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International Conference & Exhibition NITROGEN + SYNGAS

20-23 February 2012, Hilton Athens, Greece

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The acknowledged first choice event for professionals in nitrogen fertilizer and syngas based industries

Why attend? Don't miss out on:

- Outlooks and predictions on trends for
 - Global nitrogen, methanol and natural gas markets
 - Focus on Chinese nitrogen sector
 - Effects of emission trading scheme on the fertilizer industry
- Information and solutions from 40 exhibitors sharing the latest technology and equipment on offer to the industry
- Pre-conference workshop on Aspects of Urea Manufacturing
- Technical papers focusing on
 - Process enhancements and cost reductions
 - Achieving environmental excellence and energy efficiencies
 - Commissioning and operational experiences
 - Capacity enhancements and product diversification
 - Restoration, revamping and maintenance
 - Equipment improvements and optimizations
 - Operator training and task planning

AGENDA INSIDE

Sector coverage

- Synthesis gas generation
- Ammonia
- Urea
- Methanol
- Nitric acid and nitrates
- Nitrogen fertilizer finishing

Pre-conference workshop on Urea manufacturing



3 day programme



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FERTILIZER WEEK



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Introduction

The nitrogen industry continues to meet demand for nitrogen fertilizers and other derivative products under the backdrop of global economic instability, yet with no major market and trade fluctuations to date. Will this continue, though? How and when will the global economic downturn begin to affect the production side of the industry? To understand the road ahead, *Nitrogen + Syngas 2012's* opening session will give you an overview of the markets with forecasts of future trends and predicted price movements for natural gas, ammonia, urea and methanol markets followed by technical papers on ways to continue to make operations as cost effective and competitive as possible.

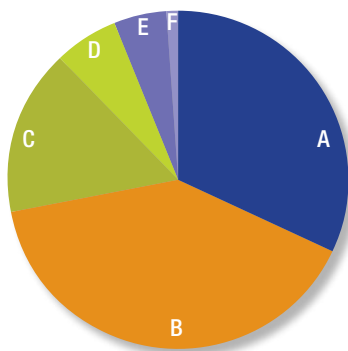
Despite the economic climate, companies are always pushing the technological barriers to improving efficiencies, reducing costs, energy consumption and environmental impact for their operations; but the current state of the world economy puts even more pressure to achieving excellence in operations. Gather the latest technical know-how from the experts gathering at *Nitrogen + Syngas Conference and Exhibition* to ensure your operations are benefitting from best technology and practices the industry has to offer. Whether you are looking to investing in new technology or improving on existing facilities or processes, *Nitrogen + Syngas 2012* can offer you solutions to your challenges.

Who should attend?

This is essential for professionals involved in the following industries:

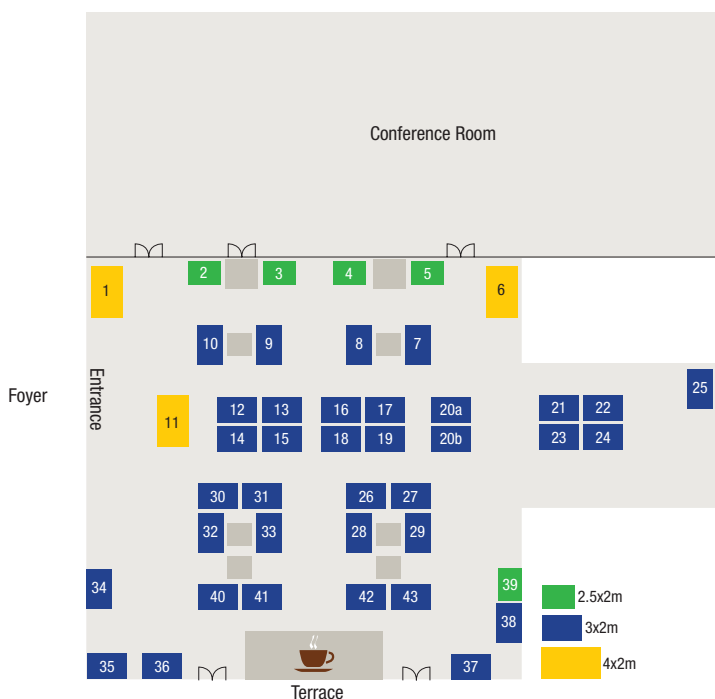
- project finance
- feedstock supply or procurement
- product marketing
- logistics
- plant operation and maintenance
- technology development and licensing
- process design and engineering
- catalyst and auxiliary chemicals supply
- equipment supply
- EPCM contracting

Breakdown of 2011 delegates



- A 32%** Production companies
- B 40%** Technical and construction service suppliers
- C 16%** Hardware companies
- D 6%** Instrumentation, process control and simulation equipment suppliers
- E 5%** Traders and logistics companies
- F 1%** Others

Meet the exhibitors at Nitrogen 2012



Stand	Exhibitor	Stand	Exhibitor
1	IPCOS & Protomation	21	Heracaus GmbH
2	Alvigo	22	
3	Christy Catalytics LLC	23	Umicore AG & Co. KG
4	Sandvik Process Systems, Div of SMT	24	
5	BCInsight Ltd	25	Siemens AG
6	R.S. Bruce Ltd/Johnson Matthey Noble Metals	26	KBR
7	Johnson Matthey Catalysts	27	Rotex Global
8	Uhde GmbH	28	Haldor Topsøe
9	Sandvik Materials Technology	29	CRU/Criterion Catalyst Company
10	BHDT	30	Quest Integrity Group, LLC
11	Stamicarbon bv	31	GEMACO sa
12	Solex Thermal Science Inc	32	PROZAP
13	Toyo Engineering & Sumitomo Corporation	33	Mitsubishi Heavy Industries Ltd
14	Kimre Inc.	34	Nickelhütte Aue GmbH
15	CFI holding Pte. Ltd. (CFIh)	35	GEA Ecoflex GmbH
16	Magnetische Prüfanlagen GmbH	36	Saipem
17	Unidense Technology GmbH	37	Azoty Tarnow/INS Pulawy/Metchem
18	Schoeller-Bleckmann Nitec GmbH	38	Begg Cousland & Co. Ltd.
19	R&D Institute of Urea	39	Haver & Boecker OHG
20a	Casale Group	40	ATI
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Interested in sponsoring? Contact Michelle Fisk, Sponsorship and Exhibition Manager, Email: michelle.fisk@crugroup.com Tel: +44 20 7903 2159

Focus for Operating Companies

Operating companies should attend *Nitrogen +Syngas 2012* to hear about the latest developments in technology to **reduce costs, achieve environmental targets, save energy and operate in a more efficient and safe environment.**

Operators will benefit by

- Learning from papers on operational experience, case studies and new technology
- Discussing challenges, problems and solutions with the experts and specialists in the exhibition
- Networking and sharing experience with industry peers from operations across the world

PAPERS (full details in agenda)**Process enhancements and cost reductions**

- Catalysing profit margin in ammonia plants
- Sustainable ammonia production – Reducing energy consumption and improving efficiency with high-performance catalytic technology
- Selection of optimum catalyst technologies in ammonia burners
- GigaMethanol® – The next big thing in methanol business
- A urea major's approach to the 6,000-t/d jumbo-scale urea plant
- A holistic approach to improving the nitric acid production process
- A novel and simple tool for data reconciliation in ammonia plants
- Reduce sea water consumption for cooling in ammonia and urea plants using the Six Sigma methodology
- The role of Advanced Process Control system in safe and optimized operation of nitrogen and syngas plants
- Improvement in the CO₂ removal system of Chambal Fertilisers & Chemicals Ltd's No 2 ammonia plant to enhance CO₂ recovery and quality
- Sustainable ammonia production – Reducing energy consumption and improving efficiency with high-performance catalytic technology

Achieving environmental excellence and energy efficiencies

- Innovations in environment management at Gujarat Narmada Valley Fertilizers Co.'s urea plant
- Emission control in urea plants in normal operation and during upsets – Why so many different solutions?
- Future frameworks for N₂O emission reduction projects – Emission trading opportunities and N₂O regulations past 2012
- How green is Stamicarbon's urea process?
- A novel large-scale, energy-efficient urea technology
- Nitrous oxide decomposition – The challenges and choices being faced
- CO₂ removal from syngas using piperazine-activated MDEA and potassium dimethyl glycine

Commissioning and operational experiences

- Engro's commissioning and early operating experience at the world's largest single-train urea complex
- Oman Methanol Company – The first four years

Capacity enhancements and product diversification

- The IMAP process – A new approach to cost-effective co-production of methanol and ammonia
- Coal gasification for ammonia plants
- Comparison of synthesis gas generation concepts for capacity enlargement of ammonia plants
- Agri Tech Capacity Enhancement 135 (PACE135)

Restoration, Revamping and Maintenance

- Innovative approaches by Fauji Fertilizer Co. for overcoming threats and challenges to production sustenance and growth in the fertilizer industry
- Successful implementation of a revamp in West Africa (methanol)
- High-pressure ammonia feed pump revamping experience
- Modernizing an integrated urea complex by introduction of advanced technologies
- On-site refurbishment of badly corroded urea reactors improves reliability

Equipment improvements and optimizations

- Mechanical and metallurgical concerns in ammonia plants
- How much catalyst is needed for synthesizing ammonia?
- Development of a welding consumable to enhance the metal-dusting resistance of Sumitomo's Ni-based Alloy 696
- Latest improvements in indirect cooling technology for granular fertilizer
- New possibilities for control and optimization of screening processes
- Fertilizer finishing process for AN and NPKs with Rotoform HS 2000
- New high-capacity screening developments for granulated urea plants
- Two case studies of retrofitting an existing dedusting/ammonia removal system in a urea plant
- Modernization of steam turbines as compression drives for ammonia and methanol production
- A urea major's approach to the 6,000-t/d jumbo-scale urea plant

Operator training and task planning

- Catalyst catastrophes III – More tales of the unexpected
- Evolution of the urea training simulator – Features and benefits of its use
- The role of Operator Training System in safe and optimized operation of nitrogen and syngas plants

Pre-Conference Workshop – Aspects of Urea Manufacturing Monday 20 February

This workshop offers you the opportunity to discuss operational and maintenance topics with experts in the industry and fellow urea producers. The workshop will have the format of round tables and be moderated by UreaKnowHow.com. It will consist of two modules of two hours each, and will cover two important topics in urea production technology.

Module 1: Urea Product Quality & Higher Margin Urea Products

- The various urea products like prills, granules and pastilles
- The quality properties and production costs of these different products
- Product quality problems like caking, dust, low strength and their solutions
- The different application areas of urea (fertilizer, urea formaldehyde, cattle feed, Ad Blue, cosmetics)
- From bulk to specialties: Technologies to upgrade prills, granules, pastilles to multi-nutrient urea products like urea/AS, technical urea, slow release, melamine etc

Module 2: Safety Risks and Reliability Problems Caused by Corrosion in Urea Plants

- Different types of corrosion phenomena in urea plants: passive, active, condensation, crevice, erosion, stress corrosion cracking, etc
- How to protect HP equipment and HP piping against corrosion risks?
- Leak detection systems, corrosion inspections, conductivity, chlorides, nitrates measurements, materials of construction
- Urea plant incidents and lessons to be learned

Places on this course are strictly limited so don't delay your booking

Conference programme

Monday, 20 February

Pre- Conference Workshop: Aspects of Urea Manufacturing

12:00 **Workshop registration and refreshments**

13:00 **Workshop begins**

15:00 **Conference Registration** *sponsored by*

18:30 **Welcome Reception**



Tuesday, 21 February

08:00 **Welcome Coffee**

sponsored by



08:00 **Conference registration**

sponsored by



08:00 **Exhibition open**

Keynote Session 1: Market Influences

09:00 **Welcome and Session Chairman's opening remarks**

Nick Edwards, *General Manager, Fertilizers, CRU*

09:10 **Current trends in gas supply, demand and price formation**

- Production and consumption overview
 - major projects and emerging markets
 - impact of recession and Fukushima
- LNG and the globalisation of gas
 - north American shale gas revolution
- gas pricing: will the link to oil survive?
 - are European LTCs set to move to market pricing?

Patrick Heather, *Senior Research Fellow, Oxford Institute for Energy Studies*

09:45 **Nitrogen Fertilizers - Current market situation and outlook**

- Recent developments in the N market (supply, demand, trade, prices)
- Outlook for supply, demand and trade
- Focus on China
- Price forecast

Evegenia Apostolopoulou, *Consultant, Fertilizers, CRU*

10:20 **Conventional energy substitution via syngas/methanol – Conceptual no more**

- Overview and outlook of global methanol markets
 - supply, demand, pricing, trade
- Methanol as bridge from raw hydrocarbon to energy
 - LPG, gasoline, olefins, biodiesel, fuel cells, direct combustion
- Opportunities and threats for future development

Mark Berggren, *Managing Director, Methanol Market Services Asia*

10:55 **Refreshment and Network Break** *sponsored by*



11:25 **The outlook for nitrogen industry in China**

- Situation of China's Nitrogen fertilizer industry
 - Capacity, output, materials, product, technique
- Nitrogen fertilizer consumption in the China market
 - Agricultural consumption, Industrial consumption
 - Analysis of imports and exports of China's nitrogen fertilizer
- China's Nitrogen fertilizer industry development trends in 2011-2015

Zhang Rong, *Secretary General and Senior Engineer, China Nitrogen Fertilizer Association (CNFA)*

12:00 **Emission Trading Scheme – Effects on the fertilizer industry and implications for future market dynamics**

- European emission trading scheme 2012-2020 and trading criteria for the fertilizer industry
- technological challenges for the European industry to meet these criteria
- potential for carbon leakage and trade distortions
- fertilizer industry and solutions to climate change problems

Tore Jenssen, *Consultant representing Fertilizers Europe, Jenssen Consulting*

12:35 **Lunch** *sponsored by*



Session 2: Synthesis Gas Technology and Operations

14:00 **Comparison of synthesis gas generation concepts for capacity enlargement of ammonia plants**

Joachim Johanning, *Head of Process Development Group, Ammonia & Urea Division, ThyssenKrupp Uhde*

The paper investigates the economics and energy balance implications of various syngas generation concepts for a 30% capacity increase, including enlargement of the existing steam reformer and parallel installation of an autothermal reformer (ATR).

14:30 **Agri Tech Capacity Enhancement 135 (PACE135)**

Rehan Munir, *Project Manager, Agri Tech Ltd*

The first phase of a project to increase the capacity of Agri-Tech's 600-t/d ammonia plant to 135% of capacity was completed in February 2011. This paper explains the experiences obtained during this valuable period, including details of front-end reforming operation and incident recovery.

15:00 **Questions and answers**

15:10 **Refreshment and Network Break** *sponsored by*



15:40 **Coal gasification for ammonia plants**

Bharthwaj Anantharaman, *Senior Process Engineer, KBR, Inc.*

A coal-to-ammonia process is described in which the KBR Transport Reactor Integrated Gasifier (TRIG™) is integrated in an ammonia plant, supplying hydrogen for a typical 2,000 MTPD ammonia synthesis loop. The paper focuses on the process economics and options for ammonia products and derivatives.

16:10 **Catalyst catastrophes III – More tales of the unexpected**

Peter Broadhurst, *Technical Manager - Syngas Products, Johnson Matthey Catalysts*

As systems become more reliable and start-ups and shut-downs – the circumstances that most commonly cause catastrophic failures in catalytic reactors – occur more infrequently, operator training and unfamiliar task planning become progressively more important.

16:40 **Development of a welding consumable to enhance the metaldusting resistance of Sumitomo's Ni-based Alloy 696**

Hidenori Ogawa, *Technical Manager, Sumitomo Metal Industries Ltd*

Sumitomo has developed a matching filler material for welding its new metal-dusting-resistant copper-containing Ni-based Alloy 696. Performance of joints made with the new filler in respect of effects such as creep rupture and stress relaxation cracking are evaluated.

17:25 **After-Session Drinks Reception**



18:30 **End of conference day 1**

Wednesday, 22 February (Parallel Stream A & B)08:00 **Welcome Coffee**
sponsored by08:30 **Conference registration**
sponsored by08:30 **Exhibition open****STREAM A****Session 3a: Urea Technology and Operations (I)**09:00 **Chairman Opening Remarks**09:05 **Innovations in environment management at GNFC's urea plant****Arun Agrawal**, *Additional General Manager,***Gujarat Narmada Valley Fertilizers Co. Ltd**

The paper explains how operating methods have been modified to resolve environmental issues and how ammonia losses from all sections of the plant, in normal operation and, critically, during shut-down, have been reduced by modifications.

09:35 **Emission control in urea plants in normal operation and during upsets – Why so many different solutions?****Martina Schmitz**, *Head of Urea Process Group, Ammonia & Urea Division, Uhde GmbH*

Ammonia emission standards for urea plants in continuous operation are usually set by national government, whereas discontinuous emissions such as those likely to arise during shut-down tend to be subject to local authority control, so requirements vary from plant to plant and so do the measures needed. Two actual examples will be discussed.

10:05 **How green is Stamicarbon's urea process?****Alfi Soemardji**, *Process Engineer, Stamicarbon*

The paper will describe the measures taken to minimize the amount of residual free ammonia in the Stamicarbon process and to prevent its release to the environment optimally from the point of view of capex and opex.

10:35 **Questions and answers**10:50 **Refreshment and Network Break** *sponsored by*11:20 **Commissioning and early operating experience at the world's largest single-train urea complex****Muhammad Idrees**, *Unit Manager Operations - Urea Plant, Engro Fertilizers Ltd***Fausto Ferrari**, *Process Engineer, Saipem SpA*

A detailed account of the experience in commissioning and the first year of operation of Engro's Topsøe/Saipem ammonia-urea complex, including problems, incidents and lessons learned.

11:50 **On-site refurbishment of badly corroded urea reactors improves reliability****Naseer Ahmed**, *Head of Engineering Department, DH Fertilizers Ltd*

DHFL undertook this pioneering restoration of its 15-year-old UTI urea reactors, making savings and shortening downtime by fabricating replacement components in its own workshops.

12:20 **Questions and answers**12:30 **Lunch** *sponsored by***STREAM B****Session 3b: Methanol Production Technology**09:00 **Chairman Opening Remarks**09:05 **Oman Methanol Company – The first four years****Ghaliya Alshabibi**, *Project Engineer, Oman Methanol Co*

The paper will describe some key aspects of Oman Methanol's 3,000-t/d plant and its operating record in its first four years, as well as discussing some observations on the diagnosis and correction of the issues done in co-operation with Johnson Matthey Catalysts.

09:35 **Successful implementation of a revamp in West Africa****Marco Badano**, *Deputy Dept Head in Research & Development, Methanol Casale SA*

After four years of operation with IMC internals, the first catalyst charge has been replaced in the Ampco methanol reactor. This paper describes the first run with the new IMC internals, the advantages of the isothermal design and the differences with the previous operation with a quench-type reactor.

10:05 **The IMAP process – A new approach to cost-effective coproduction of methanol and ammonia****Pat Han**, *Chief Engineer Technology Supervisor, Haldor Topsøe A/S*

In a simplified process flowsheet for simultaneous production of methanol and ammonia a once-through methanol reactor takes the place of the CO shift and CO₂ removal stages of an otherwise conventional reforming-based ammonia process. First industrial designs have been contracted and engineered for 3000+ MTPD combined production and the key design figures for these plants will be presented.

10:35 **Questions and answers**10:50 **Refreshment and Network Break** *sponsored by*11:20 **GigaMethanol® – The next big thing in methanol business****Norbert Ringer**, *Group Product Manager Methanol, Süd-Chemie AG*

To accommodate demand growth in a reinvigorated world methanol market, Süd-Chemie and Lurgi are on the point of introducing the GigaMethanol® technology, based on a new, innovative flowsheet and high-performance catalysts.

11:50 **Modernization of steam turbines as compression drives for ammonia and methanol production****Dariusz Knitter**, *Head of Production Development, ALSTOM Thermal Services*

Most (around 70%) steam turbine compressor drives in ammonia and methanol plants in eastern countries have yet to be modernized. The paper describes the use of latest computational techniques to substantially improve turbine efficiency and increase ammonia/methanol output.

12:20 **Questions and answers**12:30 **Lunch** *sponsored by*

“The conference was good with a very wide portfolio of papers. Everyone from any department in the industry had therefore something to learn. The overall organization was spotless.”

Hugues Chasselín, Manoir Industries

“It is an excellent forum to meet people from similar industries on one platform to share latest developments and problem faced by each.”

Waqar Ahmed, Fauji Fertilizer Co. Ltd

Wednesday, 22 February (Parallel Stream A & B)**Session 4a: Urea Technology and Operations (II)**

14:00 **Modernizing an integrated urea complex by introduction of advanced technologies**

Luca Rugnone, Urea Process Engineer, Urea Casale SA

By application of its advanced high-efficiency reactor trays, vapour recycle system and high-efficiency hydrolyser, Casale has brought the aging urea and melamine plants of Azotowe Pulawy to the most up-to-date performance levels.

14:30 **A novel large-scale, energy-efficient urea technology**

Rinat Anderzhanov, Senior Process Researcher, Research & Design Institute of Urea

Comparable to the leading urea technologies in its technical and economic performance, this new technology is applicable both in grass-roots plants of 2,000+ t/d capacity and in revamping older total-recycle type plants. It comprises a 200-bar synthesis loop and multi-stage melt separation with CO₂ stripping and a submerged steam-generating carbamate condenser both operating at 90 bar. This arrangement simplifies and lowers the profile of the equipment and reduces heat loss.

15:00 **Questions and answers**

15:10 **Refreshment and Network Break** *Sponsored by*



15:40 **Revamping experience of high-pressure ammonia feed pumps**

Farhan Manzoor Ahmed, Process Engineer, Fauji Fertilizer Co. Ltd

In the interests of operating flexibility and minimizing maintenance requirements, FFC elected to update the existing Uraca PD liquid ammonia pumps in its urea plants rather than to introduce new centrifugal pumps. The paper includes analysis of the various revamp options considered and the results achieved.

16:10 **A urea major's approach to the 6,000-t/d jumbo-scale urea plant**

Kenji Yoshimoto, Process Manager, Process Technology, Toyo Engineering Corporation

To keep abreast of capacity development in ammonia plants, TEC has completed a technical evaluation for a 6,000-t/d single-train urea plant. The paper will present the results of applying modern analysis techniques in confirming process performance of major critical equipment.

16:40 **Evolution of the urea training simulator – Features and benefits of its use**

Leo Rams, Managing Director, Protomation bv

First introduced almost 30 years ago, Stamicarbon's urea training simulator has provided many Stamicarbon licensee's operators with their first hands-on experience of the Stamicarbon process. This paper shows how the simulator has evolved over the years and details its main features, success criteria and specific benefits to the end-user.

17:10 **Questions and answers**

17:25 **Close of session**

Session 4b: Nitric Acid: Environment and Technology

14:00 **Future frameworks for N₂O emission reduction projects – Emission trading opportunities and N₂O regulations past 2012**

Marten von Velsen-Zerweck, Managing Director,

N.serve Environmental Services GmbH

An update on UNFCCC-registered N₂O emission reduction projects at nitric acid plants and on developments in the Kyoto and EU emission markets with special focus on the post-2012 situation. A new (June 2011) CDM methodology, allowing post-2005 nitric acid plants in developing countries to participate in emission trading markets, will be outlined.

14:30 **Nitrous oxide decomposition – The challenges and choices being faced**

Iona Page, Technical Sales Manager, Johnson Matthey Noble Metals

Johnson Matthey and partner companies have developed more than 60 N₂O emission reduction projects and have been working to eliminate the disadvantages associated with the primary and secondary abatement techniques.

15:00 **Questions and answers**

15:10 **Refreshment and Network Break** *sponsored by*



15:40 **Selection of optimum catalyst technologies in ammonia burners**

Thorsten Keller, Technical Manager Nitro Technologies,

Heraeus Materials Technology GmbH & Co. KG

A number of factors affect the selection of the type and design of an ammonia oxidation catalyst, including the relative market prices of its noble metal constituents, the cost of ammonia and the extent of the economic and/or regulatory strictures on N₂O emissions.

16:10 **A holistic approach to improving the nitric acid production process**

Knut Burchard, Global Sales Director, Umicore AG & Co. KG

Optimization of the ammonia oxidation process entails rigorous attention to what takes place in the converter in a degree of detail frequently not comprehended by the plant operator. The paper presents examples of what has been achieved in various types of plant and the economic implications.

16:40 **Integrating nitric acid and ammonium nitrate production facilities**

Dr Klaus Ruthardt, Head of Process, Hydrogen & Nitrates Division,

ThyssenKrupp Uhde GmbH

Based on the concept of horizontal and vertical integration of NA/AN complexes presented during last years' conference, several case studies considering project specific requirements of actual projects are described to reach the most economic complex and unit design. Factors considered where safety, minimisation of environmental impact and overall total cost of ownership.

17:10 **Questions and answers**

17:25 **Close of session**

Thursday, 23 February (Parallel Stream A & B)

08:00 **Welcome Coffee** *sponsored by*



08:00 **Conference registration** *sponsored by*

**Session 5a: Ammonia Technology and Operations**

09:00 **Chairman Opening Remarks**

09:05 **A Novel and Simple Tool for Data Reconciliation in Ammonia Plants**

Arsalan Naeem, Process Engineer, Fauji Fertilizer Co.

FFC has developed a simple, effective data reconciliation model based on Microsoft Excel, using the 'Solver Block' tool. Using raw data from FFC's three ammonia plants, it has been shown to match the results of specialised commercial data reconciliation software.

Session 5b: Nitrogen Fertilizer Finishing

09:00 **Chairman Opening Remarks**

09:05 **Latest improvements in indirect cooling technology for granular fertilizer**

Walter Türk, Vice President Europe & International Sales, Solex Thermal Science Inc.

Intensive research has resulted in technological improvements that minimize clogging and resultant need for cleaning in Solex's highly popular and cost-effective fertilizer cooling equipment

Thursday, 23 February (Parallel Stream A & B)**09:35 Reduce sea water consumption for cooling in ammonia and urea plants using the Six Sigma methodology****Mesaed Al-Shammari, Export Team Leader, Petrochemical Industries Ltd**

The paper explains how PIC used the Dow Six Sigma methodology to effect savings of more than US \$1 million in nine months through reduction of its sea water requirement without capital investment.

10:05 The role of APC and OTS in safe and optimized operation of nitrogen and syngas plants**Masaki Yasuda, Deputy General Manager, Mitsubishi Chemical Engineering Corporation**

Based on accumulated experience in applications of MEC's applied production technologies the Advanced Process Control system is designed to maximize yields and minimize resource and energy consumption. MEC's Operator Training System provides an efficient tool for training operators to understand the theory and concepts of the plant and the principles of good operation under all circumstances.

10:35 Questions and answers**10:50 Refreshment and Network Break sponsored by****11:20 CO₂ removal from syngas using piperazine activated MDEA and potassium dimethyl glycine****David Edwards, Business Development Manager, Optimized Gas Treating, Inc.**

The paper examines the effects of factors such as solvent concentration, piperazine-to-solvent ratio, temperature and pressure on the performance and regeneration energy requirement of piperazine-activated MDEA and similarly activated Alkazid DIK, which is completely non-volatile and more oxidation-resistant than MDEA.

11:50 Improvement in the CO₂ removal system of CFCL's No 2 ammonia plant to enhance CO₂ recovery and quality**Uendra Singh, General Manager – Production, Chambal Fertilisers & Chemicals Ltd**

Measures taken to reduce CO₂ slip, mitigate potash carry-over and raise capacity in CFCL's Benfield CO₂ removal system include replacing the activator with ACT-1 and cooling the CO₂ with chilled water, increasing capture of entrained potash in the knock-out drums in the urea plant CO₂ compressor suction.

12:20 Mechanical and metallurgical concerns in ammonia plants**Davide Bassi, Dty Dept Head, Engineering & Construction, Ammonia Casale SA**

At a number of points in an ammonia plant mechanical and metallurgical concerns are of particular importance because they have a direct bearing on reliability and safety. The paper describes some design choices made by Casale in that light.

12:50 Lunch**09:35 New possibilities for control and optimization of screening processes****Oliver Pikhard, Head of Technical Department, RHEWUM GmbH**

Variations in mass flow and particle size distribution of the feed material are mitigated by application of sensors providing real-time control of screening machinery to maintain stable product quality.

10:05 Fertilizer finishing process for AN and NPKs with Rotoform HS 2000**Kumar Swamy, Sandvik Process Systems, Sandvik Process Systems**

On the basis of successful trials using a mobile unit, Azomures ordered two of Sandvik's Rotoform HS 2000 machines as part of the modernization programme at its ammonium nitrate / NPK facilities in Romania.

10:35 Questions and answers**10:50 Refreshment and Network Break sponsored by****11:20 New high-capacity screening developments for granulated urea plants****Neil Smith, Sales Manager MENA, Rotex Europe Ltd.**

The first Megatex XD high-capacity screener for granular urea was installed in 2010. With a capacity of 2,300 t/d, this is the largest single urea polishing screen in operation, yet it occupies the same footprint as the 750-t/d unit that it replaced.

11:50 Two case studies of retrofitting an existing dedusting/ammonia removal system in a urea plant**Maria Skorupka, President & CEO, PROZAP Engineering Ltd.**

The paper discusses two representative, real-life scenarios, one at a urea prilling tower and the other on a urea granulator.

12:20 Questions and answers**12:30 Lunch****Session 6: Ammonia Technology and Operations (II)****14:05 Chairman Opening Remarks****14:10 Sustainable ammonia production – Reducing energy consumption and improving efficiency with high-performance catalytic technology****Stefan Gebert, Global Product Manager-Ammoniac, Süd-Chemie AG**

As the latest in a round of catalyst improvements, which include Amomax-10 synthesis catalyst and flower-shaped Reformax 330 and 210 low-pressure drop reforming catalysts, Süd-Chemie has introduced a new low-temperature shift catalyst, ShiftMax® 235, and its low-methanol version ShiftMax® 245. Laboratory tests prove that both catalysts are significantly more active and stable than currently available LTS catalysts.

14:40 Catalysing profit margin in ammonia plants**Bo Yde Svendsen, Product Manager, Shift Catalysts, Catalyst Division, Haldor Topsøe**

Ground-breaking research within the area of catalysts for ammonia production has resulted in new developments that can offer extraordinary advantages to ammonia producers. The presentation will focus on the latest commercially available products, using industrial case stories for illustrating the benefits of Topsøe state-of-the-art catalysts.

15:10 Questions and answers**15:20 Refreshment and Network Break sponsored by****15:35 How much catalyst is needed for synthesizing ammonia?****Shashi Singh, Senior Process Manager, KBR, Inc.**

The converter is one of the major equipment items that decide installed cost besides synthesis compressor and refrigeration compressors. The paper presents the conclusions of a comparative study of 2,200-mtpd ammonia loops in plants based on partial oxidation, Purifier and conventional SMR synthesis gas generation, with particular reference to per-pass catalyst volume requirement and life-cycle synthesis loop capacity utilization.

16:05 Innovative approaches to meet challenges to production sustenance and energy efficiency improvement**Anis ur Rehman Khan, Ammonia Process Engineer, Fauji Fertilizer Co.**

FFC has achieved substantial savings in its natural gas consumption, mitigating the effect of supply shortages by revamping its CO₂ removal system, modifying the HP boiler coil in the convection section, up-rating heat exchangers, replacing the ammonia separator internals, and installing S300 internals in the ammonia converter.

16:35 Questions and answers**16:45 Conference close**



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Discounted registration fee is applicable for: Operating, Engineering or Maintenance Personnel from Production Companies; Academic Institutions; Non-Profit Institutions. For further details please contact sabine.kilgus@crugroup.com

SEPARATELY BOOKABLE EVENT
Pre-Conference Workshop – **Aspects of Urea Manufacturing, Monday 20 February**

- £105 / €150 / \$190 (Delegates attending Nitrogen+Syngas 2012)
- £210 / €300 / \$380 (Delegates attending the workshop only)

- I am interested in sponsorship and/or exhibition opportunities
- I cannot attend but would like to purchase conference papers for £300
- I cannot commit just yet but please send me further information

REGISTRATION DETAILS UP TO 25% DISCOUNTS AVAILABLE ON GROUP BOOKINGS (See Group Booking Discounts)

Company name _____
Address _____

Zip/Postcode _____ Country _____

BUSINESS ACTIVITY: Raw material supply Producer Consumer Technology/Engineering Construction
Equipment

1st Delegate Title: Mr/Mrs/Ms First name _____

Family name _____ Job title _____

Unique email _____

Tel _____ Fax _____

Dietary requirements _____

2nd Delegate Title: Mr/Mrs/Ms First name _____

Family name _____ Job title _____

Unique email _____

Tel _____ Fax _____

Dietary requirements _____

PAYMENT DETAILS Please send payment with your registration

I am from an EU country and my sales tax number is:

I wish to pay by bank transfer to:

The Royal Bank of Scotland, Drummonds Branch 49 Charing Cross, Admiralty Arch, London, SW1A 2DX, UK

Account name: CRU Publishing Ltd; Sort Code: 16-00-38; BIC/SWIFT Code: RBOSGB2L

Please note when entering details by bank transfer, the 0 in RBOS is the letter O as opposed to a zero.

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Mark the remittance “Nitrogen & Syngas 2012 registration for (delegate/s name/s).”

I enclose a cheque payable to CRU Publishing Ltd

I wish to pay by credit card* – please debit my: Mastercard Amex Visa

Credit card number:

Valid from: / to: /

*NB We require the cardholder's registered address if different from the details given.

Name on card _____ Signed _____ Date _____

Other ways to reserve your place

FAX this form to:
+44 (0)20 7903 2432

E-MAIL your contact details quoting the above code to:
conferences@crugroup.com

CONFERENCE INFORMATION

Enquiries

General enquiries call: +44 (0)20 7903 2444 or email: conferences@crugroup.com

Group Booking Discounts – Save up to 25%

Make a group booking and get the following discounts:

3-4 delegates: 15% discount on all places

5 or more delegates: 25% discount on all places

To qualify, all registrations must be booked at the same time and payment made in one transaction.

Hotel Details

On receipt of your booking we will send you details on the CRU preferential rates available at the Hilton Athens

Terms of Booking

Payment Policy

Registrations can only be confirmed upon receipt of payment or proof of payment and discounted fees will only apply when payment is received within the offer period. If payment is not received before the conference, delegates will be asked to guarantee payment at registration with a personal credit card. Late payments made after the conference will be subject to an additional administration fee of £100/\$185/€140.

New 2011 EU VAT rule requires all conference, event and exhibition organisers to charge VAT*

*VAT can be reclaimed by all EU companies as well as Swiss and Norwegian. For non-EU companies there must be a reciprocity agreement between Greece and the country where the company has its seat. EU companies must file the applications electronically. Norwegian and Swiss companies must file paper-based applications and attach the original invoices.

Cancellation Policy

Cancellations must be received in writing prior to 20 January 2012 to qualify for a full refund less a 10% administration fee. It may be necessary for reasons beyond the control of the organisers to alter content, timing and venue. In the unlikely event of the conference being cancelled or curtailed for any reasons beyond the control of CRU Events, or it is necessary or advisable to relocate or change the date and/or location of the event, neither CRU Events, nor its employees shall be held liable for refunds, damages and/or additional expenses which may be incurred by delegates. We therefore recommend prospective delegates to arrange appropriate insurance cover.

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