

CRU Phosphates welcomes you to Tampa!

CRU Events will convene the 2022 Phosphates International Conference & Exhibition in Florida at the Tampa Marriott Water Street, 7-9 March.

CRU Phosphates returns to Florida, the epicentre of US Phosphate production, in March 2022. It's three years since the global phosphate industry last gathered in person for the event due to the ongoing Covid-19 pandemic.

Providing a focal point, this timely conference will spur discussions on key issues such as sustainability, trade, supply chain challenges and technical advances – all of which are occurring against a backdrop of record fertilizer prices.

In-person or virtual attendance? – the choice is yours

Building on the success of 2021's fully virtual event (*Fertilizer International* 502, p42), this year's live, in-person event in Tampa will be bolstered by an international audience tuning in via CRU's virtual conference platform. This dual option of in-person or virtual attendance will enable the global industry to join together, network and access crucial market, policy and technical updates, irrespective of current travel restrictions.

What to expect – the 2022 agenda

Uniquely, CRU Phosphates combines a commercial agenda with a technical agenda in one single event. This enables the conference to cover the entire value chain of the phosphate industry – including the fertilizer, feed and industrial segments – from both an operational and market perspective.

CRU's fertilizer team will be in attendance to offer delegates the very latest insights on the state of phosphate market (see box). Senior analyst Glen Kurokawa will provide a top-level global outlook in

the opening keynote presentation, while a specialised take on the Indian market is expected from Koyel Choudhury, CRU's India-based fertilizer analyst. Dr Peter Harrison will also be on hand to offer an in-depth view of the sulphur market – a key raw material which is also experiencing record price highs.

Additionally, industry perspectives will be covered by senior representatives from the major phosphates producers, including Mosaic, ICL, Nutrien, Yara and Kingenta.

Catering to the global nature of the industry and its audience, the conference agenda will provide updates and outlooks from key supply and demand markets, including North America, China, India, Brazil and Africa. Global market forces will also be covered and discussed – including supply chain and logistics challenges, trade policy, specialty markets and demand destruction.

Sustainability continues to be a driving force throughout the fertilizer industry. This will be explored extensively throughout both the commercial and technical agendas – with in-depth discussions about the why and the how. Several major technology licensors will demonstrate how advances in emissions reduction and energy efficiency are supporting sustainability goals at plant production level. New innovations in phosphorous recovery technologies will also be highlighted.

The event's strong technical programme will also explore efficiency advancements in phosphoric acid production, and new developments in beneficiation, fertilizer coatings, finishing and granulation.

The full agenda for CRU Phosphates 2022 is online now. Register today for your place in Tampa or online. For more information visit www.phosphatesconference.com. ■

PHOSPHATE MARKET OVERVIEW



Chris Lawson, CRU's head of fertilizers, sets the scene for Phosphates 2022 with this personal take on the state of market:

"Phosphate prices were generally declining over 2011-2020 due to overcapacity, hitting a nadir around late 2019. OCP, Ma'aden, and others commissioned significant new capacity around this time, and unfavourable planting weather reduced demand in key markets. Chinese producers, Mosaic, OCP, and others announced production cuts throughout 2019.

"Amidst low prices, Moroccan and Russia significantly increased phosphate fertilizer exports to the US. However, due to the imposition of countervailing duties, a US trade investigation into US phosphate fertilizer imports from Morocco and Russia in mid-2020 ended in substantially altered global phosphate trade. Covid-19, meanwhile, resulted in several production disruptions, reducing supply.

"Prices first began to recover in 2020, and then accelerated upwards in 2021. High crop prices, concomitant strong fertilizer demand, lower-than-expected supply, low inventories, high raw material prices, and a world emerging from lockdowns have all had an effect. Indeed, it is these factors which have help drive current phosphate fertilizer prices to their highest levels since the financial crisis.

"While phosphate fertilizers are still affordable in some countries, Indian phosphate importers and producers have required steep subsidies, and China is diverting phosphate exports to supply its own farmers to ease domestic price pressures. These and other measures have further contributed to heated prices." ■

Technical programme highlights

A selection of Phosphates 2022 abstracts from the conference's technical and operational programme.

Phosphate beneficiation using sensor-based sorting

Harold Cline, TOMRA Sorting

The use of sensor-based sorting is a proven pre-concentration technique capable of reducing energy, water and reagent consumption. In particular, the use of X-ray transmission sorting to reject coarse silicate waste from phosphate run-of-mine ore has demonstrated dramatic environmental dividends and social license to operate improvements. Operational phosphate projects that have implemented sensor-based sorting will be discussed, together with the downstream benefits this provides.

Phosphate flotation: the use of new synthetic reagents

Gabriela Budenberg, BASF

The flotation process involves collectors or surfactants – from both natural and/or synthetic sources – and regulators, frothers and depressant agents. These are selected based on their ability to concentrate a specific phosphate ore coming from a certain deposit. The global depletion of easily accessible deposits demands new approaches to beneficiation technology. Previously untapped deposits present numerous additional challenges for mining operations. Typically, the profitable processing of such deposits is not feasible with conventional flotation reagents. At the same time, the desire for more sustainable product formulations (e.g., those that can biodegrade) is starting to limit the use of common flotation chemicals.

Prayon reinvents phosphoric acid production using DCP

Hadrien Leruth, Prayon

Phosphoric acid producers must find the right balance between raw material quality and cost. Integrated producers feed their reactor with a local phosphate rock, while non-integrated producers rely on imports for their supply. If phosphate rock quality decreases or prices rise, then profitability is affected. Shifting to the use of dicalcium phosphate (DCP) to feed the plant can, in contrast, lead to big rewards. Technologies developed and acquired by Prayon deliver a high-purity DCP product. Additionally, the gypsum crystals generated show significantly improved filterability and a corresponding reduction in residence time. Consequently, the capacity of the phosphoric acid plant can be effectively doubled. By adopting this configuration, any producer can become a potential pioneer in phosphogypsum recycling for cement or plaster applications.

Phosphoric acid: exploiting more with an integrated approach

Svetoslav Valkov, Desmet Ballestra

The paper highlights the importance of process integration at phosphoric acid plants (PAPs). The improper design and integration of the sulphuric acid plant (SAP), the energy producer, with the PAP, the energy consumer, often jeopardises or reduces the performance of the entire complex and increases opex. Conversely, designing the SAP alongside the PAP can deliver robustness and energy savings. Proper control of operating parameters in both units results in enhanced P_2O_5 recovery and better reliability, without affecting capex and opex. Furthermore, the PAP's fluosilicic acid waste stream potentially offers a valuable source of additional income. Finally, a new process to purify phosphogypsum and convert it into saleable products is presented.

A coating solution for difficult fertilizer blends

Lucas Moore, Arkema-ArrMaz

Fertilizer substrates are generally very hygroscopic, meaning they will absorb water from the air. To maintain the structural integrity of monoammonium phosphate (MAP), potash, and urea blends, Arkema-ArrMaz has developed a series of coatings that slow the rate of moisture absorption. This presentation will discuss the phenomenon of deliquescence and the role coatings can play in reducing moisture absorption in complex fertilizer blends. Performance data for coatings specially developed for this purpose will also be presented.

Improved efficiency of phosphorus fertilizers in corn production

Aaron Waltz, Phospholutions

Society has become heavily dependent on inorganic phosphorus (P) fertilizers. This dependency is inefficient and costly, given the rapid sorption of P by soils and poor plant uptake efficiency. It is also depleting finite global phosphate reserves. Recently, *RhizoSorb*[®] has received increased attention due to its potential contribution to sustainable agricultural production. By buffering P concentrations in the soil solution, based on a crop's needs, this product reduces phosphate fertilizer requirements. This has been demonstrated by the results of 2021 field study 2021 at Farmer City, Illinois. As well as delivering yield advantages, *RhizoSorb*[®]-treated corn displayed higher phosphorus use efficiencies compared to untreated controls.

Granulation plant revamps: drivers, methodology and case studies

David Ivell, JESA Technologies

Granulation plants often continue to operate for 50 or 60 years. During that time, many operators will need to improve the performance of their plant by implementing a revamp project. The drivers for these projects include capacity increase, product quality improvement, new products, reduction in emissions, energy savings – or a combination of these elements. In this paper, we will describe the typical methodology used to develop flowsheet changes to achieve each of these aims. Finally, we will review a couple of examples of revamp projects that we have executed which resulted in significant improvements for our clients.

Preparing for energy transformation in the sulphuric acid industry

Hannes Storch, Metso Outotec

Within industry, the threat of climate change is prompting a fundamental re-think of energy infrastructure and its planning. The fundamental aim is to be neutral in greenhouse gas (GHG) emissions by the middle of this century. Achieving this goal is mostly based on the shift from fossil fuel dominated energy infrastructure to renewable energy systems (solar, wind, biomass, etc.). It is important to review the potential impacts of this energy transformation on the sulphuric acid industry. We may, for instance, see a shift in sulphur feedstock availability, potentially requiring the revision of acid plant technology and new developments. In this presentation, we review sulphuric acid production – based on the use of various sulphur derivatives – and ongoing sustainability initiatives. We also highlight potential new production technologies that could turn sulphuric acid into a more sustainable commodity as part of this energy transformation. ■