b>	<b>STAINLESS STEEL, NON FERROUS METALS, BILLETS &amp; ROLLING MILL</b>	<b>DISINFECTANTS, CLEANERS, PHENYL, DEODORANTS, DISHWASHING DETERGENTS ETC.</b>
* Hand Book of Leather & Leather ProductsTechnology 850/-85	* Modern Technology of Non Ferrous Metals and Metal Extraction 1100/-110	* Manufacture of Disinfectants, Cleaners, Phenyl, Repellents, Deodorants, Dishwashing Detergents with Formulae 900/- 90
<b>BIOTECHNOLOGY</b>	* Processing Technology of Steels and Stainless Steels 1900/-190	<b>COFFEE &amp; COFFEE PROCESSING</b>
* Hand Book of Biotechnology900/-90	* Modern Technology of Rolling Mill, Billets, Steel Wire, Galvanized Sheet, Forging & Castings 2500/-250	* Coffee & Coffee Processing 525/- 53
<b>CERAMICS &amp; CERAMIC PROCESS</b>	* Mfg Tech of Non-Ferrous Metal Products 1750/- 175	<b>ONION CULTIVATION/PROCESSING</b>
* H.B.of Ceramics & Ceramics Processing Technology 1975/- 200	<b>FOOD ADDITIVES/CHEMICALS AND SWEETENERS &amp; FOOD EMULSIFIERS</b>	* OnionCultivation, Dehydration, Flakes, Powder, Processing & Packaging Technology 975/- 98
* Modern Tech Of Ceramic Products With Composition 1100/- 110	* Modern Technology of Food Additives, Sweeteners and Food Emulsifiers 1575/- 156	<b>BUILDING MATERIAL &amp; CHEMICALS</b>
<b>TREE FARMING</b>	* Technology of Food Chemicals, Pigments and Food Aroma Compounds 1100/- 110	* Technology of Building Materials & Chemicals with Processes950/- 95
* Hand Book of Tree Farming 800/- 80	<b>DISPOSABLE MEDICAL PRODUCTS</b>	<b>TEXTILE, GARMENTS, DYEING...</b>
<b>MUSHROOM PROCESSING</b>	* Technology of Disposable Medical Products 1750/-175	* Mod. Tech. of Bleaching, Dyeing, Printing & Finishing of Textiles 750/- 75
* Hand Book of Mushroom Cultivation, Processing & Packaging 975/- 98	<b>SOYA MILK, TOFU &amp; SOY PRODUCTS</b>	* Technology of Textiles (Spinning & Weaving, Dyeing, Scouring, Drying, Printing and Bleaching) 900/- 90
<b>BIOFERTILIZERS &amp; VERMICULTURE</b>	* Technology of Soya Milk, Tofu, Hydrolyzate, Allied Soyabean Products with project Profile 975/- 100	* Garments Manufacturing Tech. 900/- 90
* Biofertilizers & Vermiculture 900/-100	* Technology of SOYBEAN Products with Formulae 1100/- 100	<b>BAKERY, CONFECTIONERY, BISCUITS, COOKIES, BREAKFAST, PASTA &amp; CEREALS</b>
<b>BIODEGRADABLE PLASTICS AND POLYMERS</b>	<b>PRODUCTS FROM WASTE</b>	* Technology of Biscuits, Rusks, Crackers & Cookies with Formulations 975/- 98
* Modern Technology of Biodegradable Plastics and Polymers With Processes (Bio-Plastic, Starch Plastics, Cellulose Polymers & other) 975/- 100	* Technology of Products from Wastes (Industrial, Agriculture, Medical, Municipality, Organic & Biological) By Panda 900/- 90	* Hand Book of Confectionery with Formulations 900/- 90
* Production of Biodegradable Plastics & Bioplastics Tech 1500/-150	* Products from Waste Technology Hand Book 1100/- 110	* Breakfast, Dietary Food, Pasta & Cereal Products Tech 1150/-120
<b>FROZEN FOOD/FREEZE DRYING</b>	<b>WINE PRODUCTION</b>	* Modern Bakery Products 900/- 90
* Frozen Food Processing & Freeze Drying Technology 1000/- 100	* Technology of Wine Production and Packaging 1750/- 175	* Modern Bakery Technology & Fermented Cereal Products with Formulae 1250/-125
* Frozen Food Products 900/- 90	<b>CASTING TECHNOLOGY</b>	* Confectionery, Chocolates, Toffee, Candy, Chewing & Bubble Gums, Lollipop & Jelly Products 1750/-175
<b>BEER, VODKA, BEVERAGE, WHISKY</b>	* Casting Technology H.Book750/- 75	* H.Book of Bakery Industries 950/-95
* Beer, Cereal Based Beverages, Soy Beverages, Fruit Wine, Vodka, Tea Beverages & Beverages 1100/- 110	<b>PULP &amp; PAPER TECHNOLOGY</b>	<b>TECHNOLOGY OF FIBRES</b>
* Mfg Tech Hand Book Of Gin, Rum, Whisky, Distillery Spirits, Brandy, Fruit Spirits, Flavours, Maturation & Blending With Other Alcoholic Beverage 1250/- 125	* H.B.of Pulp & Paper, Paper Board & Paper Based Tech. 1150/- 120	* Fibres With Manufacturing Processes & Properties With Project Profiles 975/- 100
	<b>FLOUR MILL (ATTA MAIDA, SUJI)</b>	
	* Start Your Own Wheat Flour Mill (Atta, Maida, Suji, Bran & Besan) 900/- 90	