

II-1 Current Situation of Facilities

There are more than 500 sets of ammonia installations in about 400 ammonia producers in China, with the total capacity of 47,500KT/year in 2005 approximately.

Table II-1.1 Capacity distribution of ammonia in China

Classification	Average Capacity (KTs/a)	Numbers of Producers	Capacity (KTs/a)	Percentage
Large Enterprise	>=300	■	■	■
Middle Enterprise	100~300	■	■	■
Small Enterprise	<100, average 60	■	■	■
Total	/	■	47,500	100.00%

II-1.1 Large-scale Installations and Top Producers

Most of the installations in large ammonia enterprises are introduced. The technologies vary according the different kinds of raw material being used in the urea production.

The three major kinds of raw materials being used for ammonia production in China are natural gas, coal and residue oil. Among the top 35 producers, 17 of them use natural gas as the raw material, 17 use coal and only 1 producer, that is, Ningxia Petrochemical uses residue oil as the raw material.

In fact, there used to be some producers using residue oil as the raw material. However, because of the high cost of oil route, some producers have changed their raw materials from oil to gas or coal in the past years, such as Sinopec Corp. Zhenhai Refining & Chemical Co., Limited and Urumchi Petrochemical.

Even Ningxia Petrochemical is changing their raw material from oil to gas now.

Sinopec Jiujiang Company Ltd. uses bitumen as the raw material now.

The capacity of top 35 producers accounts for about one third of the total capacity in China and the capacity of these top 35 producers in 2005 is 15,750KT/year.

Most of their ammonia products are used to produce urea.

Table II-1.1.1 Top producers of ammonia in China-1

No.	Company Name	Capacity '05 (MTs)	Output'05 (MTs)	Raw material	Technology
1	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Kellogg2, Braun
2	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Kellogg, ICI's AMV
3	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Domestic technology
4	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Domestic technology
5	[REDACTED]	[REDACTED]	[REDACTED]	Oil and Gas	Texaco, Linde, Tops
6	[REDACTED]	[REDACTED]	[REDACTED]	Oil to gas	Kellogg, Tops, Texaco, Braun
7	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Domestic technology
8	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Kellogg, Braun
9	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Domestic
10	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Lurgi, Casale, Domestic
11	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Kellogg, TEC, Tops
12	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Kellogg, Casale
13	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Domestic technology
14	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Kellogg
15	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Domestic technology
16	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Domestic technology
17	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Texaco
18	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Domestic technology, GSP
19	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Kellogg, Tops
20	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Texaco, Tops, GSP
21	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Shell
22	[REDACTED]	[REDACTED]	[REDACTED]	Oil to gas	Kellogg
23	[REDACTED]	[REDACTED]	[REDACTED]	bitumen	Kellogg, Shell, Linde
24	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Texaco
25	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Kellogg, Braun
26	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Texaco
27	[REDACTED]	[REDACTED]	[REDACTED]	Gas	Udhe, ICI'AMV
28	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Texaco
29	[REDACTED]	[REDACTED]	[REDACTED]	Coal	Kellogg

II-2.3 Technologies Taking Natural Gas and Light Oil

Most of the installations taking gas route in China are using technologies introduced from abroad, such as the technologies of Kellogg, Braun, Tops, Casale and AMV. Among these technologies, Kellogg, Braun, Tops are used widely.

➤ Kellogg of America

In 1953, the first installation taking natural gas as the raw material to produce ammonia was built by Kellogg Corporation. Kellogg Corp. cooperated with BP Corp., who is mainly devoted to the field of the ruthenium catalyst to develop catalyst for ammonia production.

KAAP (Kellogg Advanced Ammonia Process) , KRES and KEAP are Kellogg's three major technologies.

The capacity of single installation adopting Kellogg technology has reached 1,500MTs/day.

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In China, there are 17 sets of installations using Kellogg technology at present.

Table II-2.3.1 List of ammonia producers using Kellogg technology in China

No.	Company Name
1	[REDACTED]
2	[REDACTED]
3	[REDACTED]
4	[REDACTED]
5	[REDACTED]
6	[REDACTED]
7	[REDACTED]
8	[REDACTED]
9	[REDACTED]
10	[REDACTED]
11	[REDACTED]
12	[REDACTED]
13	[REDACTED]
14	[REDACTED]
15	[REDACTED]
16	[REDACTED]