I-2.1 Overview of AT88 project

BlueStar has planned to launch an AT88 project in Tianjin in 2008. Besides Tianjin Rhone-Planc, many other enterprises and industrial zones also have plans to produce feed grade methionine in China, but only BlueStar is taking actions to turn its plan into reality.

This project plans to be constructed on BlueStar's new chemical material base in Tianjin, which is expected to supply raw materials for BlueStar's future methionine production.

	Connación	
Project scale	Capacity	
	Expenditure,	
Sabadula	First stage	
Schedule	Second stage	
Technology so	urce	
	Getting approval	
	from	
Situation on		
July 23rd,	Facilities	
2008		
	Capital	
Construction		
Plan to finish	First stage	
	Second stage	
Comment		
Comment		

TableI-2.1-1 Overview of AT88 project

Source: CCM International Ltd.

I-2.2 Technology, research situation and cost structure

Raw material	Consumption	Price	cost
		14,800.00	
		10,000.00	
		4,170.00	
		8,000.00	
sulfuric acid(92.5%)/t		1,760.00	
gas/t		200.00	
Electricity/kW.h		0.58	
cycle water/t		6.20	
fresh water/t		6.20	

Table I-2.2-1 Consumption of raw materials for AT88

heavy fuel oil/t	2,000.00	
lpg/t	4,000.00	
nitrogen/ m3	1,000.00	
Tota		

I-3.3 Hydrogen cyanide

Hydrogen cyanide (abbreviated as HCN) is a chemical compound with chemical formula HCN. A solution of hydrogen cyanide in water is called hydrocyanic acid. Hydrogen cyanide is a colorless, very poisonous, and highly volatile liquid that boils at 26 °C (78.8 °F), slightly higher than room temperature. And it can only be transported through pipeline over short distances. Thus almost no HCN circulates in the market.

Table I-3.3-1 Production situation of Hydrogen cyanide in China

Pathway	Number of producers	Capacity '08	Share	Active producers
Acrylonitrile pathway				
Natural gas route	5			
Light oil cracking way	3			
Methanol route				
Total				

Source: CCM International Ltd.

II Import & export Situation of feed grade methionine

China's methionine import volum	ne in 2007 is	tonnes v	with tonnes per mor	nth.
DLM:MHA=				

Table II-1 Growth rate of methionine import volume in 2008(Jan-Aug) (tonne)

	MHA	MHA DLM		MHA:DLM
2007(Jan-Aug)				
2008(Jan-Aug)				
Growth rate				

Source: CCM International Ltd.

III Consumption of methionine in China

Nearly all the feed grade methionine are used in feed industry in China except tonnes are used to refined into food and pharmaceutical grade methionine.

Year	Feed	Share	Food and pharmaceutical	Share	Total	Growth rate of total
2005						
2006		99.12%				
2007						

Table III-1-1 Consumption structure of feed grade methionine in China in 2005~2007 (onne)

Source: CCM International Ltd.

III-2 Brief introduction to major downstream industries in China

III-2.1 Feed industry

There are two kinds of methionine used in feed industry: DLM and MHA.

Year	Formula feed	Concentrate feed	Premix feed	Total	Growth rate of total consumption in feed
2005					
2006					
2007					

Table III-2.1-1 Methionine consumption in feed in China, 2005~2007 (tonne)

Source: CCM International Ltd.

Table III-2.1-2 Methionine consum	nption in different f	eeds in 2007 (tonne)
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Feed	Pig	Poultry for egg	Poultry for meat	Aquatic products	Ruminant	Others	Total
Formula feed			24,893				
Concentrate feed							
Premixed feed							
Total							

Source: CCM International Ltd.

IV SWOT analysis and barriers for foreign company to invest in feed grade methionine in China



