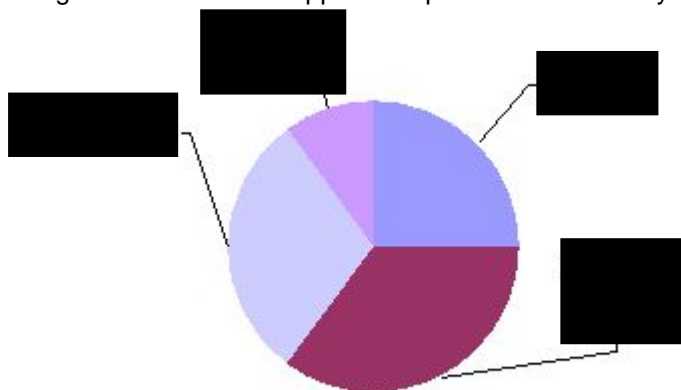


**Note: Key data/information in this page is hidden, while in the report it is not.**

## 2 Global market trend

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Figure 2-1 Glutamine application pattern worldwide by consumption volume, 2011



Source: CCM

....

## 3 Market size of supply in China (2008-2017)

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As of late 2012, the output has grown to about XXXX tonnes from XXXX tonnes in 2011, with the growth rate of about XXXX, mainly attributed to the increasing output from Meihua Group which has finished improving production lines of glutamine in 2011. Meanwhile, there is a new producer called XXXX. which has started glutamine production in 2012 with a capacity of XXXX.

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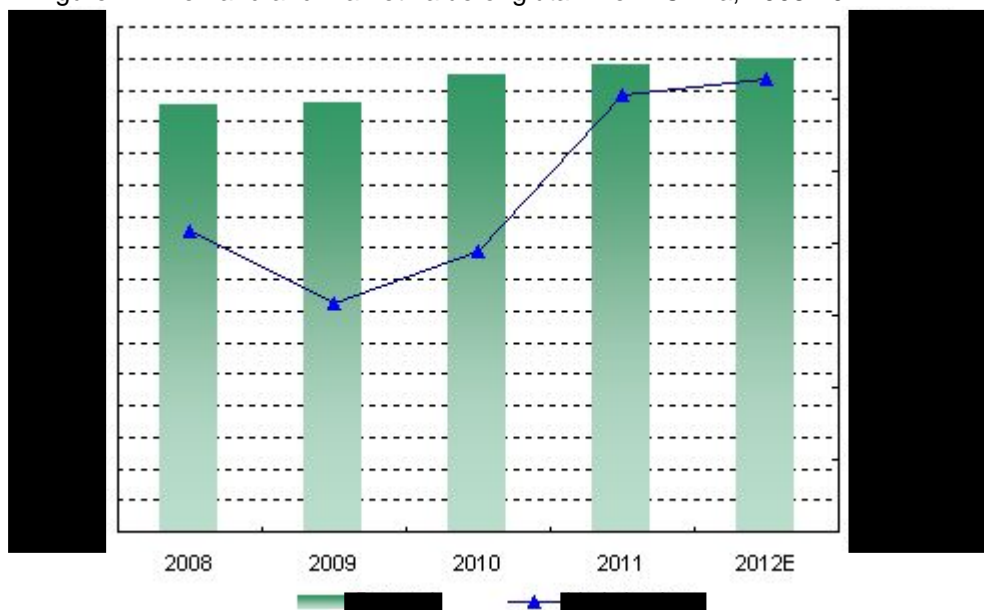
From 2008 to 2010, two major producers of glutamine, namely XXXX and XXXX, have suspended glutamine production since XXXX and 2009 respectively, which led to the XXXX output of glutamine in China from 2008 to 2010.

Although China's glutamine output has experienced XXXX from 2008 to 2011, the market value is enjoying XXXX since 2010. As of late 2012, China's market value of glutamine has XXXX to more than XXXX million from about XXXX million in 2009, with a CAGR of about XXXX. That's mainly caused by the XXXX market price of glutamine.

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#### 4 Market size of demand in China (2008-2017)

Figure 4-1 Demand and market value of glutamine in China, 2008-2012E



Note: Market value is based on the demand of glutamine in China.

Source: CCM

#### 5 Major producers (top 5) in China

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There are XXXX glutamine producers in China currently. Most of these glutamine producers seldom produce glutamine as their regular product, except XXXX

Table 5-1 Major glutamine producers (top 5) in China

No.	Company name	Abbreviation	Production site of glutamine	Status, 2012	Capacity 2012, t/a	Output 2012E, tonne	Output 2011, tonne	Technology
1	Meihua Group Co., Ltd.	Meihua Group	Inner Mongolia	Active	XXXX	XXXX	XXXX	Fermentation
2	XXXX	XXXX	XXXX	Active	XXXX	XXXX0	75	XXX
3	XXXX	XXXX	XXXX	XXXX	500	XXXX	XXXX	XXXX
4	XXXX	XXXX	XXXX	Idle	XXXX	0	0	Fermentation
5	XXXX	XXX	Shandong	XXXX	2,000	0	0	XXXX

Source: CCM

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## 8 Estimated manufacturing cost of fermentation technology in China

Table 8-1 Estimated production cost of glutamine fermentation technology in China, Nov. 2012

Item	Unit	Data	Remark
Total yield	%	XXXX	XXXX
Fermentation yield (conversion rate of sugar)	%	XXXX	XXXX
Purification yield	%	XXXX	XXXX
Culture time	Hours	XXXX	XXXX
Productivity	Tonne/container	XXXX	XXXX
Cost of main raw materials for fermentation	USD/t	XXXX	XXXX
XXXX	USD/t	464	XXXX
Cost of main raw materials for purification	USD/t	XXXX	XXXX
Cost of other raw materials for purification	USD/t	XXXX	XXXX
<b>Total utility cost</b>	<b>USD/t</b>	<b>XXXX</b>	
Utility cost for fermentation	USD/t	XXXX	XXXX
Utility cost for purification	USD/t	XXXX	XXXX
Wasterwater treatment	USD/t	XXXX	XXXX
Packaging cost	USD/t	XXXX	XXXX
By-products	USD/t	XXXX	XXXX
XXXX	<b>USD/t</b>	<b>9,089</b>	
XXXX	XXXX	XXXX	XXXX
XXXX	USD/t	2,611	XXXX
<b>Management cost</b>	<b>USD/t</b>	<b>XXXX</b>	
<b>Fixed cost</b>	<b>USD/t</b>	<b>XXXX</b>	XXXX
<b>Other costs</b>	<b>USD/t</b>	<b>XXXX</b>	
<b>Total cost</b>	<b>USD/t</b>	<b>XXXX</b>	

Source: CCM