



# AN OVERVIEW OF WAX PRODUCTION, REQUIREMENT AND SUPPLY IN THE WORLD MARKET

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The productivity and demand of wax in the world market has been reviewed. The production and consumption of wax, candle and ranking of manufactures in the world market have also been discussed. The production capacity and importance of quantity of Chinese wax have also been a matter of evaluation. The complete development of wax products has resulted in good economic and social benefits around the world.

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## INTRODUCTION

In an oil refinery, wax is one of the important chemical materials. It is white to pale-yellow in colour, gelatinous, crystalline and water-insoluble substance. Its main content consists n-paraffin. Its carbon number, molecular weight, distillation range and density are 16-32, 300-540, 350 °C - 500°C and 0.880-0.915, respectively.<sup>1</sup> Wax plays an important role in the global industrial processes such as lighting, packaging, farming, chemicals, rubber, medicine and in homecare products, etc. *China* is number 1 in production and consumption of wax in the world. The production and consumption of wax in *China* has reached to a tune of 16 and 7.81 million tons respectively in 2011.<sup>2</sup>

In the present paper, the production, consumption and requirement of wax and candles and the manufactures ranking in the world market have been reviewed, with a fact of comparison between the production capacity and import quality of the *Chinese* wax.

## DISCUSSION

### The output and consumption of wax in the world

Fan Xiaoya<sup>3</sup> introduced it as one of the suppliers to the output and requirement of wax in the countries such as *America*, *Canada*, *China*, *West European* area, other *Asian* countries (excluding *China*), *South America* and some other parts of the world. Table 1 shows the use of wax and its products such as candle, packaging, and synthetic wood, hot-melt adhesive, rubber, antirust additive, soap wax, man-made wood, makeup and other such materials. The total consumption of wax at global level has reached up to 3025 kt. The production of candles has also reached 1470 kt, which was almost half of the total wax production in the world. Candles are very popular for their use in lightening and decoration. However, the output and percentage of makeup materials has been raised to 38 kt and 1.3%, respectively. Table 2 shows production and consumption of wax around the world. *USA* and *Canada* top the list in production and consumption the world that are 930 kt and 940 kt, respectively. The export quality production of wax in *China* has now reached up to 300 kt per year. The excess amount of wax around the world was 95 kt per year.

**Table 1.** Consumption of wax around the world (kt)

Products	America and Canada	China	West Europe	Asian other areas	South America	Other areas	Total	Percentage, %
Candle	130	450	290	210	180	210	1470	48.6
Packaging	410	22	75	64	30	35	636	21.0
Synthetic wood	110	15	70	17	30	15	257	8.5
Hot-melt adhesive	54	8	36	12	2	2	114	3.7
Rubber	36	8	30	120	6	140	102	3.4
Antirust additive	45	6	35	14	1	1	102	3.4
Soap wax		70					70	2.3
Man-made wood	54		3				57	1.9
Makeup	27	100	6	1	1	2	38	1.3
Others	74	20	350	20	10	20	179	5.9
Total	940	600	580	350	260	295	3025	

**Table 2.** Production and consumption of wax in the world (kt)

Countries	Production	Consumption	Supply and Demand
USA/Canada	930	940	Import 10
China	900	600	Export 300
West Europe areas	640	580	Export 60
Asian other areas	190	350	Import 160
South America	180	260	Import 80
World other areas	280	295	Import 15
Total	3120	3025	Excess 95

#### The consumption and requirement and manufactures ranking of the wax and candles around the world <sup>3</sup>

Table 3 shows the manufactures ranking of wax productivity around in the world. 24 manufactures are recorded till the end of the year 2011.

Total wax products amount has reached 62.93 million tons per year around the world. The wax output of CNPC and Sinopec in *China* was No.1 in the world. However, the wax output of Repsol and Cepsa Company in *Spain* only had 0.66 million tons.

Table 4 presents the consumption and requirement of wax and candle in 2011. *China* was one of the biggest wax production countries. However, the wax production of *Latin America* only had 2.60 million tons per year.

On the other hand *Asian* countries (excluding *China*) and *North America* have huge wax consumption market. They have a demand of about 12 million tons of wax production for their national markets. It has also been noticed that the consumption of candle in *China* was fourteen times of *North American* and *European* markets.

Table 5 shows production and import of *Chinese* wax. There were more distribution of waxes in Northeast of *China* such as *Yanshan*, *Dalian*, *Fushun*, *Jinxi* and *Daqing*. They were about half of the production of *Chinese* wax done by these areas collectively. It has also been noticed that the one fourth of the total *Chinese* wax production is done by those plants which are situated near seashore area. Food grade quality and completely refined wax were about 5% and 50% of *Chinese* total wax production, respectively.<sup>4</sup>

**Table 3.** Ranking of manufactures of wax products in the world (million tons)

Name of the Company	Countries and areas	Production
CNPC and Sinopec	China	16.33
ExxonMobil Corp.	USA, Canada and Europe	10.62
Shell Oil	Europe, Singapore and Malaysia	5.87
Sasol Wax	Europe and South Africa	5.45
Lukoil	Russia	3.45
Venezuela National Oil Company	Venezuela	2.12
IGI Company	USA and Canada	1.09
Petrobras	Brazil	1.60
H&R Chemisce	Germany	1.45
Flying J/BigWest Oil	USA	1.36
Calumet Lubricants Co.	USA	1.27
Naftowax	Poland	1.27
TOTAL	France	1.24
AGIP Petroli	Italy	1.24
Citgo Lubes & Waxes	USA	1.18
Petro-Canada Lubricants	Canada	1.20
Marathon Oil Corp.	USA	1.06
Nippon Siero Co.	Japan	0.85
BP,CORP.	England	0.82
Turkish Petroleum Company	Turkey	0.76
Sonneborn Products Company	USA	0.69
Ergon Regining Company	USA	0.69
Cepsa Company	Spain	0.66
Repsol Company	Spain	0.66
Grand Total (production)		62.93

**Table 4.** The consumption and requirement of wax and candles in the year 2011 (million tons)

Areas	Output	Consumption	Consumption of candle
North America	9.98	14.77	4.54
Europe	8.98	9.52	4.11
Latin America	2.60	5.32	2.66
Africa and the Middle East	-	-	3.05
Asia (including China)	20.5	19.81	4.60
China	16	7.81	59.90

**Table 5.** Production and import of Chinese wax (million tons)

Unit	Total output	Fully refined wax	Semi-refined wax	Food grade wax	Crude quality wax	Soap wax	Others	Import yield	Incremental yield
Yanshan	6.2367	0.2635	5.9672	0.0060				0.8100	2
Dalian	16.9049	3.6955	2.6429	5.0866	4.1347	1.3452		5.6456	3
Fushun	22.1638	5.4645	10.9573	0.2010	0.3275	5.2135		5.1944	15
Jinxi	3.2186		1.8001			1.4185		0.9557	
Daqing	13.0773	0.0140	12.6222	0.1779	0.2220	0.0552		8.9290	2
Gaojiao	10.8195	1.4019	6.4534		1.5655		1.3987		3
Jinan	1.0202				1.0202				
Luoyang	0.1541		0.1541						
Jingmen	7.5395		2.9824		0.7686		0.0324	1.4354	2
Maoming	8.1736		2.1812	0.0422		0.6720		4.3247	2
Lanzhou	2.8857		0.6064		0.7943	1.4850			10.5
Jiangnan	1.0429		0.9409		0.1020				
Qingdao	0.0007	0.0007							
Jilin	0.0829	0.0829							
Yumen	0.0643		0.0643						
Nangchong	0.4627		0.3594		0.1843				
Total	93.8478	10.9230	47.7318	5.5137	9.1191	10.1894	1.4311	27.2948	39.5

## CONCLUSION

Wax is used as high value product for energy reserve in the world. It not only provides various good products for general public, but increases petrochemical plant revenue also. It is an urgent need for *Chinese* scientists to expedite the technical innovation and advancements in good way so that one can improve the international competition ability of *Chinese* wax industries to satisfy market's requirement enterprises and to utilize wax sources in a reasonable.

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