

Sirius@Max™



IPCOS &



Stamicarbon
pure knowledge

Production managers of urea plants are under pressure to maximize profitability due to global competition, tightening legislation on ecosphere load, and fluctuating oil/gas prices. The joint Stamicarbon-IPCOS optimization solutions for urea plants relieve these pressures and increase margins.

THE BENEFITS ARE OBVIOUS:

Improved plant stability

Increased urea production (1% to 4%)

Reduced Energy consumption (> 0.5%)

Reduced emissions

Increased uptime

Minimal alarms
(operators can focus on essential operations)

Minimal operator interventions

Improved equipment reliability due to consistent, best-practice operation

Very stable Urea melt quality and temperature, improving downstream prilling/granulation operation

STAMICARBON IPCOS REAL TIME UREA SOLUTIONS FOR UREA

Sirius@Max is the result of the combination of Stamicarbon's leading Urea process knowledge and IPCOS' state-of-the-art Advanced Process Control (APC) technology called INCA, specifically designed for Stamicarbon Urea plants.

Layered approach

IPCOS and Stamicarbon help you achieve optimal operation of your urea plant, by pushing it closer towards the active constraints like:

- Condensation capacity in LP-section
- Condensation capacity in the synthesis section
- Available CO₂-compression capacity (max. RPM compressor)
- Available CO₂ production in ammonia plant
- Stripper flooding

The Sirius@Max solution is implemented using a phased methodology. The first phase focuses on the optimization of the base layer controls, whilst the second phase focuses on the implementation of the Advanced Process Control solution.

Optimized base layer control provides more stable operation throughout the entire Urea plant, and helps reduce the impact of disturbances on the plant with minimal operator intervention. The Sirius@Max Urea APC solution will optimize the operation of the unit minute to minute, every hour of the day, ensuring maximum efficiency and stability.



inca
FERTILIZER & SYNGAS
SOLUTIONS



INCREASE OVERALL PLANT STABILITY:

Due to the typical complexity (high degree of interactions and recycles) of a urea plant, the INCA APC controller is the perfect tool to reach the optimal, stable operating point in a straightforward way.

MAXIMIZE THROUGHPUT:

Once the desired stability is reached, the INCA APC controller will be used to smoothly maximize the CO₂ flow without violating any of the operating constraints. A typical constraint can be the maximum pressure of the reactor or a too low cooling water temperature at the inlet of the low pressure carbamate condenser.

INCREASE YIELD:

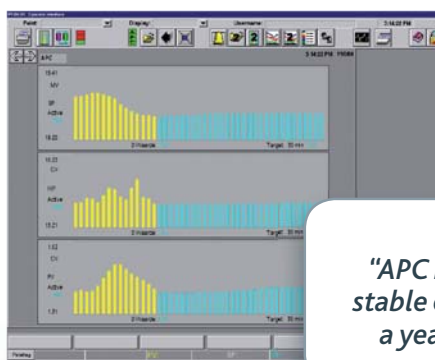
By increasing the yield in the high pressure reaction section, less carbamate will be recycled which will result in minimization of the energy consumption.

WHAT DOES IT TAKE?

An important factor in determining whether or not your Urea plant is ready to be equipped with Sirius@Max is that the necessary instrumentation required for APC is present and functioning reliably and accurately. This does not mean that "all possible equipment needs to be available and all possible equipment needs to function correctly". APC critical instrumentation is just a rather small subset of the equipment available on site. In most cases a plant is "more ready than people think". Note that operators are currently running the plant. So one way or another there seems to be sufficient information available to allow them to run the plant. In order to maximize the performance of the Sirius@Max system an N/C meter is highly recommended.

The Sirius@Max solution communicates with the plant DCS through an OPC connection.

In order to assess the feasibility of applying Sirius@Max to a plant, IPCOS and Stamicarbon offer a plant assessment which will report on the technical and techno-



economical feasibility of implementing the Sirius@Max solution, and which will contain the recommended next steps for the implementation of Sirius@Max on the Urea plant.

Urea Plant Manager:
"APC has brought much more stable operation and resulted in a yearly production record"

OPERATOR CAN OBSERVE
FUTURE MOVES OF THE SIRIUS@MAX
SOLUTION ON THE DCS

Sirius@Max™

ABOUT



Stamicarbon
pure knowledge

The evolution of urea is synonymous with our company. We were the first to license urea production 60 years ago. Since then a huge and complex industry has evolved worldwide – and Stamicarbon has been integral to its development at every step of the way. Our technology has been successfully licensed in over 80 countries and every continent except Antarctica – from gas-rich areas like the Middle East and former Soviet states to the world's biggest consumers of fertilizers – the vast land masses of China and India. Ever since the company's foundation, innovation has been a priority at Stamicarbon – from early inventions like the CO₂ stripper, to granulation technology, to our unique pool condenser/reactor concepts. We're proud of our history, from our early years serving the coal industry, to the development of urea licensing at home, and then abroad - including a more consultative approach to this multi-trillion dollar business. The world needs feeding – and demand for urea increasing annually. Commercial opportunities abound as the world's consumption of fertilizers continues to grow, and availability of arable land remains limited.

ABOUT IPCOS

IPCOS provides high-end automation and optimization solutions to the process industry. We have particular expertise in providing solutions to the fertilizer, refining, petrochemical, batch, glass and power industries. Our services range from optimizing DCS controllers, (re-)designing advanced regulatory controllers for DCS systems, APC feasibility and benefits studies, APC implementations, APC maintenance, and training engineers and operators in control topics. Our products include advanced PID tuning packages, control performance monitoring systems, soft sensor tools, MPC controllers, and transition optimizers. IPCOS is the leading supplier of control based optimization solutions to the fertilizer industry with a large install base on ammonia, urea, nitric acid and granulation plants as well as steam networks. "Creators in Control" describes exactly what IPCOS is and what we do: we create state-of-the-art process control and optimization products that generate significant value for our customers.



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