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The Overview of Today’s Pine Chemical Industry in China

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The agenda to discuss

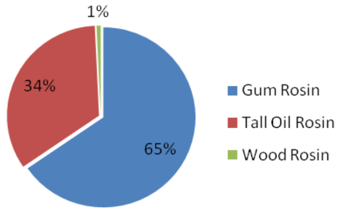
- The update of Chinese pine chemical industry;
- Development trend and market analysis;
- China, a big potential demand market for this industry;

Worldwide all rosins

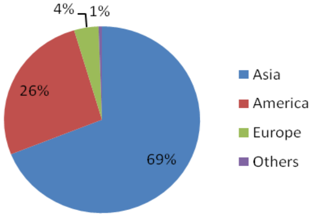
Worldwide to see, all rosin production and consumption in the past 30 years is About averagely moving in the range of 1.2 to 1.3 million tons, but its combination structure has been changing significantly, and it will keep changing heavily in the future affected by numbers uncertain factors.

If we see the past 30 years, it seems that CGR has been the only main factor Influencing the global pine chemical industry, and it could be still the one in next 10 years by one way or another.

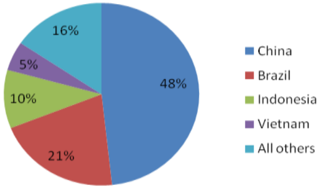
2018 Global All Rosin Production			
Gum Rosin	870,000	65.40%	
Tall Oil Rosin	450,000	33.80%	
Wood Rosin	10,000	0.80%	
Global Total	1,330,000.00	100%	



2018 Global Gum Rosin Production			
Asia	600,000	69%	
America	230,000	26.40%	
Europe	35,000	4%	
Others	5,000	0.60%	
Total	870,000	100%	



2018 Global Gum Rosin Production by Country			
China	420,000	48.3%	
Brazil	180,000	20.7%	
Indonesia	90,000	10.3%	
Vietnam	45,000	5.2%	
All others	135,000	15.5%	
Total	870,000	100.0%	

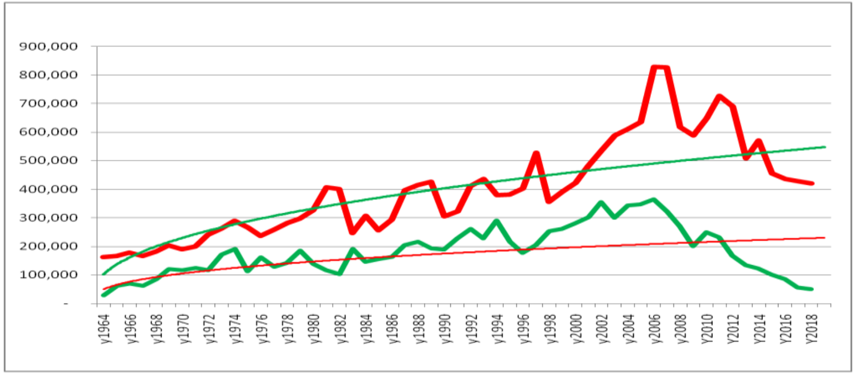


Chinese gum rosin indusrty

Chinese gum rosin industry has taken the down trend since year 2008 after reached up to the top in 2006 and 2007. Till 2018 gum rosin production output decreased 50% compare to 2008!

What happened to CGR industry in the past 10 years?

2018 Chinese Gum Rosin production			
		Y2017	Y2018
Guangxi		148,000	145,000
Guangdong		44,000	45,000
Yunnan		70,000	62,000
Jiangxi		82,000	81,000
Hunan		15,000	22,000
Fujian		39,000	35,000
Guizhou		5,000	4,500
Henan		1,000	1,500
Hubei		13,000	12,000
Anhui		9,000	9,000
Hainan		2,000	2,000
Others		1,000	1,000
Total		429,000	420,000



Province	Quantity 2018 (X1,000 kg)	Q'ty Y2006 （X1,000 kg）	Change %
guangxi	145	300	- 52%
guangdong	45	170	- 73%
yunnan	62	120	- 49%
jiangxi	81	85	- 5%
fujian	35	60	- 42%
hunan	22	30	- 27%
hubei	12	20	- 40%
others	18	43	- 58%
total	**420**	**828**	**- 49%**

Chinese gum rosin industry

Basically, it is about cost and competition.

In the past 10 years, Chinese GDP increased about 300%, from RMB 30,000 billion to 90,000 billion. The average per capita disposable income reached RMB39,251 Yuan for city dwellers and RMB 14,617 Yuan for rural residents, increased about 249% for city dwellers and 307% for rural residents accordingly compare to the year of 2008.

Obviously, the income level of tapping pine tree is not easy to match with people’s increased desires for their incomes.

Chinese gum rosin industry

Hard working condition and urbanization, draw away people from the tapping business, especially to Millennial generation.

Pine tree resources getting worse at aging and replacement.

Chinese gum rosin industry

Tapping productivity is lower due to cliffy mountains land and mixed / disordered pine trees. Brazilian tapping productivity is a about 3 times higher than that of chinese.

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Crude Gum Cost Comparison by country		Brazil	Argentina	Indonesia	Vietnam	China
Land Scape	unit	Flat & Engineering for tapping	Flat & Engineering for tapping	Hill & Engineering for tapping	Mountain & Engineering for tapping	Mountain & Plane plantation
每亩树株 Trees per MU	tree	70	70			30
采脂时间 Tapping time	month	10	8	9	10	8
割面数/劳力 Cutting numbers	Cut	8500	4000	1000	1000	1300
每割面年产脂量 yield/cut/year	kg	3.8	4	5	3.5	3
劳力成本 labor cost	USD/hour	4.5	3.34		1	2.5
劳力成本 labor cost	RMB/hour	27.9	20.708	5	6.2	15.5
年度亩均产量 yield/MU /year	kg	266	280			90
每劳力总产量 output per labor	kg	32300	16000	5000	3500	3900
按日均8小时计年度人工费用 income per laboe per year	RMB	55800	33132.8	10000	12400	21700
每劳力采脂面积比较 land area per labor	mu / labor	121	57			43
劳力成本 labor cost per kg	RMB/kg	1.73	2.07	2.00	3.54	5.56
综合生产效率中国比各国 Efficiency comparion		322%	268%	278%	157%	100%

Chinese gum rosin industry

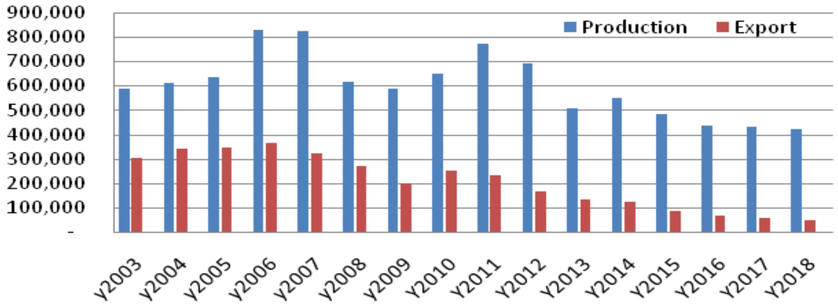
Higher cost of rosin and turpentine resulting less competitive in global market, and lower crude gum price remaining less people in forest; It becomes challenges to survive this business in china.

Chinese gum rosin industry

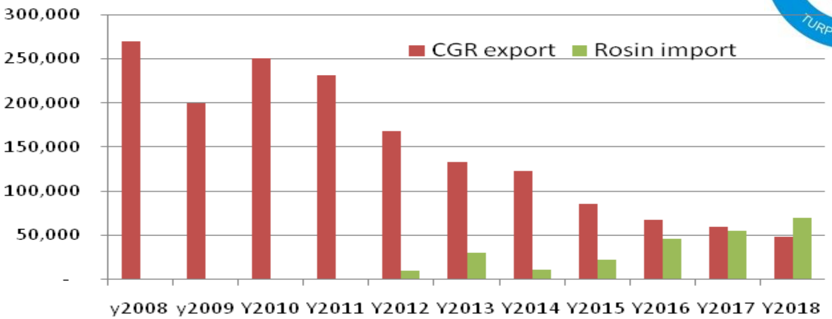
Substitutes coming from other regions and other industries, especially from hydrocarbon resins.

Strict environmental protection policies in china push the industry moving toward greener, environment friendly, and safety, means more investments and higher cost to business owners. It is difficult choice whether to continue or to give up and change business.

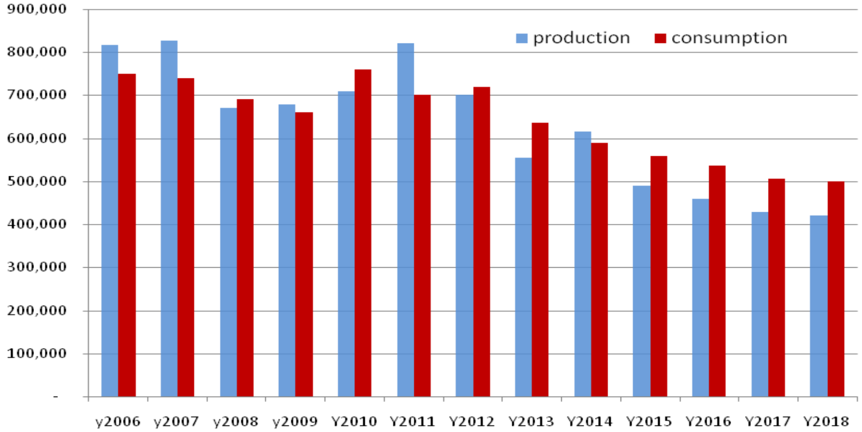
ChineseGum Rosin Production & Export （Y03-Y18）



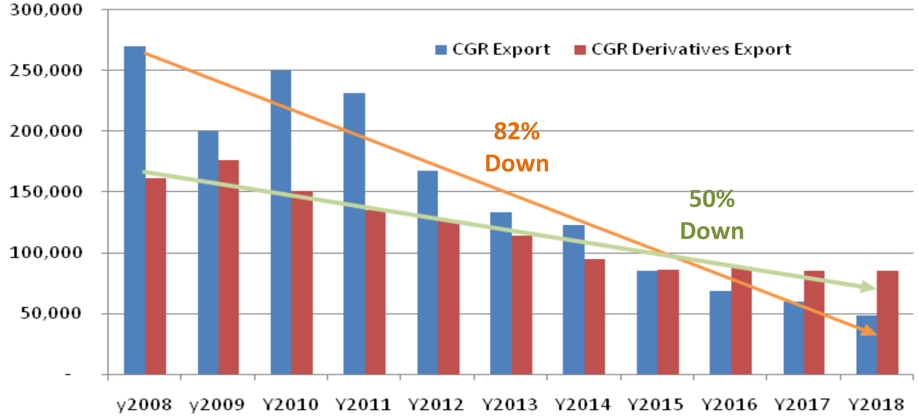
CGR Export Vs Rosin Import



CGR Production Vs Domestic Demand

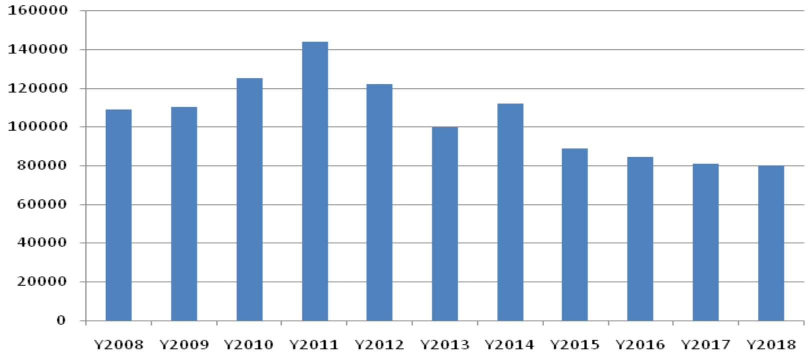


CGR Export and Derivatives Export

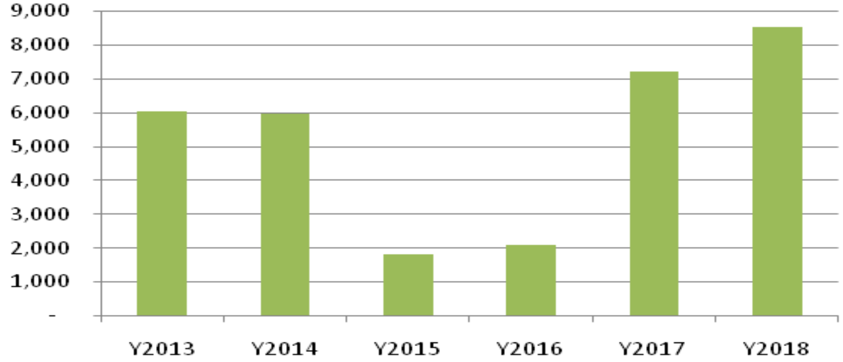


Chinese Gum Turpentine

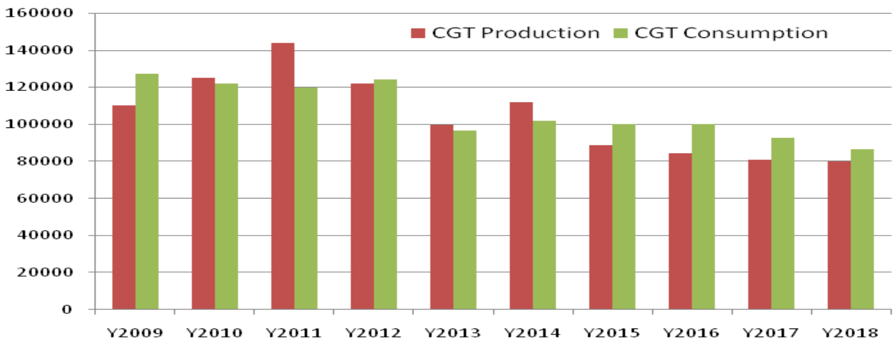
CGT Production (Y2008 – Y2018)



Turpentine import (2013-2018)



CGT Production Vs Consumption (2009-2018)



Development trend and market change

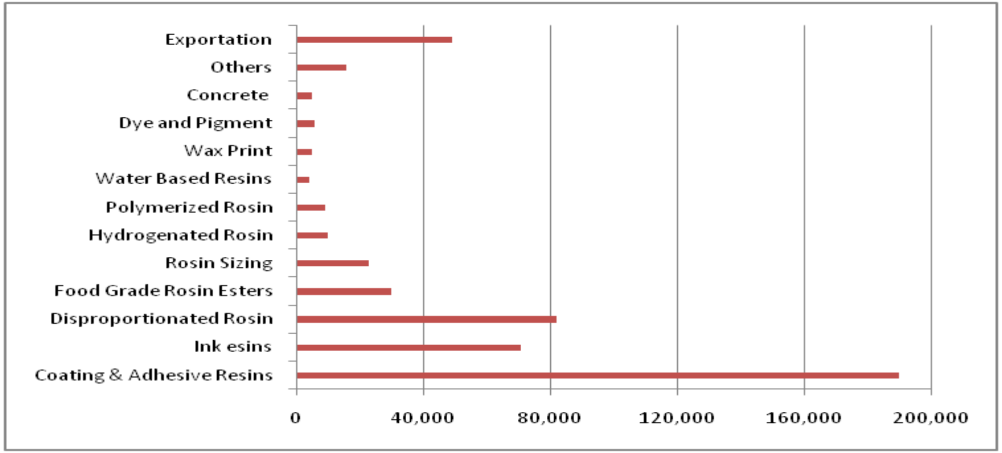
Although CGR output has decreased hugely, china still remained the largest gum rosin production country; in the meantime， china is still the largest rosin processing country with its 500,000 annual rosin consuming quantity.

The status of pine tree resources and labor resources will be continually getting worse, and more crude gum and rosin will be imported into china;

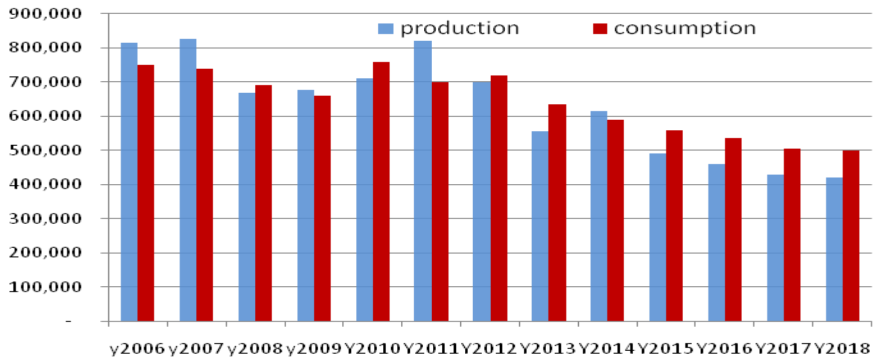
Reshuffle of rosin plants is on going in china, 60% to 70% of them has shut down in the past 5 years, from number of 600 down to below 200. it is forecasted that in next few years, another half of the existing 200 could be disappearing.

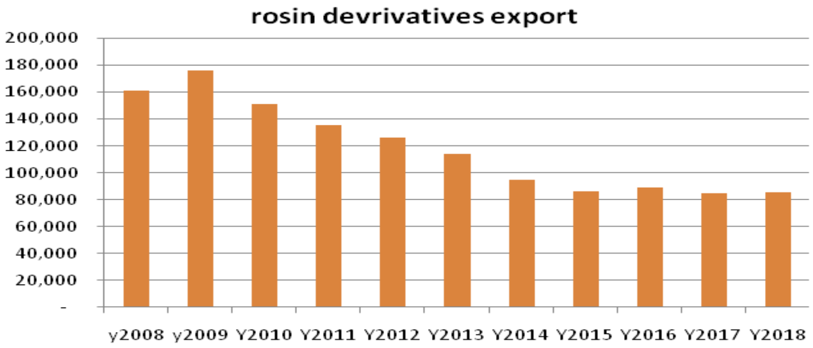
Integration through merge, recombination, will lead to the industry more centralization in different segment market

Development trend and market change



2018 Gum Rosin Consumption in China	
Coating & Adhesive Resins	190,000
Ink esins	71,000
Disproportionated Rosin	82,000
Food Grade Rosin Esters	30,000
Rosin Sizing	23,000
Hydrogenated Rosin	10,000
Polymerized Rosin	9,000
Water Based Resins	4,000
Wax Print	5,000
Dye and Pigment	6,000
Concrete	5,000
Others	16,000
Exportation	49,000
Total Demand	**500,000**





Opportunities at a big rosin demand market

It is clear that, china is a huge potential consumption market for world wide crude gum, rosin and also TOR. How to sell more products into china ? This is a popular question being asked.

First of all, credit! Most pine business companies that still existed today, they keep contract, so they earn contract. They also want to do business with anyone who are creditable;

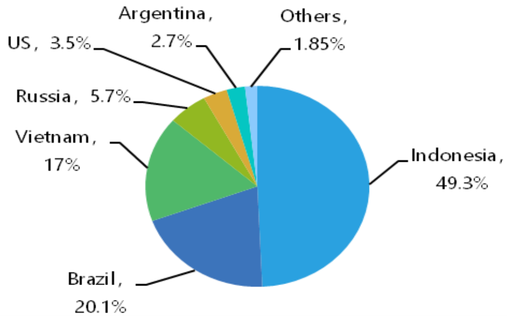
Specification and test method is the platform for business talk. We all need to improve the understanding to each other on quality issues when we have different background on raw materials, processing technology, property of products, and standards. It Is critical to reduce dispute and build up trusting.

Information exchange is a mutual benefit business activity. Rosin industry in china is totally running under market system, industry information service is well supplied. You can get almost all valuable information just pay member fee to IT service provider. More or less, chinese rosin market becomes likely more transparent market if we see and compare to other rosin markets world wide, it is helpful to make business choice in china.

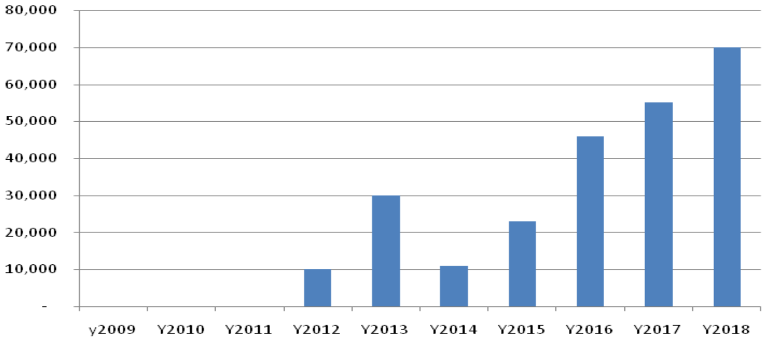
Opportunities in a big rosin demand market

I personally think that, CGR industry has great technology of gum rosin distillation and rosin derivatives processing, there are opportunities for other countries colleagues to introduce these technologies or jointly work together to improve your products quality and downstream products, to achieve long term win-win cooperation.

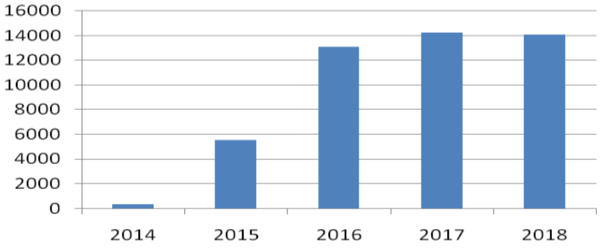
Y2018 Rosin Imported by Country



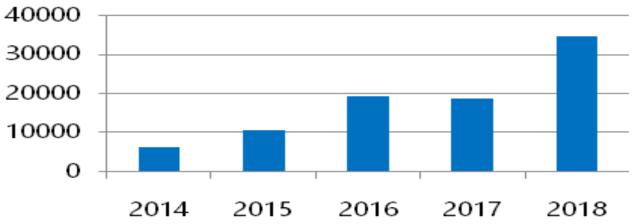
China Imported Rosin Development (Y2009-Y2018)



Imported Rsoin from Brazil Y2014-Y2018



Imported Rosin From Indonesia



Conclusion

Gum rosin industry in china will take down trend continually in future, but the industry structure will be more integrated, more efficiency, more competitive in market.

Affected by china economic growth rate slowing down, domestic market demand on rosin products will remain the weak trend, and market price as well. Turpentine market will be still very challenge.

Chinese demand of rosin and turpentine will be more internationalized, china still is the single largest import market and is going to be even bigger.

Hydrocarbon resins has exceeded rosin resins worldwide and in china as well, and it is forecasted 50% potential increasing in next 5 years in china for increasing supply of C5/C9 and its cost advantage.

200,000 tons import rosin volume into china a year will be not far away from now on.

China has been playing so important role in world pine chemicals industry in the past 30 years, and it will make more contribution in future to this valuable, green and environmentally friendly industry.

As long as the sun is rising, pine forest on the earth is there, therefore the industry is also there.

I want to appreciate Mr. Michel Baumassy from Forchem, Mr. Peitao Li from Songtao net, Mr. Guangjian Zeng from KOMO Tech, Mr. Zhaohui Wang from COFCO, for introduction of data from their previous presentations.

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Thank you !

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