

## CHEMICAL PROFILE

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# Dimethyldiallyl Ammonium Chloride

## USES

Dimethyldiallyl ammonium chloride (DMDAAC) is a water-soluble monomer, 85% consumed in the production of homopolymer and 10% as comonomer of polyacrylamide. DMDAAC is also used as modifier of synthetic resin and as additive to chemicals. Major producers are forward integrated to polymer. About 30% of global DMDAAC is used in waste and wastewater treatment, 26% in pulp/paper, 15% in water treatment, 6% in cosmetics/personal care, 4% in petroleum (mostly drilling fluid), 3% each in textile dyeing/finishing and 2% in photography. Water management is the dominant segment in the United States and Western Europe, while paper uses dominate the Japanese market. Water management and pulp/paper uses are the major segments in Asia Pacific.

## SUPPLY/DEMAND

Global capacity for DMDAAC stood at 108,000 ton/year in 2013, 50.5% in the US, 40% in Asia Pacific, 5.6% in Japan, 4.2% in Western Europe. US is the biggest DMDAAC consumer with 42,000 ton/year, followed by China with 34,800 ton/year, Western Europe with 10,100 ton/year and Japan with 5,900 ton/year.

## PRICING

Because of captive use, DMDAAC 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 ¥17/kg and ¥21/kg. The prices in the US and Western Europe are higher by 10-15%.

## TECHNOLOGY

DMDAAC is prepared from dimethyl amine and excess allyl chloride, followed by stripping, separation and scrubbing with caustic. Both continuous and batch operations are practiced in industry

## HEALTH and SAFETY

DMDAAC is relative safe with low toxicity after single ingestion and virtually nontoxic after a single skin contact. It is acutely harmful to aquatic organisms. DMDAAC has long lasting adverse effects to aquatic life. Accumulation in organisms is not to be expected.

## OUTLOOK

Global demand growth is forecast at 6.8%/year to 2018, the highest growth rates being expected in China (11%/year). The growth rate in other regions will be in 4-5%/year range in the US and Western Europe, 2.8% in Japan and about 3-4% in the remaining regions.

The use in water management will be the fastest growing market segment, 11%/year in China and 8% globally, followed by pulp/paper at 6%/year.

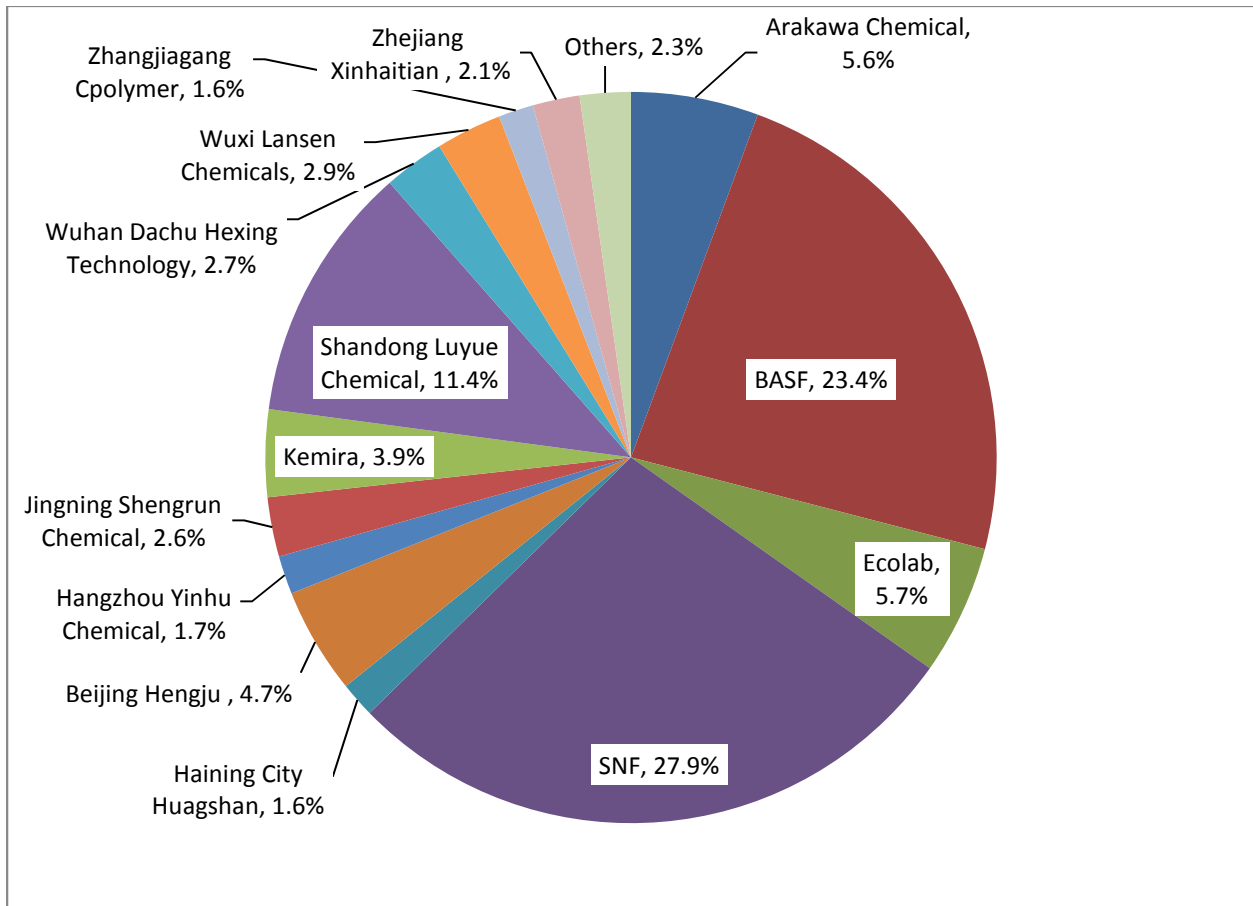
A new plant with 13,000 ton/year capacity will be brought on stream by SNF in late 2014 in China. New capacity will be needed after 2016.

### **MAJOR GLOBAL DMDAAC CAPACITY, '1000 TON/YEAR<sup>(\*)</sup>**

<b>Company</b>	<b>Location</b>	<b>Capacity</b>
ARAKAWA	Osaka, Japan	6.0
BASF	West Memphis, AR, USA Ludwigshafen, Germany	20.0 4.5
Beijing Hengju Oilfield Chemical	Beijing, China	5.0
ECOLAB	Garyville, LA, USA	6.0
Jingning Shengrun Chemical	Jining, China	3.0
Kemira (Jiangsu Jinxing Cleaning)	Suqian, China	4.5
Shandong Luyue Chemical	Feicheng City, China	12.5
SNF	Pearl River, LA, USA Port Bienville, MS, USA Taixing, China <sup>(1)</sup>	12.0 16.4 13.0
Wuhan Dachu Hexing Technology	Hubei, China	3.0
Wuxi Lansen Chemicals	Yixing, China	4.0
Zhejiang Xinhaitian Biological Tech	Taoyan, China	2.5

(\*) Over 2 kt (1) New for late 2014

## GLOBAL MARKET SHARES FOR DMDAAC IN 2013



For more information about plant, market and site-specific/technology-specific investment and production cost data for DMDAAC and some 1000 more chemicals, please send your inquiries to [trantech@chemplan.biz](mailto:trantech@chemplan.biz).