

CHEMICAL PROFILE

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Dimethylaminoethyl Acrylate

USES

Dimethylaminoethyl acrylate (ADAME) is a water-soluble monomer, 95% consumed in the production of quaternaries, over 99% for dimethylaminoethyl acrylate methyl chloride (AETAC), almost all used in the manufacture of cationic polyacrylamides. Major producers are forward integrated to polymer. About 54% of global ADAME is used in waste and wastewater treatment, 27% in pulp/paper, 5% in cosmetics/personal care, 4% in petroleum (mostly drilling fluid) and 2% each in mining and soil conditioning. It is also used in textile/fiber/leather products, coatings, photography, process industries and homopolymer. Water management is the dominant segment in the United States and Western Europe, while paper uses dominate the Japanese market. Water management and paper uses are the major segments in Asia Pacific.

SUPPLY/DEMAND

Global capacity for ADAME stood at 210,000 ton/year in 2013, 38.6% in Asia Pacific, 30% in Western Europe, 24.8% in the US, and 6.7% in Japan. China is the largest producer in the world with a capacity of 80,900 ton/year. China is also the biggest ADAME consumer with 64,000 ton/year, followed by 46,000 ton/year in Western Europe, 40,000 ton/year in the US and 10,600 ton/year in Japan.

PRICING

Because of captive use, ADAME price is hard to verify in international market except in China where the merchant market is relatively large. The price in China in 2Q 2014 was negotiated between ¥26/kg and ¥30/kg. The prices in the US and Western Europe are higher by 15-20%.

TECHNOLOGY

There are two main routes leading to ADAME. The first one involves the reaction of dimethyl ethanolamine with excess methyl acrylate on dibutyltin oxide or tetrabutyl titanate catalyst in a tank reactor. The second process uses ethyl acrylate as raw material in a solvent on dibutyltin oxide catalyst in a packed tubular reactor.

HEALTH and SAFETY

ADAME is a hazardous chemical which should be handled with care. In aquatic organisms, it is very toxic to algae. For fish and invertebrates, it is toxic after short-term exposure and harmful after long-term exposure. ADAME and its hydrolysis products, 2-dimethylaminoethanol and acrylic acid, are biodegradable.

OUTLOOK

Global demand growth is forecast at 6.3%/year to 2018, the highest growth rates being expected in China (9.1%/year). The growth rate in other regions will be in 3-4%/year range in the US and Western Europe, 2% in Japan and about 3-4% in the remaining regions.

The use in water management will be the fastest growing market segment, 10%/year in China and 8% globally, followed by pulp/paper at 6%/year.

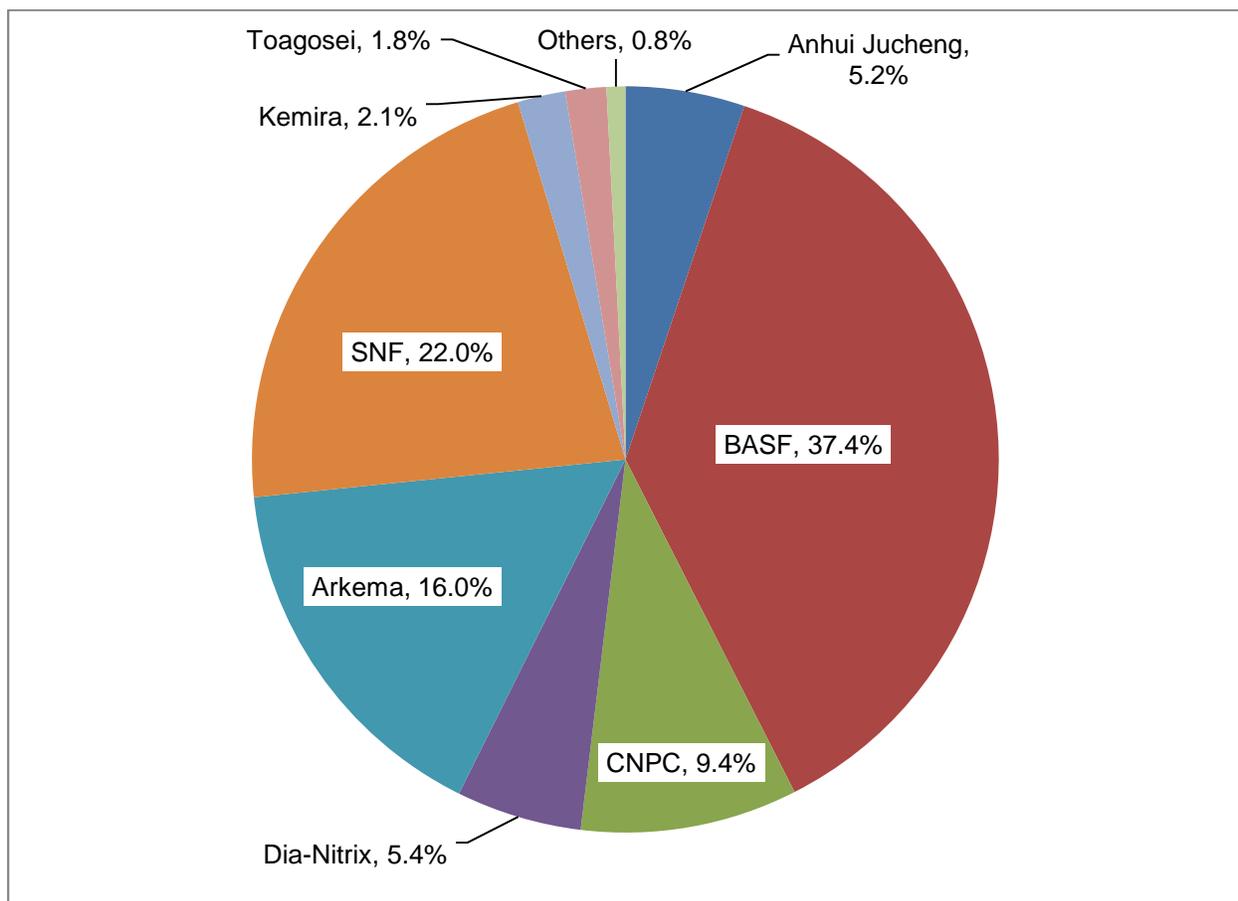
New projects are mainly being brought on-line by BASF, SNF, Arkema and CNPC, the main players in the ADAME market. No shortage of ADAME is expected by 2018.

MAJOR GLOBAL ADAME CAPACITY, '1000 TON/YEAR(*)

Company	Location	Capacity
Anhui Jucheng Fine Chemicals	Suixi EDZ, China	10.0
Arkema	Carling, France	32.0
BASF	West Memphis, AR, USA	22.0
BASF	Ludwigshafen, Germany	7.0
BASF	Bradford, England	20.0
BASF	Nanjing, China	35.0
CNPC	Daqing, China	20.0
DIA NITRIX	Sakadie, Japan	10.0
Kemira	San Giorgio, Italy	3.5
SNF	Riceboro, GA, USA	30.0
SNF	Taixing, China	15.0
Toagosei	Tsurusaki, Oita, Japan	3.5

(*) Over 2 kt

GLOBAL MARKET SHARES FOR ADAME IN 2013



For more information about plant, market and site-specific/technology-specific investment and production cost data for ADAME and some 1000 more chemicals, please send your inquiries to trantech@chemplan.biz.