

CHEMICAL PROFILE: BUTYL ACRYLATE

By Aligoli Amir Nazmi Afshar, TranTech Consultants, July 2014

USES

Butyl acrylate is used chiefly to make acrylic polymers and polyethylene (PE). It is used in formulating paints and dispersions for paints, inks, and adhesives. Other uses include cleaning products, antioxidant agents, amphoteric surfactants, aqueous resins, elastomers and dispersions for textiles and papers.

In 2013, 43.7% of global demand came from coatings, 17% as a comonomer in PE, 17% in adhesives, 10% in textiles, 4.7% in pulp/paper, 3.8% in polish/stabilizer, 2% in printing/dyeing, and 1.8% other uses.

SUPPLY/DEMAND

Global Capacity stood at 3.45m tons/year in 2013, according to TranTech estimates, with 1.89m tons/year in Asia Pacific, 694,000 tons/year in the US, 450,000 tons/year in Western Europe, 80,000 tons/year in Africa, 71,000 tons/year in Eastern Europe and 60,000 tons/year in Latin America.

Asia Pacific is the largest consumer at about 1.44m tons/year, followed by the US at 476,000 tons/year and 446,000 tons/year in Western Europe. Japan, Latin America, Asia/Middle East, Eastern Europe consumes 131,000 tons/year, 120,000 tons/year and 80,000 tons/year, respectively. The demand in other regions was below 60,000 tons/year each. China had capacity and output of 852,000 tons/year and 733,000 tons/year, with demand exceeding 1.2m tons/year.

PRICING

The price of butyl acrylate depends on its color and purity. Most common butyl acrylate has an American Public Health Association color index of less than 10 and minimum purity of 99.5%. China prices in quarter two were between ¥13.7-14.2/kg (including 17% VAT). Contract prices in May for the US and Germany were \$2.2-2.4/kg and €01.5-1.6/kg, respectively.

TECHNOLOGY

Butyl acrylate is made from ester grade acrylic acid and small excess of butanol at elevated temperatures extracted at a yield of 94-97%. It is usually integrated to an acrylic acid facility. All the processes are based on the same principle of esterification; there are different catalysts, conditions and systems with variation in catalyst type, recycle of alcohol and quality of finished product. Available technology is limited. Most

plants use Nippon Shokubai process and another licensor is Mitsubishi. BASF, however, the largest scale manufacture of acrylic acid and esters, does not release its technology.

OUTLOOK

Global demand growth is forecast at 5.5%/year to 2018. Regionally, consumption will rise 8%/year in Asia Pacific, 5%/year in Asia/Middle East, 1%/year in Japan and about 3%/year for rest of the world.

MAJOR GLOBAL BUTYL ACRYLATE CAPACITY '000 TONS/YEAR, 2013^(*)

Company	Location	Capacity
American Acryl ⁽¹⁾	Bayport, TX, USA	60.00
Arkema	Carling, France	120.00
	Clear Lake, TX, USA	175.00
BASF	Freeport, TX, USA	50.00
	Ludwigshafen, Germany	200.00
BASF-Petronas JV	Guaratingueta, Brazil ⁽²⁾	60.00
BASF-Petronas JV	Kuantan, Malaysia	165.00
BASF-Sinopec JV	Nanjing, China ⁽³⁾	160.00
CNPC (Jilin)	Jilin, China	60.00
CNPC (Lanzhou Pet)	Lanzhou, China	90.00
Dow Chemical	Taft, LA, USA	100.00
	BSL, Germany	60.00
	Deer Park, TX, USA	309.00
Formosa Plastics	Mailiano, Taiwan	40.00
	Ningbo, China	145.00
Gazprom Salavat	Salavat, Russia ⁽⁴⁾	80.00
Idemitsu Petrochemical	Nagoya, Japan	30.00
Jiangsu Jurong-Arkema	Yancheng, China ⁽⁵⁾	209.00
LG Chemical	Yeosu, South Korea ⁽⁶⁾	180.00
Mitsubishi Chemical	Yokkaichi, Japan	70.00
Momentive	Sokolov, Czech Republic	40.00
Nippon Shokubai	Cilegon, Indonesia	40.00
	Himeji, Japan	100.00
Other China Producers	Several Locations, China	100.00
SASOL	Sasolburg, South Africa	80.00
Shandong Kaitai	Zibo, China	80.00
Shanghai Huayi	Shanghai, China ⁽⁷⁾	176.00
Shenyang Chemical	Shenyang, China	160.00
Sibur	Dzerizhinsk, Russia	31.00

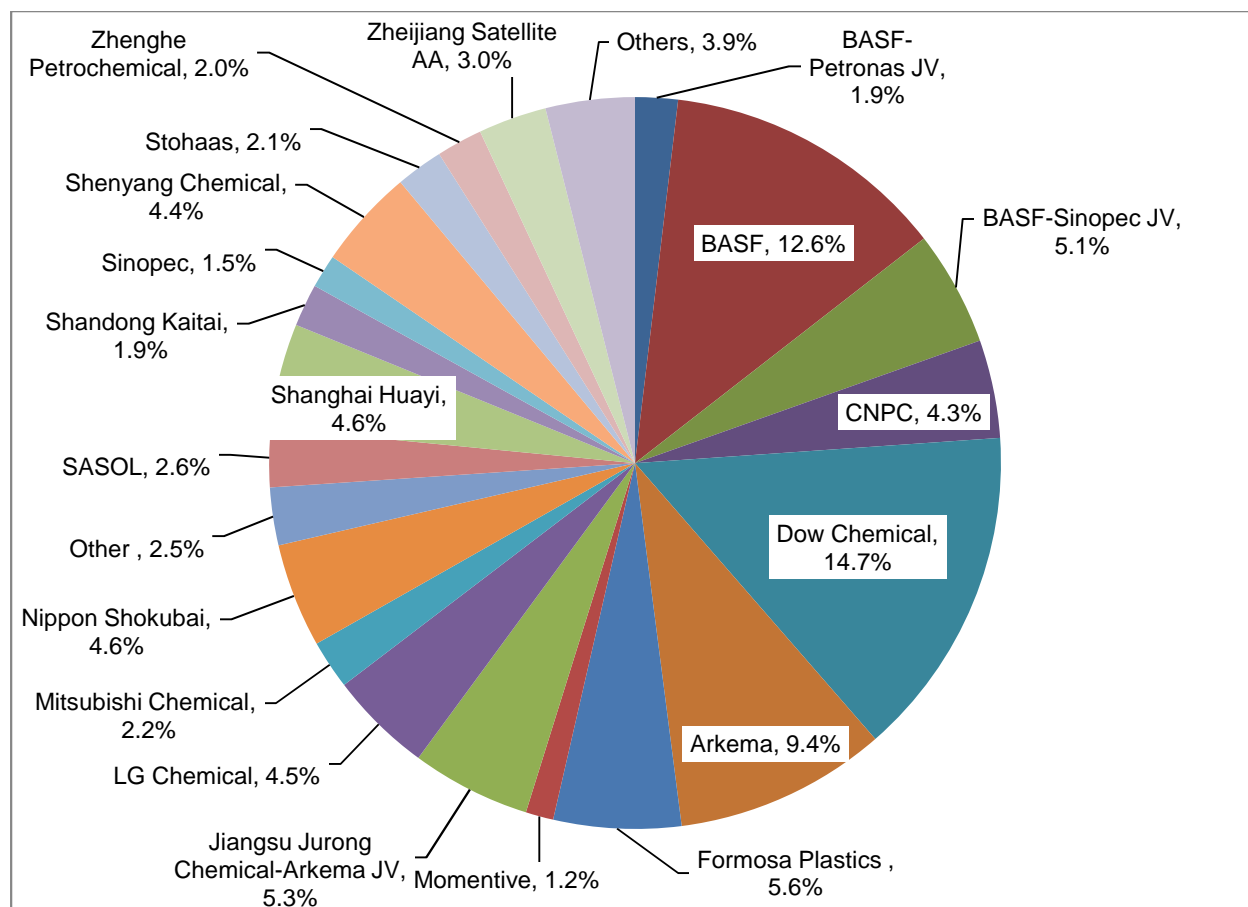
Singapoue Acrylics	Pulau Sakra, Singapore	30.00
Sinopec (Beijing Eastern)	Beijing, China	85.00
Stohaas	Marl, Germany	70.00
TASNEE	Al Jubail, Saudi Arabia ⁽⁸⁾	220.00
Zhejiang Satellite Acrylic	Jiaxing, China ⁽⁹⁾	110.00
Zhenghe Petrochemical	Guangrao, China	80.00

(1) Nippon Shokubai-Arkema JV; (2) Expansion to 110 kt in 2016?; (3) Expanded to 320 kt in 4/2014; (4) New 2014;

(5) Expansion to 418 in 2014/2015; (6) Expansion to 240 in 2014/2015; (7) Expansion to 264 in 2015/2016; (8) Started in 5/2014;

(9) Expansion to 220 kt in 2015/2016; (*) Over 10 kt

GLOBAL MARKET SHARES FOR BUTYL ACRYLATE IN 2013



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