



Cashew Nut Shell Oil Production.

**Manufacturing of Cashew Nut
Shell Liquid or CNSL or Cashew
Shell Oil or CNSL Oil**

Introduction

CASHEW NUT SHELL LIQUID or CNSL or Cashew Nut Oil or Cashew Shell Oil or CNSL Oil is a versatile by product of the Cashew industry. The nut has a shell of about 1/8 inch thickness inside which is a soft honey comb structure containing a dark reddish brown viscous liquid. It is called CASHEW NUT SHELL LIQUID or CNSL. Which is the pericarp fluid of the Cashew Nut. It is often considered as the better and cheaper material for unsaturated phenols.



CNSL has innumerable applications, such as friction linings, paints, laminating resins, rubber compounding resins, cashew cements, polyurethane based polymers, surfactants, epoxy resins, foundry chemicals, and intermediates for chemical industry. It offers much scope and varied opportunities for the development of other tailor-made polymers.



Cashew Nut Shell Liquid undergoes all the conventional reactions of phenols, CNSL aldehyde condensation products and CNSL based phenolic resins are used in applications such as surface coatings, adhesives. Various polyamines synthesized from CNSL are used as curing agents for epoxy resins. CNSL and its derivatives have been used as antioxidants, plasticizers and processing aids for rubber compounds, modifiers for plastic materials and used to provide oxidative resistance sulphur-cured natural rubber products. It is also added to rubber gum stock or nit rile rubber to improve the processability, mechanical properties and resistance to crack and cut properties of the vulcanisates.



CNSL has innumerable applications in polymer based industries such as friction linings, paints and varnishes, laminating resins, rubber compounding resins, cashew cements, polyurethane based polymers, surfactants, epoxy resins, foundry chemicals and intermediates for chemical industry. It offers much scope and varied opportunities for the development of other tailor - made polymers.

Raw Cashew nut shell contains over 20% CNSL. In the oil bath process about 10% of oil is recovered as a by-product. By using expellers for extraction, it is possible to extract a further quantity of about 10% more from the shells. Thus from 1 tonne of shells using oil bath process, upto 100 Kg of good quality of CNSL could be extracted by using oil expellers. It is advisable that a small unit of the size given below for extraction and recovery of CNSL is set up adjacent to each good cashew processing unit in view of the economic importance and ready foreign as well as internal demand of the product.

Application

Industrial Coating
Enamel/Paints
Marine Paints
Acid resistant Paints
Varnishes

Characteristics

- CNSL based surface coatings possess excellent gloss and surface finish with optimum levels of toughness and elasticity. It is widely known that CNSL resin is added to synthetics by paint/varnish manufacturers to control properties and to reduce cost. It's anti-microbial, acid resistant and rust proof properties are well known and have been utilized in protecting a bottom of the boat hulls. Because of its dark color, its outlets are restricted to anti corrosion primers, black enamels, and marine paints.
- CNSL is an excellent raw material for the number of anti-corrosive paint formulations
- CNSL modified by heating in the presence of certain accelerators give stoving enamels resistant to alkali and acid solutions, mineral and fatty oils and various organic solvents.
- Coating compositions possessing insecticidal properties are obtained by adding DDT, gammexane, etc. to CNSL or chlorinated CNSL, after treatment with formaldehyde, gums and resins and drying or semi-drying oils

Binders	<ul style="list-style-type: none"> • CNSL is also used as a substitute for linseed oil in the manufacture of foundry core oil, which is used as a binder in the foundry.
Rubber	<ul style="list-style-type: none"> • Used as a processing aid, which enhances the vulcanization properties. CNSL enhances the insolubility of natural rubber vulcanizates in petroleum solvents. • CNSL used to provide oxidative resistance to sulfur-cured natural rubber products. • Sulfurated CNSL is added to rubber gum stock or nitrile rubber to improve the processability, mechanical properties and resistance to crack and cut
Adhesive	<ul style="list-style-type: none"> • Adhesives suitable for plywood are made by oxidizing CNSL with potassium permanganate or manganese dioxide at 100degC reacted with para-formaldehyde and compounded with CuCl₂. • Also CNSL modified with furfural, aniline, xylol, etc. gives good plywood adhesives.
CNSL Based Resins	<ul style="list-style-type: none"> • It is highly suitable for surface coating application, where outstanding film properties and very high resistance to water and chemicals are required.

	<ul style="list-style-type: none"> Therefore, CNSL Resin is used commonly as a paint raw material due to its high water and chemical resistant property
CNSL Formaldehyde Resins (Novolac)	<ul style="list-style-type: none"> These resins can be used for Surface Coatings with or without oil modification when high chemical resistance is desired
CNSL Aldehyde Resin	<ul style="list-style-type: none"> Excellent material for the purposes like Insulating Varnishes, Molding Powders, Brake Lining Compositions, etc.
Resole type CNSL formaldehyde resin	<ul style="list-style-type: none"> Resole type CNSL formaldehyde resin is used as adhesive in the preparation of composite wood, medium density particle board etc.
Foundry Resins	<ul style="list-style-type: none"> Proven material in the formation of foundry cores
Rubber Compounding Resins	<ul style="list-style-type: none"> Incorporation of CNSL products in rubber improves tensile strength and abrasion resistance, reduces fatigue, enhances self-adhesion, rubber to cord adhesion, and contributes to antioxidant and antiozonant activity. The fast curing cashew modified phenol-formaldehyde resins enhance the resistance of the product to aging, chemical attack and the action of solvents and acids

Cashew-Nut Shell Liquid Oil (CNSL) is an important by-product of cashew. India's Cashew-Nut Shell Liquid Oil Export Market: Along with quality cashew kernel, Indian cashew nut industry is producing quality Cashew-Nut Shell Liquid oil which is also exportable. Indian cashew nut industry has big market for CNSL. CNSL oil is used in industries hence there is good demand from industrially developed countries. USA and China are the top most importers of Indian Cashew-Nut Shell Liquid oil.

Cashew nut shell liquid oil processing is one of the amazing and latest business ideas which has great market demand as it has many applications.

Cashew Oil or Cashew Nut Shell Oil is a dark reddish brown viscos liquid, extracted from soft honey comb structure inside the cashew shell.

CNSL has over 200 patents on its industrial applications.

The growth of this sector is expected to be high due increasing demand in the market, the CNSL oil market is expected grow with CARG of 7.8% by the year 2022.

Cashew nut shell liquid oil processing business has favorable market potential and great profitability.



KEY MARKETS AND EXPORT DESTINATIONS

- **Export of cashew nut shell liquid/Cardanol from India stood at 6,908 MT, valued at Rs 26.28 crore (US\$ 4.08 million) during April 2017-December 2017, while exports of cashew kernels stood at 67,653 MT, valued at Rs 4,715.21 crore (US\$ 731.15 million) during the same period.**
- **Export earnings from raw cashew nut during April 2017- October 2017 stood at 3,775 MT worth US\$ 6.96 million.**
- **India accounts for about 65 per cent of global cashew exports.**
- **India exports cashew kernels to over 60 countries. Its major markets are the US, the Netherlands, Japan, Spain, France, Germany, the UK as well as Middle East countries such as the UAE and Saudi Arabia.**

Few Indian major players are as under:

- **Golden Cashew Products Pvt. Ltd.**
- **Kerala State Cashew Devp. Corpn. Ltd.**
- **Padmavathi Cashews & Coffee Ltd.**
- **Pratap Cashew Co. Ltd.**

Machinery Photographs

Cashew Shell Oil Expeller Machine





Pouch Packing Machine



Chemical Process Tank

Project at a Glance

PROJECT AT A GLANCE

(` in lacs)

COST OF PROJECT				MEANS OF FINANCE			
Particulars	Existing	Proposed	Total	Particulars	Existing	Proposed	Total
Land & Site Development Exp.	0.00	21.63	21.63	Capital	0.00	39.79	39.79
Buildings	0.00	65.50	65.50	Share Premium	0.00	0.00	0.00
Plant & Machineries	0.00	24.40	24.40	Other Type Share			
Motor Vehicles	0.00	6.00	6.00	Capital	0.00	0.00	0.00
Office Automation Equipments	0.00	20.75	20.75	Reserves & Surplus	0.00	0.00	0.00
Technical Knowhow Fees & Exp.	0.00	5.00	5.00	Cash Subsidy	0.00	0.00	0.00
Franchise & Other Deposits	0.00	0.00	0.00	Internal Cash Accruals	0.00	0.00	0.00
Preliminary & Pre-operative Exp	0.00	1.00	1.00	Long/Medium Term Borrowings	0.00	119.36	119.36
Provision for Contingencies	0.00	2.00	2.00	Debentures / Bonds Unsecured	0.00	0.00	0.00
Margin Money - Working Capital	0.00	12.88	12.88	Loans/Deposits	0.00	0.00	0.00
TOTAL	0.00	159.15	159.15	TOTAL	0.00	159.15	159.15

Project at a Glance

Year	Annualised		Book Value	Debt	Dividend	Retained Earnings		Payout	Probable Market Price	P/E Ratio	Yield Price/Book Value
	EPS	CEPS	Per Share		Per Share	Per Share		%		No.of Times	%
1-2	5.44	8.99	15.44	24.00	0.00	100.00	5.44	0.00	5.44	1.00	0.00
2-3	8.49	11.63	23.93	18.00	0.00	100.00	8.49	0.00	8.49	1.00	0.00
3-4	11.47	14.24	35.40	12.00	0.00	100.00	11.47	0.00	11.47	1.00	0.00
4-5	14.31	16.77	49.71	6.00	0.00	100.00	14.31	0.00	14.31	1.00	0.00
5-6	17.00	19.19	66.72	0.00	0.00	100.00	17.00	0.00	17.00	1.00	0.00

Project at a Glance

Year	D. S. C. R.			Debt / Equity - Deposits Debt	Equity as-Equity	Total Net Worth	Return on Net Worth	Profitability Ratio					Assets Turnover Ratio	Current Ratio
	Individual	Cumulative	Overall					GPM	PBT	PAT	Net Contribution	P/V Ratio		
	(Number of times)			(Number of times)	%	%	%	%	%	%	%			
Initial				3.00	3.00									
1-2	1.32	1.32		1.55	1.55	2.66		11.56%	5.95%	3.96%	152.73	27.94%	2.48	1.01
2-3	1.65	1.48		0.75	0.75	1.57		12.94%	8.22%	5.30%	176.87	27.73%	2.65	1.23
3-4	2.04	1.65	2.03	0.34	0.34	0.97		13.85%	9.82%	6.26%	202.10	27.73%	2.66	1.50
4-5	2.50	1.84		0.12	0.12	0.63		14.46%	10.95%	6.95%	227.34	27.73%	2.57	1.80
5-6	3.05	2.03		0.00	0.00	0.42		14.85%	11.74%	7.43%	252.57	27.72%	2.44	2.58

Project at a Glance

BEP

BEP - Maximum Utilisation Year	5
Cash BEP (% of Installed Capacity)	54.12%
Total BEP (% of Installed Capacity)	57.57%
IRR, PAYBACK and FACR	
Internal Rate of Return .. (In %age)	27.26%
Payback Period of the Project is (In Years)	2 Years 3 Months
Fixed Assets Coverage Ratio (No. of times)	9.930

Major Queries/Questions Answered in the Report?

- 1. What is Cashew Nut Shell Oil Manufacturing industry ?**
- 2. How has the Cashew Nut Shell Oil Manufacturing industry performed so far and how will it perform in the coming years ?**
- 3. What is the Project Feasibility of Cashew Nut Shell Oil Manufacturing Plant ?**
- 4. What are the requirements of Working Capital for setting up Cashew Nut Shell Oil Manufacturing plant ?**

- 5. What is the structure of the Cashew Nut Shell Oil Manufacturing Business and who are the key/major players ?**
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Reasons for Buying our Report:

- **This report helps you to identify a profitable project for investing or diversifying into by throwing light to crucial areas like industry size, market potential of the product and reasons for investing in the product**
- **This report provides vital information on the product like it's characteristics and segmentation**
- **This report helps you market and place the product correctly by identifying the target customer group of the product**

- **This report helps you understand the viability of the project by disclosing details like machinery required, project costs and snapshot of other project financials**
- **The report provides a glimpse of government regulations applicable on the industry**
- **The report provides forecasts of key parameters which helps to anticipate the industry performance and make sound business decisions**

Our Approach:

- **Our research reports broadly cover Indian markets, present analysis, outlook and forecast for a period of five years.**
- **The market forecasts are developed on the basis of secondary research and are cross-validated through interactions with the industry players**
- **We use reliable sources of information and databases. And information from such sources is processed by us and included in the report**

Scope of the Report

The report titled “Market Survey cum Detailed Techno Economic Feasibility Report on Cashew Nut Shell Oil.” provides an insight into Cashew Nut Shell Oil market in India with focus on uses and applications, Manufacturing Process, Process Flow Sheets, Plant Layout and Project Financials of Cashew Nut Shell Oil project. The report assesses the market sizing and growth of the Indian Cashew Nut Shell Oil Industry. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line. And before diversifying/venturing into any product, they wish to study the following aspects of the identified product:

- **Good Present/Future Demand**
- **Export-Import Market Potential**
- **Raw Material & Manpower Availability**
- **Project Costs and Payback Period**

We at NPCS, through our reliable expertise in the project consultancy and market research field, have demystified the situation by putting forward the emerging business opportunity in the Cashew Nut Shell Oil sector in India along with its business prospects. Through this report we have identified Cashew Nut Shell Oil project as a lucrative investment avenue.

Tags

Cashew Nut Shell Oil, Cashew Nut Shell Liquid (CNSL), Manufacturing Process of Cashew Nut Shell Liquid, Cashew Nut Shell Liquid Production, Cashew Nut Shell Liquid CNSL Oil, Cashew Kernel and Cashew Nut Shell Liquid Production, Cashew Nut Shell Oil Manufacture, Cashew Nut Shell Liquid Project Report, Cashew Nut Shell Oil Extraction, Cashew Nut Shell Liquid Uses, Cashew Nut Shell Liquid Manufacturing Process, How to make Cashew Oil, Cashew Nut Shell Liquid Oil Uses, Cashew Nut Processing with CNSL, CNSL Processing, CNSL, Cashew Oil, Cashew Nut Oil, Production of Cashew Nut Shell Oil, Cashew Processing in India, Extraction of Oil from Cashew Nut, Extraction of Cashew Nut Kernel Oil, Cashew Nut Shell Oil Extraction Process, Cashew Kernel Oil Production, Oil Extraction Process Of Cashew, Cashew Nut Shell Oil Distillation (CNSL), Cashew Nut Shell Liquid/Oil (CNSL), Project Report on Cashew Nut Processing Industry, Detailed Project Report on Cashew Nut Oil Production, Project Report on Cashew Nut Shell Oil Extraction, Pre-Investment Feasibility Study on Cashew Nut Shell Liquid Production, Techno-Economic feasibility study on Cashew Kernel and Cashew Nut Shell Liquid Production, Feasibility report on Cashew Nut Shell Oil Extraction, Free Project Profile on Cashew Nut Oil Production, Project profile on Cashew Nut Shell Liquid Production, Download free project profile on Cashew Nut Oil Production

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NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our Market Survey cum Detailed Techno Economic Feasibility Report provides an insight of market in India. The report assesses the market sizing and growth of the Industry. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.



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The detailed project report covers all aspect of business, from analyzing the market, confirming availability of various necessities such as Manufacturing Plant, Detailed Project Report, Profile, Business Plan, Industry Trends, Market Research, Survey, Manufacturing Process, Machinery, Raw Materials, Feasibility Study, Investment Opportunities, Cost and Revenue, Plant Economics, Production Schedule,



Working Capital Requirement, uses and applications, Plant Layout, Project Financials, Process Flow Sheet, Cost of Project, Projected Balance Sheets, Profitability Ratios, Break Even Analysis. The DPR (Detailed Project Report) is formulated by highly accomplished and experienced consultants and the market research and analysis are supported by a panel of experts and digitalized data bank.

We at NPCS, through our reliable expertise in the project consultancy and market research field, have demystified the situation by putting forward the emerging business opportunity in India along with its business prospects.....[Read more](#)



Contact us

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Who are we?

- *One of the leading reliable names in industrial world for providing the most comprehensive technical consulting services*
- *We adopt a systematic approach to provide the strong fundamental support needed for the effective delivery of services to our Clients' in India & abroad*



We at NPCS want to grow with you by providing solutions scale to suit your new operations and help you reduce risk and give a high return on application investments. We have successfully achieved top-notch quality standards with a high level of customer appreciation resulting in long lasting relation and large amount of referral work through technological breakthrough and innovative concepts. A large number of our Indian, Overseas and NRI Clients have appreciated our expertise for excellence which speaks volumes about our commitment and dedication to every client's success.



We bring deep, functional expertise, but are known for our holistic perspective: we capture value across boundaries and between the silos of any organization. We have proven a multiplier effect from optimizing the sum of the parts, not just the individual pieces. We actively encourage a culture of innovation, which facilitates the development of new technologies and ensures a high quality product.



What do we offer?

- *Project Identification*
- *Detailed Project Reports/Pre-feasibility Reports*
- *Market Research Reports*
- *Business Plan*
- *Technology Books and Directory*
- *Industry Trend*
- *Databases on CD-ROM*
- *Laboratory Testing Services*
- *Turnkey Project Consultancy/Solutions*
- *Entrepreneur India (An Industrial Monthly Journal)*

How are we different ?

- *We have two decades long experience in project consultancy and market research field*
- *We empower our customers with the prerequisite know-how to take sound business decisions*
- *We help catalyze business growth by providing distinctive and profound market analysis*
- *We serve a wide array of customers , from individual entrepreneurs to Corporations and Foreign Investors*
- *We use authentic & reliable sources to ensure business precision*

Our Approach

Requirement collection

Thorough analysis of the project

Economic feasibility study of the Project

Market potential survey/research

Report Compilation

Contact us

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