

OVERVIEW ON CERAMIC & GLASS TABLEWARE

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**HISTORY
OF
CERAMIC & OPAL GLASS
TABLEWARE
INDUSTRY**

Indian Tableware Industry

- First ever tableware was the green clayware.
- On invention of Fire – fired clayware was made.
- The first unit in India was attempted by world famous Scientist- Acharya Prafulla Chandra Roy in early part of 19th century in Kolkata.
- Bengal Potteries - the first organised unit was established in 1955 in Kolkata by late Mr.M.G.Bhagat. They started with Earthenware on collaboration with Mr Raleigh Stroke on Trent, England.
- Bengal pottery started Bone china with 200kg capacity per day.The main architect of this successful venture was Mr. Raleigh assisted by Late N.S. Gopal Rao & Shri N.K. Guha
- Other prominent manufacturers in India at that time were
 - Sodepur Potteries, India Potteries & Allied Ceramics(Formerly Bharat Potteries), Kolkata
 - Digvijay Porcelain, Jamnagar
 - Delight Ceramic Industries, Maharashtra
 - Hitkari Potteries, Faridabad & Ghaziabad

Indian Tableware Industry

- All these units were manufacturing stoneware crockery & their total production capacity was 8 -10 MTPD
- Due to lack of up-gradation, quality and realization thereof was poor
- Only Bengal Pottery and Parashuram Pottery had machines like de-airing pugmill, kiln & roller head machine
- In 1973-1974 Hitkari Pottery started manufacturing bone china tableware using Indian raw materials in down-draught kiln and production was 2 TPD
- Subsequently Bengal Pottery Unit closed due to labour unrest and entire market share was catered by Hitkari Pottery.
- Gradually bone china industry flourishes & who still exists. Many companies like-
 - Bharat Pottery Ltd
 - Clay Craft Pvt. Ltd.
 - Jaipur Glass & Potteries
 - Jaipur ceramics Pvt Ltd
 - Oasis Ceramics
- In this period Khurja pottery also came up in the un-organised sector. Product range includes Earthenware, Stoneware and Bone China.

Tableware Industry- Tech. Aspects

- China clay for bone china Plasticity/workability – reasonable
- China clay of above properties is not available in India.
- Good quality potash feldspar ($K_2O >14\%$).
- Indian feldspar has mix of soda & potash.
- Body composition of bone china has 50% bone ash. It should be burning white and its LOI $<1\%$.
- Poor quality bone ash leads to pin holes and dull colour.
- Washing technology of bone ash in India needs up-gradation to produce up to above standards.

- With Indian china clay, feldspar and bone ash the rejection rate was as under:
 - Finishing rejections(greenware): 20-25%
 - Bisquit rejections : 18 - 20%
 - Glost rejections : 5 - 8%

- Deco rejections : 3 - 5 %should have following standards:
 - Burnt clay brightness $>92\%$
 - Green MOR $>20 \text{ kg/cm}^2$
 - Green shrinkage $<4\%$
 - Total shrinkage $< 11\%$
 - Residue on 300# $<1\%$

Porcelain-Brief history

- Porcelain tableware is very famous worldwide. But in India it doesn't grow.
- In 1976, Nalanda Ceramics started porcelain tableware with Japanese collaboration. This project was unsuccessful.
- Bharat Potteries Ltd. Also tried to make porcelain wares in their plant at Jaipur with technical consultancy from very famous Mr. Brian Harpar. But they also failed to develop quality product.
- On the other hand, Bangladesh & Sri Lanka started porcelain tableware manufacturing 20 years back with the technical help from Japan. They are very much successful.

Constraints of Porcelain tableware

- Non availability of proper machineries like Roller –head, autocup and most importantly Kiln which could generate temperature upto 1400 deg. C and reducing atmosphere.
- Non availability of proper raw-materials, mainly china clay, secondary clay & talc which should be free from iron and other inorganic contaminations, etc.
- Good quality cordierite saggars, setters & nitride bonded silicon carbide kiln furniture.
- Non availability of cheaper fuel like natural gas all over the countries. Bangladesh and Sri Lanka are reach in natural gas.
- The above countries, though much smaller than our country, went ahead of us in the whole world to manufacture best quality porcelain tableware.

Opal ware-brief history

- Opal glass started in Venice, Italy in 16th Century.
- In India, La Opala started commercial production of Opal glass almost 25 years back in Madhupur, Bihar. It was manual pressing technology.
- It introduced spinning technology 6 years back at Sitarganj plant in Uttarakhand.
- In this 25 year long period few attempts were made to develop opal-ware.
- Notable names are diplomat, Vicopal and Alembic Glass. But the life span of these projects were very short.
- In 2011, Hopewell Tableware started their Opal Glass project.
- Hopewell Tableware is now successfully producing almost 18- 20 MT of tempered finished products per day within a span of three and a half months after light up.
- At present, there are nearly 16 manufacturing units of opal glass worldwide.

Tableware Industry- Markets

- Earlier China was leader in porcelain ware, however they also developed good quality bone china and started competing Indian manufacturers.
- Indian Kaolins lack either brightness or green MOR and also there is unavailability of good quality secondary clay. Indian Secondary clays contain free iron and other inorganic contaminations.
- To compete the Chinese product, Indian manufacturers also started using high quality raw material imported from Turkey, New Zealand and China.
- By importing raw material Indian manufacturers avoided the problem of free-silica, iron and TiO₂ in ball / secondary clays in India which helped to attain required strength of body.
- Indian Bentonite contains high % of free iron, titanium, etc. It is not suitable for making bone china.
- White burning bentonite from USA & Turkey in small proportion increased green MOR and reduced green rejections from 20% (in 1980) to 7% now.

Tableware Industry- Tech. & Markets

- Due to lead of content, the use of glaze was prohibited in most of the countries.
- By using natural gas many units in India started manufacturing lead free frit by using continuous furnace.
- Of late Indian manufacturers have up-graded their equipment to auto cup machines, heavy duty de-airing pug mill, filter press and roller hearth kilns.
- India is the second largest producer of bone china tableware after China in the world.

Tableware Industry- Overview

Indian Bone China Table-ware manufacturers are doing good business worldwide in large mugs(280-320 ml) segments.

But no Indian manufacturer has been successfully produced dinner wares of international quality.

Lack of proper technology is one of the main reasons for failure.

- At present production capacity of bone china tableware in India is 200 MTPD and nearly 25% of total production is exported.
- New bone china units in India are using latest technology and equipment and even old stoneware industry is modernising and converting facilities for manufacturing bone china with latest equipment.

Current market size - OPAL

<i>S.NO.</i>	<i>COMPANY NAME</i>	<i>APPX. TURNOVER in Cr.</i>
<u>OPALWARE</u>		
1	Laopala	130
2	RAK	30
3	Luminarc	20
4	Bormioli Rocco	20
5	Corelle	60
6	Unorganised Sector	40
	TOTAL APPX. BUSINESS OF OPALWARE	300

Current market size-Glassware

<i>S.NO.</i>	<i>COMPANY NAME</i>	<i>APPX. TURNOVER in Cr.</i>
<u>GLASSWARE (Sodo & Crystal)</u>		
1	Yera	60
2	Ocean	70
3	Treo	40
4	Luminarc	40
5	Roxx	20
6	Pashabhashi	20
7	Borosil	15
8	Laopala	15
9	Unorganised Imported Glassware	100
10	Unorganised Indian Glassware	250
TOTAL APPX. BUSINESS OF GLASSWARE		630
<u>BAKEWARE</u>		
1	Borosil	25
2	Treo	20
3	ARC	10
4	Pyrex	5
5	Roxx	5
6	Yera	5
7	Marinex	2
TOTAL APPX. BUSINESS OF BAKEWARE		72

Current market size-Bone china & ceramic

<i>S.NO.</i>	<i>COMPANY NAME</i>	<i>APPX. TURNOVER in Cr.</i>
<u>BONE CHINA</u>		
1	Bharat	65
2	Clay Craft	35
3	UPC	20
4	Oasis	15
5	Jaipur glass	15
5	Other Regional Bone China Co.	150
TOTAL APPX. BUSINESS OF BONE CHINA		300
CERAMIC WARE (Coffee Mugs, Casserole, Bowls)		
1	Treo	20
2	Roxx	5
3	Unorganised Imported Ceramic ware	125
4	Unorganised Indian Ceramic ware	100
TOTAL APPX. BUSINESS OF CERAMIC WARE		250

Total tableware market size

<i>S.NO.</i>	<i>PRODUCT</i>	<i>APPX. TURNOVER in Cr.</i>
	OPALWARE	300
	GLASSWARE	630
	GLASS BAKEWARE	72
	BONE CHINA	300
	OTHER CERAMIC & POTTERY TABLEWARE	250
	MELAMINE	380
	TOTAL BUSINESS OF GLASS TABLEWARE IN INDIA	852
	TOTAL TABLEWARE BUSINESS IN INDIA	2082

Why Opal Glass ?

Reason for Opal Ware over Bone China

- Bone china plant requires huge manpower. Even most advanced plant needs at least 60-70 people to produce 1 MT bone china ware.
- With the growth of Indian economy and development of rural India, it has become very difficult to get laborers for this Industry.
- Labour cost also increased over the years.
- Opal ware Industry requires less manpower since it is mostly continuous machanised process.
- In bone china, the rejected pieces after biscuit firing is useless. But in opal ware it is 100% recyclable at any stage of production.
- Opal glass production capacity is much more than bone china
- The most sustainable tableware in India's tableware industry

Closest Substitutes

Bone China Tableware	Opal Glass Tableware
Rich & classy look, used for fine dining	RICH & CLASSY ; Can be for daily use
easily gets chipped, needs to be handled with care	Is not unbreakable but more stable than bone china
Is microwave & dishwasher safe if gold/platinum is not used on them. Gets scratches easily.	Is microwave safe & dishwasher and is scratch proof too
Is price sensitive	value for money
Low on durability	More durable
Low on sustainability	Can go upto generations
More variety in product range	Limited variety
Soft cleaners required, high maintenance	Easy to clean
Is heavy & cant be held in your hand to eat. Difficult to handle.	Is light weight than bone china, Easy handling.

Constraints for developing Opal ware industry

- Opal ware technology is much more complicated than other conventional ceramic table-ware technology.
- Manufacturers are still facing lots of technical problems in production.
- Almost all the machines are imported from foreign countries.
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- Very high capital investment is required to set up an Opal Ware project.
- Opal glass project is commercially viable only at huge production capacity.
- Power supply is another major factor. Lack of availability of HT power transmission(minimum 33 KVA) and high cost of electricity did not support the development of opal ware industry in India.

Advantages of opal technology over conventional ceramic table-ware

- Opal glass technology is more eco-friendly.
- Advanced cold-top type furnaces have minimised the evolution of harmful green house gases.
- Electrical heating generates sulfur-free neutral atmosphere.
- The constituents of Opal ware are least likely to generate harmful materials.
- At present Hopewell Tableware is having the most advanced Furnace with Top Electrode technology.

Future prospects of Opal-ware in India

- Opal ware is becoming popular in India day by day.
- The reasons for such growing popularity have been mentioned above.
- It is expected that the demand of this item will grow by 12-15% per annum in next 5 years.
- There is a very good business opportunity for Indian Manufacturers in international market.
- Within its limitations, Indian Companies have been able to produce very high quality opal ware which can compete with foreign companies.

Conclusion

- Indian Tableware Industry has come up a long way through different phases of metamorphosis.
- With the introduction of latest technologies and upgraded machineries it is ready to take on global challenges.
- High tech opal glassware will definitely put India at leading position in the list of Ceramic and Glass-Tableware manufacturing countries.

Company



2nd largest in SAARC Countries and 16th internationally Opal glass manufacturing unit

- **INCORPORATED ON** : 25 NOV 2010
- **CORPORATE** : D-10/50, Opp. Chitrakoot Stadium, Chitrakoot, Jaipur-302021
- **FACTORY** : Gram Panchayat- Anantpura- Chimanpura, Tehsil-Chomu, Jaipur
- **Dist.**

Where we make?



Where we make?



Factory Night Shift Working

THANK YOU
