Technical Information Briefing – Chemical Supply Disruption – October 2022

CHRISTEYNS FOOD HYGIENE

I'm hearing that there are supply chain issues with food hygiene chemicals.

Since January 2022 all formulators globally have been contending with an increasingly challenging raw material supply market with many chemical constituents suffering from shortages and rising prices.

So, what is the root cause of these issues?

There's no one single root cause, rather there are a number of factors coming into play simultaneously which are causing UK formulators to regulate our supply to our customer base.

- For Caustic (NaOH) commonly used in CIP, tray washing, cooker cleaning and the like the challenge has predominantly been a result of the largest UK manufacturer in Cheshire restricting their plant capacity for maintenance. Unfortunately, this plant has yet to come back fully on-stream and so roughly 80% of the UK's requirement is having to be imported from Europe and distributed in bulk tankers.

  Caustic production is also heavily energy intensive which has seen incredible increases in price over recent months partly as a result of the ongoing situation in Ukraine as well a much-reduced demand for chlorine.

- For acid, particularly Nitric this is by-product of the reduced global demand for fertiliser – this was much reported due to the attendant reduction in CO_2 availability.
- Many other raw materials used in chemical formulations are also derived from oil, with many using significant quantities of energy in their production – hence a general increase in cost of **every** raw material purchased by companies such as ourselves.

Is there a reason why more production of caustic isn't kicking in?

Caustic soda (NaOH) is actually a by-product of manufacturing chlorine which is used as a disinfectant (sodium hypochlorite) and critically in this instance as the precursor for the on-going production of PVC which is much used in consumer goods and the automotive industry. Both of these sectors have seen a sharp downturn in demand leading to an accompanying reduction in the availability of the by-product. So, in effect this reduction in availability and dramatic increase in costs is a result of the supply-demand equation and the reduction in output from many plants in Europe due to rising energy costs.

Are there other factors at play here to?

Yes, one issue with the supply from Europe has been this summer's reduction in river and canal levels as a result of the much reported drought situation. As the majority of these goods are moved via barges the capacity to load has been reduced to cope with lower water levels. We've also seen a shortage of suitably qualified drivers to move road tankers – again transporting this material is a specialist task to avoid presenting a health & safety risk to the general public.

If there are supply chain disruptions, should I be building stocks?

Absolutely not. As commented earlier this isn't a new situation but one the formulators have been managing for not only these past months, but also regulating the flow of product, such as hand sanitiser, during the global pandemic to ensure that sufficient stock remains available for all our customers to continue operating. Increasing stock holding would simply place further undue stress on the supply chain leading to the very outcome that is raising this concern (in some circles this is known as the "toilet paper" effect).

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Are all product formulations affected to the same degree?

No, formulated detergents containing a caustic element (for example a foam detergent) will contain proportionally less NaOH than a 32% caustic liquor used in a CIP regime and many responsible formulators have been taking steps to regulate supply to normal levels and even out our raw material supply peaks & troughs.

For example, here in Warrington we installed an additional two x 100 tonne bulk tanks to bring our holding capacity to 500 tonnes of raw material (with an additional 2 x 100 tonne tanks due to come online in the next couple of months to further flatten the curves). We have also increased our packed stock levels and engaged with additional storage to meet normal order usage patterns.

What about switching to alternative chemistry?

It's not quite as straightforward as swapping out detergents as in many cases as the chemistry for removal, and thereby maintaining food safety, is fixed. As an example, removal of fats & oils requires either a saponification reaction using NaOH (or KOH which is even more expensive and requires more detergent to do the same job) or emulsification using a neutral detergent. The constituents which go into neutral detergents have also seen disruption as they are mainly petro-chemcial derived using significant quantities of energy in their production – plus they generally foam very well meaning you cannot use them in CIP or tray-washing.

Engaging with your chemical supplier is a good starting point and optimising the concentration in use to ensure you have the best balance between performance and cost/availability to continue to achieve a clean production surface capable of manufacturing safe food and drink.

In some specific instances, alternative chemistry *may* be a possibility and again this is where speaking to your supplier will be of benefit. One word of warning – beware wild claims and products which are unsubstantiated. As we saw during the recent pandemic there was an increase in new products which were unproven and, in some cases, unsafe – this was especially the case with hand sanitiser and surface disinfection products.

Is there anything else I can do to help myself?

Talk to your supplier, optimise your usage and ensure that all resources are being used sensibly are key watchwords here.

In addition, keep to your regular order patterns and bear in mind that the hygiene supply industry has been successfully regulating supply for nearly 3 years now as this is the latest in a series of challenges that have faced our marketplace starting from the SARS-CoV-2 pandemic which brought issues on a variety of materials.

How does the future look?

Whilst there continues to be disruption to the energy markets, we cannot see a definitive end date to these challenges in our sector. However, as commented above the chemical supply industry has been regulating the supply for some time now and with our customer's support we are confident that we can continue to do so thereby maintaining supply of these vital hygiene chemicals, albeit against a backdrop of unavoidable cost increases.

For more information please contact your Christeyns Food Hygiene Technical Account Manager or our head-office using UK-foodinfo@christeyns.com

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