

# Continuous progress

The combination of net zero needs and the Ukraine invasion has begun to drive exponential change in the chemicals manufacturing area. As in other industries – for example, the move from gasoline and diesel cars to electric vehicles – it will produce winners and losers.

The reasons are clear. Net zero needs have alerted us all to the need to dramatically control CO<sub>2</sub> emissions in order to meet announced targets. As the International Energy Agency has warned recently: 'Removing carbon from the atmosphere is very costly. We must do everything possible to stop putting it there in the first place.'

At the same time, the Ukraine invasion and OPEC+ oil quotas are acting as a catalyst to accelerate the changes required. Nobody wants to be held hostage on energy supplies by OPEC+ countries ever again.

Essentially, these developments highlight how we have moved into a new normal world. Companies have to reduce emissions to meet legislative demands and consumer needs. And today's cost of living crisis means that these challenges have to be met by adopting proven lower-cost technologies that can be installed today. Manufacturing managers and their colleagues, supported by business managements, are therefore set to be key players in enabling businesses to meet the challenge of reducing costs and emissions at an exponential pace.

This is where the adoption of continuous processing has a critical role to play. The good news is that much of the groundwork has already been done. SCI itself has been prominent in recent years in helping to disseminate the technology breakthroughs. But now is the time to turn this success into action by transitioning from batch to advanced manufacturing wherever possible. This is one of the main ways in which costs and emissions can be reduced on the necessary timescale.

As the UK's Centre for Process Innovation has highlighted, leading companies are increasingly focused in this area. A ground-breaking project involving CPI and Croda, a leading manufacturer of life science and consumer care products, has recently confirmed the upside from replacing traditional batch-process technology. Using NiTech's safer, greener, faster and cheaper technology, the project achieved a number of important successes – including a reduction in cycle time from 10 hours to just 2 minutes, along

with a 50% reduction in GHG emissions. It has also won prestigious awards, including the UK Chemical Industries Association's Innovation Award.

This success raises the question of how companies currently operating batch processes can now start to benefit from the new technology. The first step is to identify the manufacturing processes most suitable for conversion to a continuous process. The need then is to develop an agreed way forward in terms of an Action Plan based on clear objectives and timescales. Managements will need to become involved at this point, given the current economic climate. Their challenge is to prioritise the development at a time when budgets are under major pressure.

They are not alone, of course, in having to make these difficult and company-defining decisions. Automotive companies are also having to prioritise spending on the move to Electric Vehicles, at a time when the market is facing cost of living challenges of its own. It would be very easy, given these pressures, for managements to duck the issue and wait for better times. But doing nothing at a time of exponential change is potentially a high-risk strategy.

It also breaks with the chemical industry's traditional stance of being a 'fast follower' in terms of new developments. We have always prided ourselves on our ability to monitor the emerging landscape and move forward at an accelerated pace once new technologies are commercially ready. It is clear this remains the right strategy today, given the growing pressure to reduce production costs and emissions.

We are not alone, of course, in facing this need to take tough decisions. VW is Europe's leading automaker and as its new CEO Thomas Schäfer warned in July 2023: 'The future of the VW brand is at stake – the roof is on fire'. Chemical companies, like auto companies, can't afford to wait and see. Their managements also have to take bold decisions, founded on the best advice from their manufacturing colleagues, on what is both possible and critical for the future in terms of costs and net zero ambitions.

The good news is that commercially validated, continuous manufacturing technologies are now available that can operate across a wide range of reaction and crystallisation processes. The winners will therefore be those who have the courage to continue building their business for the future, with the aim of reducing costs and emissions on a sustainable basis.



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