POOL WATER TREATMENT ADVISORY GROUP

Pools in Trouble

Twin threats from chemical shortages and finance

It's pretty unusual for swimming pools to be so thoroughly in the news. They were in the headlines over covid of course, which finished off about 200 pools. More recently there were warnings from Swim England that up to 2,000 more might close in the next ten years, starved of the funds necessary for refurbishment.

Currently, the talk is of pools having to close for lack of disinfectant, and even of their not being able to afford the energy running costs. Bathers seeking out pools during hot weather may well increase the pressure on chemical supplies.

What's going on, and what if anything can we do about it?

Why the disinfectant shortage?

We asked two members of the PWTAG Industry Forum – Steven Gallagher and David Parry of Solenis – for their analysis of this global problem. Here it is – a perfect storm.

Covid restrictions worldwide dramatically reduced the movement of shipping containers at the start of 2020. Empty containers were delayed at docks due to the slowing of all manufacturing. This meant huge delays in products made overseas arriving at UK ports. Shipping containers became even more difficult to reserve and their price rose 10-fold. (This has also had a huge impact on UK inflation.)

In August 2020, Hurricane Laura caused a fire at the largest Trichlor factory in the US. The factory shut down with the loss of 100,000 tons of stabilised chlorine products per year. So the demand for other chlorine donors dramatically increased, leading in turn to a huge demand for calcium hypochlorite . The two manufacturers of calcium hypochlorite in the US were unable to meet the increased demand, leading to a global shortage of US-made calcium hypochlorite.

Drivers qualified to carry dangerous goods became increasingly difficult to source, with delays transporting goods from the plant to the docks and from the docks to the warehouse.

A global shortage of plastic pellets increased the production time for screen-printed, UN-approved drums from 10 days to 16 weeks, leading to a severe shortage of finished goods.

We understand from our industry forum member Jak Water Systems that Nippon Soda, one of the three smaller manufacturers of melclorite (a fast-dissolving stronger form of

calcium hypochlorite) stopped production in November 2021. The resulting shortage means the remaining suppliers are now servicing only Japanese markets; thus a much reduced volume for overseas.

In China only Shanghai is currently allowed to ship chlorine products. It was locked down again in January 2022 when Covid restrictions were reintroduced by the government. At the same time the extra demand in Japan means more calcium hypochlorite is sent to that much closer market instead of Europe.

China had already cut back on manufacture, particularly in the run up to the winter Olympics, because they have been tightening up on environmental pollution and closing down non-compliant factories.

The Biocidal Products Registration (BPR) process is reducing the number of manufacturers able to import calcium hypochlorite into Europe. Post-Brexit UK regulations have further reduced the number of suppliers able to bring it into the UK. Registration is too expensive for some lower volume importers to continue importing. In 2019 there were 15 companies on the register for importing cacium hypochlorite; today there are only 11, and only one with full technical dossier approval. The UK part of the BPR now requires the same dossier to be assessed and approved as a second expense. These higher extra costs are preventing a lot of companies applying for UK approval for sales into the UK pool market.

The high demand for other chemicals in the UK means there is also a shortage of caustic soda, which has an impact on the production of sulphuric and hydrochloric acids and sodium hypochlorite.

The main UK manufacture of sodium hypochlorite in the UK – INOVYN, part of INEOS – shut down its plant for May and part of June. Increased demand due to chemical shortages elsewhere has meant that other industries, such as drinking water and electricity, are ahead of swimming pools in the queue. We understand from Brenntag that the supply is gradually recovering and will shortly be back to normal.

Salt producers are predicting a shortfall in stock as Covid-related lockdowns have truncated a large part of the production cycle. Labour shortage, absence of transportation and inter-district travel restrictions have prompted producers to stall work at many salt works. This shortfall will have impact on the on-site electrolytically generated production of sodium hypochlorite.

An end in sight?

Most companies are slowly catching up with supply chains, but of course it is taking time to build up safety stocks while there are still so many open orders for material. A shortage of all biocides is expected in the UK for the next two or three months. Some in the industry are even less optimistic

So far, chlorinated isocyanurates and bromine disinfectants don’t seem to be in short supply – though their prices have risen – but only a few pools could switch, and of course

this should be done with extreme care. Chlorine gas? Well the Sportspark pool in Norwich ran out of that and had to close for 17 days.

What can pools do about the chemicals drought?

Clearly the less chemicals pools use, the less chance there is of running out. Here are a few simple ideas.

- Reducing the amount of pollution brought into the pool reduces the amount of chlorine needed. Pre-swim showering for all bathers works. Reducing or limiting the bathing load also helps.
- Assuming the pool water is balanced, the free chlorine set point might be lowered – including at night. The set point should be back to normal at least one turnover period before bathers enter the pool.
- Care when dosing/mixing chemicals reduces waste through spillage.
- Panic buying chemicals can mean a supply issue for other operators; instead, planning and ordering well in advance is sensible.
- Chlorine quality is important. Poor quality calcium hypochlorite tablets, for example, can have lower concentration values, which result in increased usage.
- Using the correct type of chlorine is even more important now. The hardness level of your incoming mains water is key (see *Swimming Pool Water* for details). The target range for calcium hardness of the pool water is 80-200mg/l.

Hot weather is likely mean more people using pools.

Running costs running away

Fitness industry estimates suggest that this year's combined gas and electricity costs for larger facilities with pools will be 150% more than they were in 2019. This is a big, complicated issue, but operators might find some pointers in PWTAG 's recent guidance note, *Net Zero Carbon Pools* (find it under Technical notes on pwtag.org). There is valuable information there on the savings that can be made with the careful use of variable speed drives.

Finally, pool operators tempted to save money on heating the water should not resist the temptation. Here are PWTAG's recommended minimums: fitness swimming 26, recreational 27, leisure 28, teaching 29, young children 30.

And it's worth remembering that the cooler the water, the less disinfectant needed.