

**Andrea Valentini** of Integer Research Ltd looks at the world market for urea ammonium nitrate (UAN), and how the start-up of the new Methanol Holdings Trinidad Ltd plant in Trinidad has impacted upon it.

# The global market for UAN



The global UAN market has been evolving over recent years due to a number of factors. First the market was rocked by the economic crisis which began at the end of 2008 and continued through 2009, which caused UAN consumption to drop in most countries. At the same time, several major producers in Central and Eastern Europe were forced to fight for market share as they were hit by major increases in production costs. Finally, the emergence of Trinidad as a major UAN exporter in 2010 increased export competition. Integer has published a comprehensive study on the global UAN market including detailed data on demand, supply by company and country, trade, production cost economics and pricing, and a 10 year forecast. This article draws on the findings of the study.

Until 2009, the world UAN market had been growing steadily, reaching a peak of nearly 18 million tonnes in 2008 according to Integer estimates. The economic crisis led to a sharp reduction in UAN demand in most markets, and a reduction in nitrogen demand in general. In 2009, world UAN demand dropped to around 14 million tonnes, the lowest level since the beginning of the 2000s. The US, by far the biggest UAN market, shrank by an estimated 2.0 million tonnes year-on-year in 2009. Most UAN markets have rebounded strongly in 2010, with the global total estimated to have reached 15.5 million tonnes in that year, with the US market growing strongly.

The US continues to account for most global UAN trade, normally making around half of the world's 5-6 million tonnes of imports each year. When global UAN demand dropped in 2009, US imports were cut back sharply. Production was also affected, but not drastically, and this development illustrated to some extent the increased economic strength of North American producers. Falling relative gas prices in North America improved competitiveness and restricted US import penetration.

In 2010, the world's two largest UAN suppliers CF Industries and Terra Industries, both based in North America, merged, creating a supplier dwarfing all others. The two companies combined have the capacity to produce 5.9 million t/a of UAN, close to half of North American UAN capacity, making up close to a third of world UAN supply.

The European market for UAN solutions is dominated by a relatively small number of countries – France, Germany, UK, Poland, Czech Republic and Spain, with a heavy weighting toward France. Europe consumed around 4.0 million tonnes of UAN in 2010, up from 3.8 million tonnes in 2009. UAN trade plays a significant part of the European UAN market, particularly from suppliers within the region. However, since 2008, Europe registered a significant increase in UAN imports from outside the continent due to low utilisation rates at several operations, especially export-oriented producers in Central Europe.

The other major recent development was the start-up of Methanol Holdings 1.5 million t/a UAN plant in Trinidad in 2010. This was the first green field UAN plant built for many years (as opposed to UAN capacity being added to existing urea and/or nitrates capacity). With the UAN market only partially recovering from the downturn in 2009, other UAN producers had to make way and accommodate over 1.0 million tonnes of production from this facility in 2010.

## New capacity in Trinidad

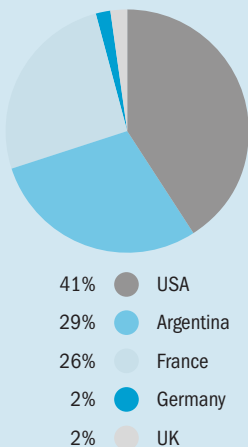
Methanol Holdings Trinidad Limited (MHTL) was legally incorporated in 1999, and its assets consist of the Trinidad and Tobago Methanol Company, Caribbean Methanol Company and Methanol IV Company. Methanol Holdings is owned by CL Financial Ltd. and Consolidated Energy Ltd., which have a 57% and 43% stake, respectively.

MHTL's ammonia and urea capacity are not large by standards of modern production sites, for which urea capacity often exceeds 1.0 million tonnes per year. However, its capacity for downstream UAN is one of the largest at a single site in the world at 1.4 million t/a. The main intended market for Methanol Holding's products is Europe and the US, for which its location provides favourable logistics. It is planned for Europe to take about one third of MHTL's output with the balance destined for the US market.

The company broke ground on the ferti-

**Fig 1: Methanol Holdings' UAN exports from Trinidad plant**

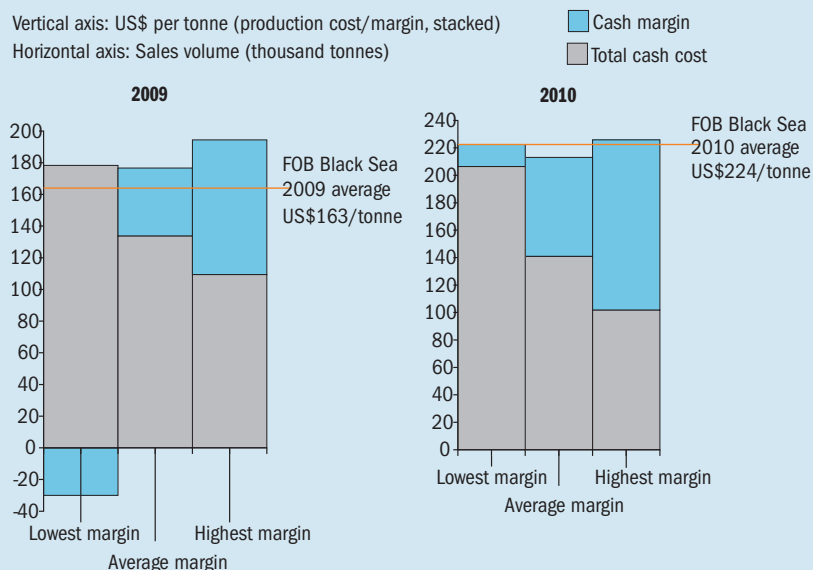
Destination of Trinidad's UAN exports, 2010



Source: UN ComTrade, national statistics agencies, customs agencies, Integer estimates

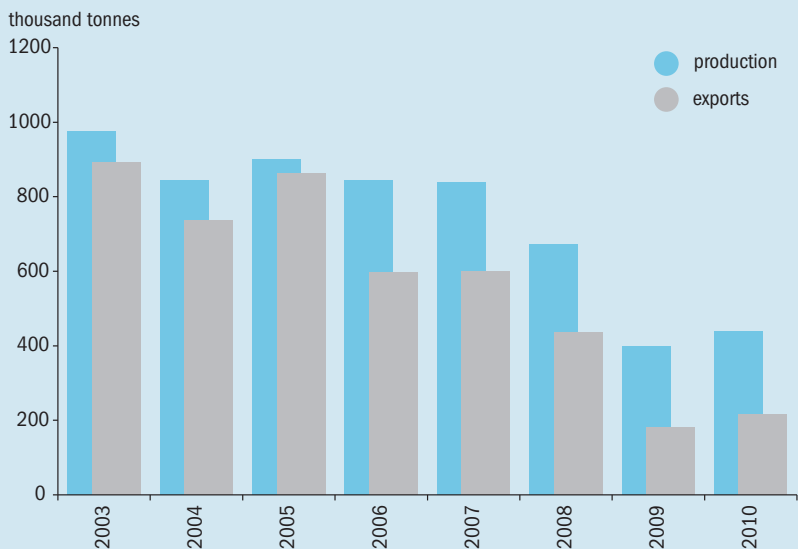
**Fig 2: UAN cash cost and margins 2009 and 2010**

Vertical axis: US\$ per tonne (production cost/margin, stacked)  
Horizontal axis: Sales volume (thousand tonnes)



Source: Integer, company and market reports

**Fig 3: Recent decline in Polish UAN production**



Source: Company ARs, GTIS, ComTrade, Integer estimates

lizer facility in early 2006, and completed work on its ammonia plant in Q1 2009. Ammonia production began in 2009, followed by a full plant start-up at the end of 2009 and the loading of the first UAN vessel bound for the US in Q1 2010. After some teething problems in the first quarter of 2010, full utilisation was reached in April 2010, and we estimate that the facility produced and exported more than 1.0 million tonnes of UAN in 2010.

The impact of the new capacity in Trinidad is clear when we consider exports. The new plant took a country to country trade market share of around 20% when it started production in 2010, and the plant was not operating at full capacity for whole of that year. Trinidad's main export markets in 2010 was the US, which absorbed around 40% of Trinidad's UAN output, with Argentina and France taking a further 55% combined. Notably, Trinidad immediately

became the world's top exporter of UAN to the US, accounting for around a quarter of its imports in 2010 (Fig. 1).

Until 2010, the two biggest sources of exports were Lithuania and Russia, which are dominated by Achema and Eurochem, plus more recently Acron. However, the addition of the large Trinidadian UAN capacity and difficult economic conditions in Central Europe, have squeezed Lithuania into third place.

### Costs and margins

The standout recent development relating to UAN production costs has been the change in North American production economics. The newfound ability to economically develop abundant shale gas deposits in the US has allowed UAN producers to buy gas a much lower price than many of their competitors. With the additional benefit of a significant location advantage compared to exporters, US producers have been making healthy profit margins, comparable with low to medium cost exporters. By contrast, exporters from Central European countries with relatively high cost gas are experiencing the thinnest margins in the UAN business.

Figure 2 shows Integer's estimates of production costs, combined with netback prices and margins to ex-works. It shows the highest and lowest profit margin producers in 2009 and 2010, together with

the average. The combined gross margin and production cost segments represent the price achieved for each supplier, with higher prices generally achieved by operators located close to customers. The average Black Sea price in each period is included as a reference point. UAN exporters who have costs to absorb in order to reach an export point generally achieve a price below the Black Sea price.

The cost and margin curves illustrate how the industry has moved from the disastrous profitability situation in 2009 to a gradual recovery in 2010. We expect that 2011 will show a further improvement on 2010, though still well short of the 2008 peak. During this period North American producers were the greatest beneficiary of large volumes of gas supplies coming to the market that brought hub gas prices of \$9.40/MMBtu in 2008 down to around \$4.60/MMBtu in 2009, which, combined with better than average energy efficiency made them the lowest cost producers along with Russia and Egypt. Moreover gas prices did not firm significantly in the US despite general recovery in 2010-2011.

Within Europe, there has been some

hub pricing advantage for producers located able to buy gas at a spot market price. Some buyers in Central Europe faced with oil-indexed and/or buying Russian gas have experienced some production cost disadvantages. In the last few years, producers in Central Europe, Ukraine and Belarus were among those with the highest cost and smallest profit margins. However, the tide in the UAN market has turned since 2009 such that while some producers struggled to make profits in 2009, the subsequent upturn, particularly since mid-2010, has made UAN production universally profitable.

### Case study: Poland

Poland is one of the best examples we can use to illustrate the volatility experienced by recent market developments to some UAN producers. Poland is a significant producer and exporter of UAN. Production and exports have been volatile over the last five years and were negatively affected in 2009 due to increase in production costs and fierce international competition. ZA Pulawy is the largest UAN producer in Poland, oper-

ating 1.0 million t/a of capacity at a site located near Lublin on the River Vistula.

UAN production at Pulawy competes to some extent with demand for urea as the company is a melamine producer and also active in the AdBlue market, two activities that divert urea away from UAN production. Pulawy's depressed UAN output in 2009 and 2010 was likely due to weakening UAN margins (due to higher gas costs and weaker UAN pricing) and increased export competition.

While most of Pulawy's UAN production is exported to European markets, the USA is of decreasing importance as a market for Polish UAN – a result of the improved competitive position of US producers in 2009 and 2010, which resulted in declining US imports, and increased competition from the new UAN export plant in Trinidad. As Figure 3 illustrates, Poland's UAN production dropped year-on-year in 2009, and exports were also hit. Production and exports remained relatively stable in 2010, at a time when all major producers in the world saw an increase in activity. The upturn in general nitrogen fertilizer market conditions in 2011 will likely facilitate some further volume recovery. ■

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