

OPPORTUNITY UNDER REVOLUTION IN CHINA'S CERAMICS INDUSTRY

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1. WHAT'S THE DISTANCE BETWEEN CHINA AND ITALY? COMPARISON OF THE CERAMIC INDUSTRY BETWEEN CHINA AND ITALY

1.1. START :

•After World War II, per capita consumption of ceramic tiles in Italy was 3.33 sq.m; the Italian ceramics industry grew rapidly; it started to export from the 70's in the last century.

•The Chinese ceramics industry started in the 80's in the last century.

1.2. BOOM TIME :

•At the height of the Italian Ceramics Industry, there were about 270 wall & floor tile enterprises, 317 factories and 721 kilns. The production volume reached 570 million sq.m. The total turnover was 5.5 billion euros in which export occupied 70%.

• China's production reached 4 billion sq.m in 2006 and 10 billion sq.m in 2014.

1.3. STABLE PERIOD :

•From 2008 to now, Italy's production has been maintained at 350-400 million sq.m.

•China's current production capacity reaches 14 billion sq.m, and the predicted output will drop to 5 billion sq.m.

2. PRESENT SITUATION OF EACH PRODUCTION BASE IN CHINA

2.1. GUANGDONG

223 ceramic enterprises; 1062 production lines

Advantages: High Industry Concentration; Strong Brand Power; Wide Radiant Market; Talents Magnet

Problems: Stagnant Market; Fickleness from the Pressure of Industrial Transformation

2.2. HUNAN

18 Ceramic Enterprises (three of them were closed in recent years); 51 Production Lines

Advantages : Competition is relatively small with few ceramic enterprises.

Problems : Enterprises are located scattered without internal scale; Price is lower and lower; Low Brand Recognition; Serious Overcapacity

2.3. HENAN

About 20 counties have ceramic enterprises; 87 Ceramic Enterprises; 116 Production Lines

Advantages : High Production Capacity; Low Price; Rich Human Resources with Workers; Strong Competitiveness in Key Sales District for 500 km Round

Problems : Less High Industrial Concentration; Low Product Added-Value; Large Production Volume with Small Profit and Small Market; Lack of Management Talents and Senior Technical Workers

2.4. FUJIAN

253 Ceramic Enterprises, including 156 enterprises in Jinjiang; 533 Production Lines, including 330 lines in Jinjiang

Advantages : Raw Materials; Resources; Sales Force; Logistics

Problems : High Production Cost; Lost Competitiveness in the Middle and Low-end Market; Less Established Enterprises of Supporting Service

2.5. JIANGXI

More than 140 Ceramic Enterprises; About 340 Production Lines

Advantages : Industry Centralization; Strong Motor Transport Service with total work force of 100,000; Support from Freight Train; Strong Competitiveness of Middle and Low-end Market in Central China and Southwest Area

Problems : Lack of Management and R&D Talents; Difficulty in Expanding Sales Area; Limited Space for Brands Growth

2.6. SICHUAN

About 250 Production Lines; Production Capacity of 3 million sq.m/per day; 10 New Added Production Lines

Advantages : Industrial Clusters; Wide selection of Products; Low Price

Problems : Common Problems Existing in Capital Chain; Financing Difficulty; More Serious Overdue Salaries for Employees and Payment for Suppliers; Lack of White Body Raw Material and Uncompleted Cultivation of Red Body.

2.7. ZIBO

104 Ceramic Enterprises; About 200 Production Lines

Advantages: Plenty of OEM Factories; High Industrial Concentration; Fast Flow of Information; High Speed of Patterns Product Upgrading; Convenient Logistics; Low Overall Cost; High Cost Performance; Short and Small Production Line; Flexible Operation; Optional Production

Problems : Lack of Creativeness; Excessive Reliance on OEM Factories; Limited Distribution Channels

2.8. LINYI

About 150 Production Lines

Advantages : Great Production Capacity of Interior Wall Tile; Good Logistic Establishments

Problems : High Pressure from Environmental Protection; Involved in Price Battle; Difficulty in Digesting Stock

2.9. GAOYI

24 Ceramic Enterprises; 32 Production Lines; Production Capacity is about 270 million sq.m, occupying almost 50% production capacity in Hebei; Main Product includes Wall Tile, Interior Wall Tile, Polished Tile, Polished Glazed Tile and Rustic Tile.

Advantages : Strong Government Support

Problems : No Brands; Less High Added-Value of Product

2.10. FAKU

40 Ceramic Enterprises; 242 Production Lines

Advantages : Rich Raw Material; Market Coverage in Northeast Area; With the Advantage of the China Border Trade Market; Low Labour Cost

Problems : Single Product Structure & Low Added-Value; Few Self-Owned Brands; Not Completed Industry Chain; Serious Situation of Low Level Copying Product; Low Cultural Quality of Employees

3. GREAT CHANGES ARE TAKING PLACE IN CHINA'S CERAMICS INDUSTRY

Strict environmental standard has pushed a number of ceramics companies to close or stop production.

Here are the detailed figures on the enterprises from each production base, which were forced to close due to environmental issues. Also, you can find here our reports about these production bases.

You can see here, the China ceramics industry has really suffered a heavy blow since the national environmental standard was raised.

Besides, many ceramic companies went bankrupt because the Chinese economy was so tough that the real estate industry suffered drastic contraction, and construction projects were forced to stop. We have calculated that almost half of the 4000 production lines in China were stopped in October. The storehouse of ceramic enterprises in every production base was full of inventory products.

In the next two years, a great revolution will take place in China's ceramics industry. At least 50% of the ceramic production lines will be eliminated, and half of the ceramic enterprises need to be closed too.

Closure of Ceramics Enterprises List

Date	Production Area	Company	Reason for Closure
Feb 7, 2015	Qingyuan, Guangdong	Xin Tao Xing Ceramics	Liabilities of 320 million yuan; Inability to continue business
Mar, 2015	Enping, Guangdong	Jing Peng Ceramics, Xiang Da Ceramics, Xiang Ying Ceramics, Xin An Ma Ceramics, Jing Yu Ceramics	Get no approval from environment appraisal; respectively stop 4 lines, 6 lines, 3 lines, 3 lines, 4 lines of polished tiles.
Mar, 2015	Linyi, Shandong	San Yuan Construction Ceramics Limited, Jin Hai Hui Ceramics, Shandong Rui Feng Ceramics, Jiang Yuan Building Material, Da He Building Material Limited	Unable to reach the standard of New Environment Law; Not finishing the task of green equipment reform then it's forced to close.
Apr 16, 2015	Gao'an, Jiangxi	Xin Gao Feng Ceramics	Liabilities of 300 million yuan; stop production
Jul 11, 2015	Foshan, Guangdong	Lan Gu Ceramics	The break of cash flow led production to be stopped
Jul 15, 2015	Qingyuan, Guangdong	Hao Bang Ceramics	1.6 billion yuan intended investment but got liquidated by local government due to capital chain rupture

4. WHAT LED TO THE CLOSURE OF CHINA'S CERAMIC ENTERPRISES?

Environmental Protection, Cost, Finance and Market are the main factors which led to the close of the ceramic enterprises in China. So, how much pressure do China's ceramic enterprises suffer under environmental protection?

In 2013, I held an interview with the owner of Thailand's biggest building materials supermarket, Boonthavorn. I asked him what his biggest impression of the Chinese ceramics industry was. He responded that he visited Chinese ceramic factories 10 years ago, and his black hair turned white after he came out from the factory due to the dirt. He gave the answer in good humour, but for me, I felt embarrassed for his description of the terrible environment in Chinese factories.

However, this has been greatly improved in recent years.

Here I would like to show you a short video of our ceramic factories, which was filmed by us.

The dirt and noises still exist, and sewage disposals are not good enough. However, compared with the situation of "Black hair turned white after going out from the factory", they really have made great progress.

This video was shot by our journalist in one Chinese factory with serious pollution issues. From milling to slurry preparation, to sewage treatment, to gas emission, all pollution from water, dust air and noise can be seen and heard in the production lines. As Chinese ceramic factories have not realized the standardization of raw materials, they themselves have to do the milling, and this part should also be a key point for pollution regulation. However, this kind of situation is totally different from the Spanish and Italian situations. In Italy and Spain, milling is no longer offered by the tile factories, which means that milling is separated and provided by another factory. Chinese factories really want to know how Italian and Spanish factories do the milling part to avoid the pollution.

Next, it's gas emission. Here from the video, the smoke from the chimney contains a high level of fluoride. It is because Chinese factories still use coal as fuel. When visiting Spain, we got a chance to communicate with some related staff. They replied that in Spain, they had not used coal for 30 years, and they used natural gas as fuel. In China, our natural gas is not enough for so many production lines to use, so it's a great hope that Chinese factories can solve the problem of gas emission and reduce the volume of fluoride during the environment protection.

The two issues mentioned above are the most pressing problems for Chinese factories. The first one is the treatment of dust from milling; the second one is the treatment of fluoride from coal burning.

5. HOW STRICT IS THE NEW GREEN STANDARD IN CHINESE CERAMICS ENTERPRISES?

In the second half of 2014, the "Announcement of PRC Environment Ministry (No. 83, 2014)" was issued with the attachment named "Pollutant Emission Standard in Ceramics Industry (GB25464-2010)". The attachment raised objections from enterprises in the main production bases, and they had signed and supported a petition to oppose the standard of environmental protection because regulation No. 4.2.7 was too strict for them.

In December, the Environment Ministry and China's General Administration of Quality Supervision, Inspection and Quarantine jointly issued the amending document of "Pollutant Emission Standard in Ceramics Industry (GB25464-2010)". This amending document was for the debatable issues on adjustment of emissions standard limits, such as spray drying tower, reference standard oxygen content in exhaust gas from ceramics kilns, PM, sulfur dioxide, nitrogen oxide, etc. From the amending document, the reference standard oxygen content was adjusted from the original 8.6% (excess air coefficient/ratio is 1.7) to 18%, the limit of PM remained the same of 30mg/m³, the limit of sulfur dioxide was 50mg/m³, and the limit of nitrogen oxide was 180mg/m³. However, compared with the old standard (before the "Pollutant Emission Standard in Ceramics Industry (GB25464-2010)" was issued), whose required limit of sulfur dioxide from spray drying tower and ceramic kilns was 100mg/m³ and the limit of nitrogen oxide was 240mg/m³ (for kilns this was 300mg/m³), the revised standard was still strict.

To reach the new standard puts a lot of pressure on the ceramic enterprises. However, improving the requirement of the environmental protection has become a foregone conclusion. What ceramic enterprises can do is to increase the investment in equipment, because the natural environment is relevant directly to the life and health of human beings. A company official said, compared to the old standard, the new one has a wider conversion coefficient but it has stricter standards in some emission limits. Thus, in order to adapt these new standards, the ceramic enterprises will increase the investment of equipment for further improvement of production technology. It will lead to a higher production cost, which might result in lowering the price competitiveness of China's ceramic products on the international stage. Some enterprises are also searching how to increase products added value and they don't need to depend on low prices to occupy the markets.

Though now the standard of Chinese environment protection is already very tight, it's far from over.

Zhuan Li, Vice President of the Xianyang Ceramics Research & Design Institute, who participated in the "Pollutant Emission Standard in Ceramics Industry (GB25464-2010)", said that this standard was still in an experiment period, and they kept working on adjusting the standard, which would have stricter limits than this experimental one. According to Mr. Li, the official version of the "Pollutant Emission Standard in Ceramics Industry (GB25464-2010)" would be carried out in 2016, and at that time, it would really affect the destiny of China ceramic enterprises.

Contrast Table of Kiln Exhaust Emission Concentration Limits

Country Pollutant	China	China	Taiwan	South Korea	Italy	Germany	Japan
Dust	30	30	100 (1) 50 (2)	50	5	40	100
Sulfur Dioxide	100	50	286	715	500	500	Emissions Calculated by Region (Not Enterprise)
Nitrogen Oxide	300	180	308	411	200	500	821
Blackness of Exhaustion							
Ringelmann black degree	1	1	-	-	-	-	-
Lead and its compounds	0.1	0.1	-	-	0.5	0.5	-
Cadmium and its compounds	0.1	0.1	-	-	-	-	-
Nickel and its compounds	0.2	0.2	-	-	-	-	-
Fluoride	3	3	10	4.5	5	5	-
Chloride (Calculated by HCl)	25	25	130	-	-	-	-
Corrected Oxygen Content	8.6% (3)	8.6% (3)	18%	16%	/	17%	18%
Remarks: 1. Operating Enterprises; 2. New-Built Enterprises; 3. Equivalent to oxygen flow ratio 1.7.							

Main Countries & Areas Value Amount of Reference Standard for Oxygen Content in Exhaust Gas

Country	China	Taiwan	South Korea	Italy	Germany	Japan
Reference Standard Oxygen Content in Exhaust Gas	8.60%	18%	16%	No Conversion	17%	18%

From the above tables, we can see that the new standard faced by the Chinese ceramics industry has much higher limits than many other countries, particularly in reference standard oxygen content. This severe requirement, for China's ceramic companies, is totally a fatal blow. The standard of 8.6% reference standard oxygen content is much stricter than other countries in the table, and so far, none of the Chinese companies are able to find the way to reach that standard. However, just as I mentioned before, this term has attracted too many voices of objection, so now it has been revised to 18%, which is closer to the international standard.

Let's take the kiln for an example. Whether the standard of sulfur dioxide or the standard of PM, nitrogen oxide, fluoride, they are much severer than European and American countries. In Germany, the limit of sulfur dioxide is 500mg; in China, the limit is 100mg. The PM limit in Germany is 40mg, but the limit in China is only 30mg. The German limit in nitrogen oxide is 400mg, but the Chinese limit is 300mg. While the limit of fluoride in EU and Italy is 5mg, the limit in China is 3mg.

6. CHINA'S CERAMIC ENTERPRISES ARE MAKING PROGRESS.

Here is another video. Compared with the first video, the floor and the water from polishing process are cleaner. It has good treatment on factory noise, and both dust and polluted gas have reached the standards of environmental protection too. In the video, there is monitoring equipment set inside the factory by Environmental Protection Agency. The equipment in the video shows that all data are up to the standards of environmental protection.

Do you know which country has such a clean production line with high automation degree? Yes, the answer is China. This video is from a Chinese ceramic company in Foshan City, called Monalisa Ceramics. There are enterprises starting to make great investments and research in clean production, and this production line is only for testing. Here are some figures about emissions data of this production line.

So far, the only problem is that the cost of green production is too high. Monalisa Ceramics makes a cumulative investment of RMB 150 million for environment protection. Emissions of PM, sulfur dioxide and nitrogen oxide through these three vents are 15 mg/m³, 20 mg/m³, 150 mg/m³, which are lower than the limitation of the national requirement.

Monalisa Ceramics keeps making efforts in environmental research and they hope the cost of green production can be reduced. In this way, all production lines can achieve green production and reach the national standard.

This is what I want to invite global ceramics industry experts to work together in. Before time, we wanted to use the environmental protection equipment and experience in our Chinese ceramics companies. However, later, we found that it didn't adapt to the condition of China's ceramics industry. Chinese ceramic enterprises very much hope that foreign research institutions, research specialists in equipment and environmental experts would come to China, and provide professional solutions specifically after comprehensive understanding of China's ceramics industry.

It is said that Monalisa is preparing to cooperate with one German factory and import a system for sewage treatment. This system can do quick treatment for the polluted water coming from the factory, and make it appropriate for recycling, turning the dirty water into clean water in 2-3 minutes. They also plan to collect the rain

drops to recycle the rain after it reaches a certain standard. It not only helps to protect the environment but also saves the cost for the company.

7. OPPORTUNITIES

The number of China's ceramics production lines is decreasing, and the production capacity might decrease 50%~70%. Are there still opportunities in China?

Let's Go Back to the These Figures: From 2008 to now, Italy's production has been maintained at 350-400 million sq.m. China's current production capacity reaches 14 billion sq.m, and the predicted output will drop to 5 billion sq.m.

Even with a Production Capacity of 5 billion sq.m, China is still a huge market.

There are three opportunities in the future Chinese market:

a) Green equipment reform.

Due to the pressure from the national government, if Chinese ceramics enterprises want to survive, they should start the reform of Environmental Protection. Previously, I already showed you the figures and positive and negative aspects of some parts of China's production bases. China has thousands of production lines, which need to perform the green reform. When the institutions can provide a successful maturing solution for one Chinese ceramic company, there will be more ceramics companies that are willing to cooperate with that institution, which can open a big market in China.

b) Automated Equipment

With the higher requirement of environmental protection, the cost during the manufacturing process rises, so ceramic companies will search for other ways to reduce costs. At present, a production line in China factory needs about 200 workers, which is 10 times more than an Italian production line. In the past, the salary of the normal Chinese worker was so low that the company didn't consider replacing human labour with machines. However, nowadays, the labour cost in China is very high. In China, it takes about 3,000 to 5,000 RMB per month to hire one ordinary worker, and it is several times more than India and Vietnam. Production lines with automation and intelligence will have a big market in China. It will come true in a not too distant future, probably within five years from 2016.

c) Research and Design of Personalized Product

China's ceramic factories need to pay more attention to product design and improvement of product value, and they should not depend on low price to occupy the market. Thus, design plays an important role. For China's ceramic factories, their product designs are not mature and they increasingly depend on design studios and institutions. Currently, some design institutions have emerged, but many companies are still willing to work with Italian and Spanish design institutions. Some Italian design institutions are doing well in the Chinese market. In the future, this part of the market will be better and better.

As China's ceramics industry has been changed so much, it's no longer about the past you saw previously. Many new opportunities exist in the revolution, which need worldwide ceramics industry insiders to participate and work together.