CHEMICAL PROFILE

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Poly Dimethyldiallyl Ammonium Chloride

USES

Poly dimethyldiallyl ammonium chloride (PDMDAAC) is a water-soluble monomer. About 30% of global PDMDAAC is used in wastewater treatment, 26% in pulp/paper, 16% in water treatment, 6% in each in textile dyeing/finishing, 4% each in cosmetics/personal care, petroleum (mostly drilling fluid) and mining, and 3% 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/DEMAD

Global capacity for PDMDAAC stood at 98,500 ton/year in 2013, 44.3% in the US, 36.5% in Asia Pacific, 10% in Western Europe and 5.6% in Japan. US are the biggest PDMDAAC consumer with 33,000 ton/year, followed closely by China with 28,400 ton/year, Western Europe with 11,600 ton/year and japan with 4,400 ton/year.

PRICING

The price of PDMDAAC depends on its active ingredient content and purity. The price in China in 2Q 2014 were negotiated between ¥26/kg and ¥30/kg. The prices in the US and Western Europe are higher by 10-15%.

TECHNOLOGY

PDADMAC is synthesized by free radical polymerization of DADMAC in water with organic peroxide used as a catalyst. It is usually delivered as a liquid concentrate having a solids level in the range of 10 to 50%.

HEALTH and SAFETY

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

OUTLOOK

Global demand growth is forecast at 6.7%/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, 2.5% in Japan and about 3-5% 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.

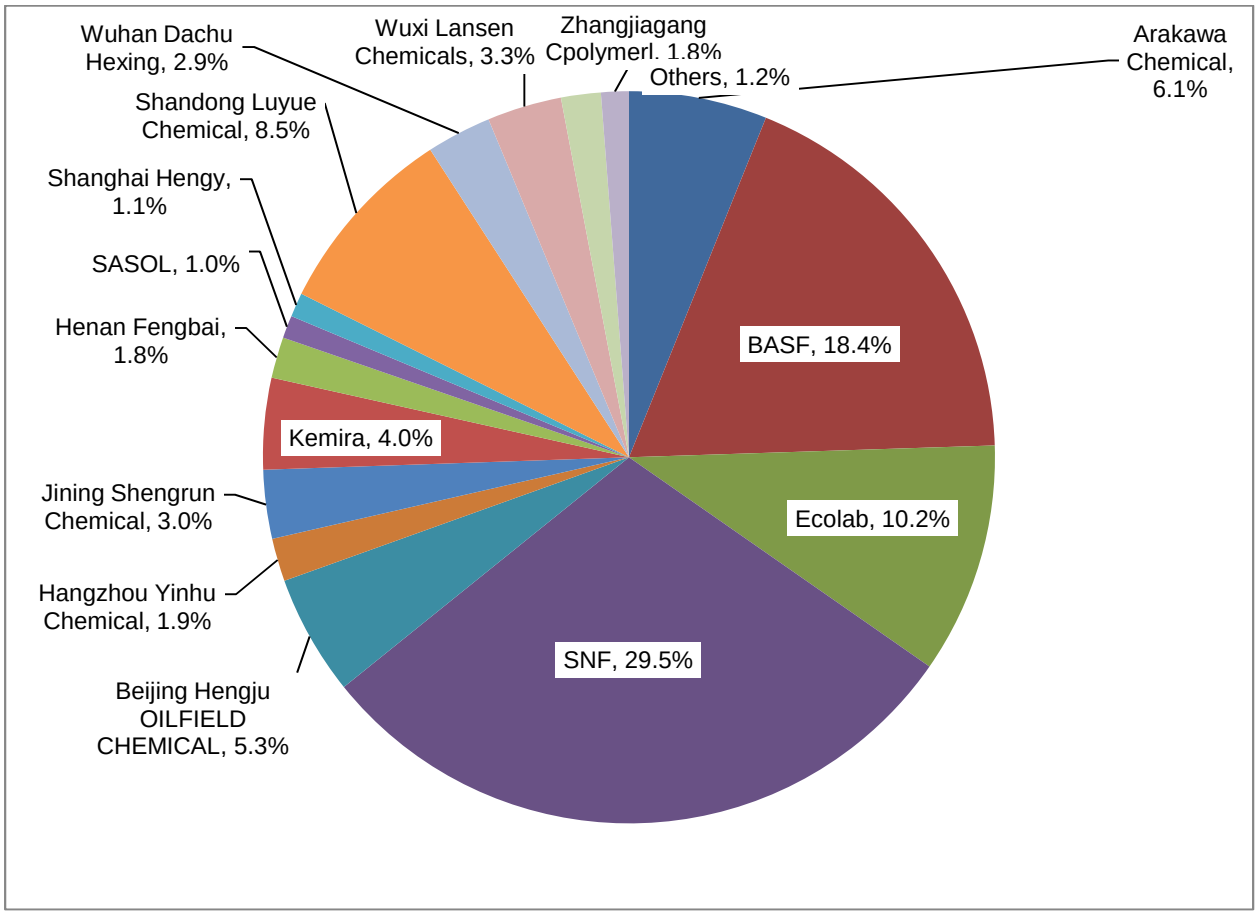
A new plant with 12,400 ton/year capacity will be brought on stream by SNF in late 2014 in China. New capacity will be needed after 2017.

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

Company	Location	Capacity
Arakawa Chemical	Osaka, Japan	5.5
BASF	West Memphis, AR, USA	9.1
BASF	Bradford, England	4.0
BASF	GER	2.5
Beijing Hengju Oilfield Chemical	Beijing, China	5.0
Ecolab	Grayville, LA, USA	5.4
Ecolab	Carson, CA, USA	5.0
Hangzhou Yinhu Chemical	Shanghai, China	2.0
Henan Fengbai Commercial	Henan, China	2.0
Jining Shengrun Chemical	Jining, China	3.0
Kemira	Suqian, China	4.0
Shandong Luyue Chemical	Feicheng City, China	10.0
SNF	Taixing, China(1)	12.4
SNF	Pearl River, LA, USA	11.3
SNF	Port Bienville, MS, USA	12.0
SNF	Andrezieux, France	10.0
Wuhan Dachu Hexing Technology	Hubei, China	3.0
Wuxi Lansen Chemicals	Yixing, China	4.0
Zhangjiagang Cpolymer Chemical	Zhangjiagang, China	2.0

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

GLOBAL MARKET SHARES FOR PDMDAAC IN 2013



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