

1.2 Production analysis on domestic vitamin E

Capacity of major producers

Table 1.2-1 Capacity of VE by enterprises in China, 2009-2012

No.	Producers	Abbreviation	Capacity'12(t/a)	Capacity'11(t/a)	Capacity'10(t/a)	Capacity'09(t/a)
1	Zhejiang NHU Co., Ltd.	NHU	████	████	████	████
2	Xinfa Pharmaceutical Co., Ltd.	Xinfa Pharmaceutical	████	████	████	████
3	Zhejiang Medicine Co., Ltd.	Zhejiang Medicine	████	████	████	████
4	PKU International Healthcare Group Southwest Pharmaceutical Co., Ltd.	PKU Southwest Pharmaceutical	████	████	████	████
5	DSM Vitamins (Shanghai) Co., Ltd.	DSM Vitamins	████	████	████	████
6	BASF Vitamins Co., Ltd.	BASF Vitamins	████	████	████	████
7	Others		████	████	████	████
8	Total		████	████	████	████

Source: CCM International

Since 2009, VE production has maintained relatively stable (except the capacity expansion of █████t/a of Xinfa Pharmaceutical Co., Ltd. but it has not been formally put into operation), due to the high requirements from raw materials to environmental protection and the technology in producing VE, which sets VE industry a relatively high barrier. The detailed reasons are listed as follows:

Raw materials: Since the synthesis process of raw materials is sophisticated and thus the supply is limited; small and medium-sized factories need to outsource, while several large VE manufacturers (such as Zhejiang NHU Co., Ltd., Zhejiang Medicine Co., Ltd., Xinchang Pharmaceutical Facto, etc.) can achieve self-sufficiency in raw materials. Currently, there is still no other ways to produce raw materials of VE. Therefore, capacity expansion or entering

this field becomes difficult.

Environmental Protection is also the reason of restricting the new production. In order to increase the capacity, it must acquire new Volume of Sewage Indicators, which is difficult in the case of the increasingly stringent environmental regulation.

Barriers to the production process: Besides the relatively long time of synthesis reaction of vitamin E, and complex production process, manufacturers also need to go through a series of process including the production-line construction, certification, debugging (this is the process where the barriers lie), etc. The expansion would need at least 1-2 years. For example Xinfu Pharmaceutical Co., Ltd. is still building a production line with capacity of [REDACTED] t/a in late 2011. It's expected to be officially put into operation in Oct. 2012. However, the company employees disclose that the products will not be sold this year, because the products have not reached the technical requirements and the company needs re-commissioning of the equipment.

On July 2011, Zhejiang Medicine Co., Ltd. bulletined the non-public issuance of stocks, a portion of which is used for the off-site transformation of vitamin E production line. At present the company's VE capacity is [REDACTED] t/a with production bases in Zhejiang Province: one in Xinchang City and the other in Paojiang of Shaoxing City. Now it's intended to build a biological medicine production base in Zhejiang Shaoxing Binhai New Town Biomedical Industry Park. After the completion of medicine production base, the capacity of high content vitamin E can reach [REDACTED] t/a.

The company will have VE capacity of [REDACTED] t/a using the synthetic processes of trimethyl hydroquinone diester Isophytol (VE-TQ) in 2012. The first phase with capacity of [REDACTED] t/a of VE transformation is now complete and the remaining will be completed in 2012. It will gradually increase its production according to market demand,

Table 1.2-2 Output of VE by enterprises in China, 2008-2011, tonne

No.	Company Name(abbreviation)	Output'11	Output'10	Output'09	Output'08
1	NHU	■	■	■	■
2	Xinfa Pharmaceutical	■	■	■	■
3	Zhejiang Medicine	■	■	■	■
4	PKU Southwest Pharmaceutical	■	■	■	■
5	DSM Vitamins	■	■	■	■
6	BASF Vitamins	■	■	■	■
7	Others	■	■	■	■
8	Total	■	■	■	■

Source: CCM International

In recent years, the VE production of Zhejiang Medicine Co., Ltd. and Zhejiang NHU Co., Ltd. accounts for ■ of the total in China. In the 2012 production-base-transfer program, Zhejiang Medicine Co., Ltd. plans to expand its capacity and introduce VE-TQ technology, a new technology that can save the cost of raw materials by ■ as well as the wastewater and exhaust emission by ■. Zhejiang NHU Co., Ltd., which already had capacity of VE ■ t/a using VE-TQ production process as early as 2009, will continue to promote this new process in other plants of Zhejiang NHU Co., Ltd. The capacity expansion, process improvement and the raw-material self sufficiency will further consolidate the leading position of Zhejiang Medicine Co., Ltd. and Zhejiang NHU Co., Ltd..