

CHEMICAL PROFILE: FORMIC ACID

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USES

The largest use, accounting for about 34% of global demand, is in animal feed, 19% as a silage additive and 15% as a preservative. Other major uses are 32% in leather tanning, 13% in textile dyeing and finishing, 9% as an intermediate in pharmaceuticals (5%) and insecticides/pesticides (4%), 4% in rubber products, 2% in coatings and 1% each in drinks as a preservative, drilling fluids, construction, plasticizers and cosmetics/personal care.

SUPPLY/DEMAND

Global capacity was 697,000 ton/year in 2013, with 364,000 ton/year in Asia Pacific (excluding Japan), 310,000 ton/year in Western Europe and 22,700 ton/year in Asia Middle East. Asia Pacific is the largest consumer at 294,000 ton/year, followed by Western Europe at 175,000 ton/year. Asia Middle East, Latin America, and the US consume 28,000 ton/year, 26,000 ton/year and 20,000 ton/year, respectively. Global demand in 2013 was 579,000 ton/year.

BASF will start a 50,000 ton/year plant in the second of 2014. Almost 50% of the output will be exported to Latin America and Mexico.

PRICING

The price depends on the active ingredient content as well as its purity. European prices for 85% grade in the second quarter of 2014 were between €0.51-0.60/kg. Contract prices for June in the US and Asia-Pacific were \$0.60-0.70/kg and ¥3.21-3.94/kg, respectively.

TECHNOLOGY

There are four commercial routes to formic acid. These include methanol carbonylation to methyl formate, hydrolysis of methyl formate, removal of methanol and methyl formate by high-pressure distillation, to give about 85% formic acid content, followed by distillation at slightly below atmospheric pressure to produce higher concentrations of formic acid.

In a newer process, extraction of aqueous formic acid with a formic acid ester is used to make high formic acid content products. Formic acid is also produced as a by-product of polyhydric alcohol manufacturing. In two other routes, it is recovered as a by-product of butane oxidation to acetic acid, and oxidation of cyclohexane to adipic acid. Formic acid also occurs naturally in ants, bees and wasps.

OUTLOOK

Global demand growth is forecast at 3.6%/year to 2018. Regionally, consumption will rise by 4.6%/year in Asia-Pacific, 3.5%/year in Asia/Middle East, 3%/year in the Americas, 2.6%/year in Western Europe and 1.9%/year in Japan. Worldwide, some 105,000 ton/year of new capacity

will come on stream within the next four years. China with a capacity of 353,000 ton/year and demand of 250,000 ton/year will not need additional capacity till 2018.

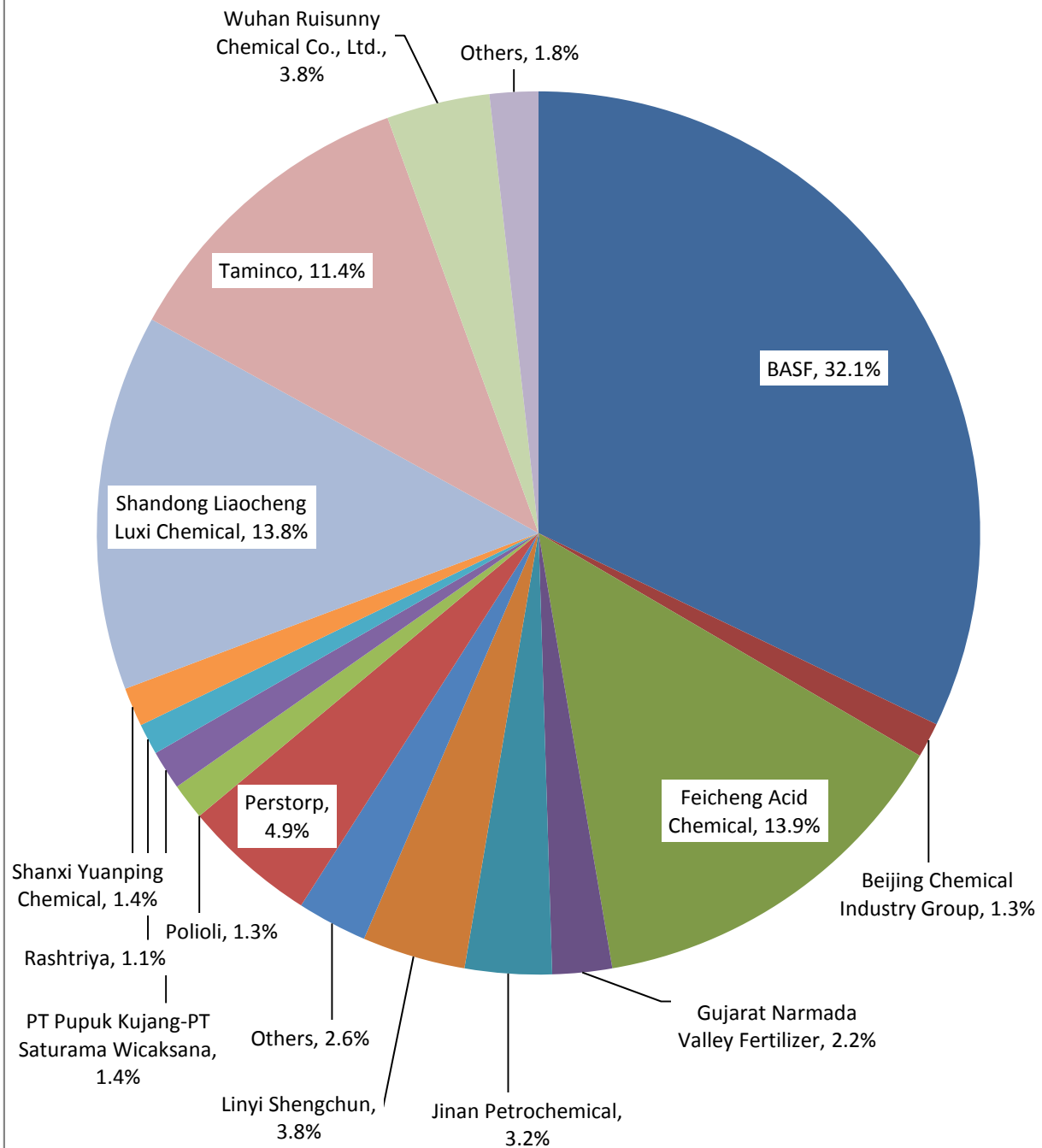
GLOBAL FORMIC ACID CAPACITY, '1000 TON/YEAR

Company	Location	Capacity
Anhui Asahi Kasei Chemical	Anhui, China	4.0
BASF	Nanjing, China	50.0
	Ludwigshafen, Germany	180.0
	Geismar, LA, USA ⁽¹⁾	50.0
Beijing Chemical Industry Group	Beijing, China	10
Beijing Tiankai Feng De Chemical	Beijing, China	5.0
Feicheng Acid Chemical	Feicheng, China	100.0
Gujarat Narmada	Bharuch, India	12.7
Jinan Petrochemical	Jinang, China ⁽²⁾	20.0
Other	Several locations, China	20.0
Perstorp	Perstorp, Sweden (TMP)	23.0
	Perstorp, Sweden (PENTA)	17.0
Polioli	Vercelli, Italy (PENTA)	5.0
	Vercelli, Italy (TMP)	5.0
PT-JV ^(*)	Cicampek, Indonesia	11.1
Rashtriya chemical	Thal, India	10.0
Shahid Rasouli Petrochemical	Bandar Imam, Iran ⁽³⁾	10.0
Shandong baoyuan chemical	Zibo, China	4.0
Shandong Liaocheng Luxi Chemical	Shandong, China	100.0
Shanxi Yuanping	Yuanping, China	10.0
Taminco	Qulo, Finland ⁽⁴⁾	80.0
Wuhan Ruisunny Chemical	Wuhan, China	30.0

(*) PT Pupuk Kujang (70%) and PT Saturama Wicakasana (30%) JV

(1) New for 2014 (2) Expansion to 40 kt in 2015 (3) New for 2016 (4) Expansion to 105 kt in 2015?

GLOBAL FORMIC ACID MARKET SHARES, 2013



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