



Markets

CHEMICAL PROFILE: Formic acid

Uses

Formic acid has numerous outlets in many industries. Most applications require concentrations of 85% (the industry standard and most common), 90%, 94% or 98-99%, which accounts for 28% of world demand.

The largest use, accounting for about 19% of global demand, is as a silage additive in Europe, while almost 15% of global demand is as a preservative in animal feed. Other major uses are in textile dyeing and finishing, leather tanning, intermediates for pharmaceuticals and insecticides/pesticides, food and drink preservatives, and drilling fluids. Smaller uses are in rubber products, de-icing and electroplating, as well as many other miscellaneous applications.

Supply/demand

Global capacity was 610 000 tonne/year in 2005, with 371 000 tonne/year in western Europe, 176 000 tonne/year in Asia-Pacific (excluding Japan), 25 000 tonne/year in the US, 22 700 tonne/year in India, and 12 000 tonne/year in Japan. Western Europe is the largest consumer at more than 217 600 tonne/year, followed by Asia-Pacific at 147 000 tonne/year. Asia/Middle East, the US, and Japan consume 17 800 tonne/year, 17 600 tonne/year and 13 100 tonne/year, respectively. Global demand in 2005 was 443 100 tonne.

BP and Celanese are closing their plants in the UK and US at the end of July and mid-2008, respectively, due to poor economics. BASF started production in Nanjing, China, in mid-2005 and Perstorp expanded capacity to 40 000 tonne/year late last year.

Pricing

The price depends on the active ingredient content as well as its purity. European prices for 85% grade in the second quarter of 2006 were between €0.50-0.59/kg. Contract prices for June in the US and Asia-Pacific were \$0.70-0.77/kg and \$0.63-0.78/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.

Health and safety

Formic acid is a clear, colourless, mobile liquid with a pungent odour. It is highly corrosive and a moderate

fire hazard. Exposure to it can severely damage the skin, mucosal surface and eyes, and can lead to asphyxiation. Ingestion can cause severe poisoning and death.

Outlook

Global demand growth is forecast at 3.3%/year to 2010. Regionally, consumption will rise by 4.6%/year in Asia-Pacific, 3.5%/year in Africa and Asia/Middle East, 3%/year in the Americas, 2.6%/year in western Europe and 1.9%/year in Japan. Worldwide, 38 000 tonne/year of new capacity will come onstream within the next four years. Projects in Iran (10 000 tonne/year) and China (20 000 tonne/year) are due online in 2007, while Kemira's increase to 88 000 tonne/year is due in late 2006.

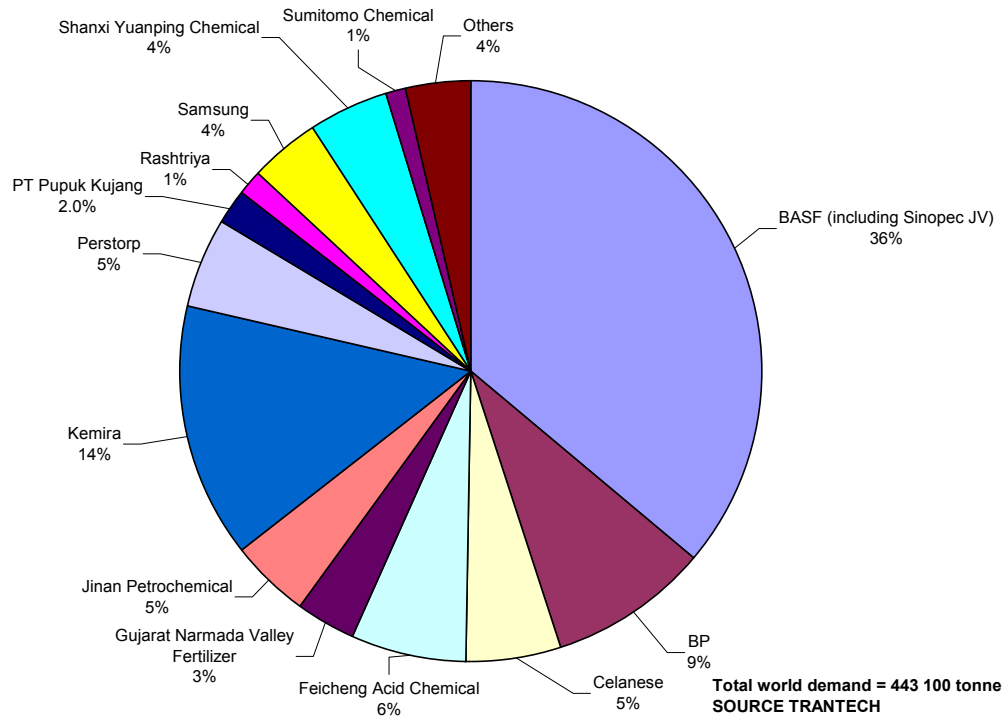
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GLOBAL FORMIC ACID CAPACITY '000 TONNE/YEAR

Company	Location	Capacity
BASF	Ludwigshafen, Germany	180
BASF-Yangzi	Nanjing, China	50
BP	Hull, UK*	61
Celanese	Pampa, Texas, US**	25
Feicheng Acid Chemical	Feicheng, China	30
Gujarat Narmada Valley	Bharuch, India	13
Jinan Petrochemical	Jinan, China	20
Kemira	Oulu, Finland***	80
Perstorp	Perstorp, Sweden	40
Polioli	Vercelli, Italy	10
PT Pupuk Kujang	Cicampek, Indonesia	10
Rashtriya Chemicals	Thal, India	10
Samsung	Ulsan, South Korea	20
Shandong Feichen Chemical	Feicheng, China	20
Shanxi Yuanping Chemical	Yuanping, China	20
Others (7 plants)	Czech Republic, Japan, and China	21
* to close end July 2006; ** to close by 2008;*** expansion onstream late 2006		
Source: TranTech		

Global Formic Acid Market Shares for FA 2005, %



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