

AP Technology™

ALPSYS The heart of your potline

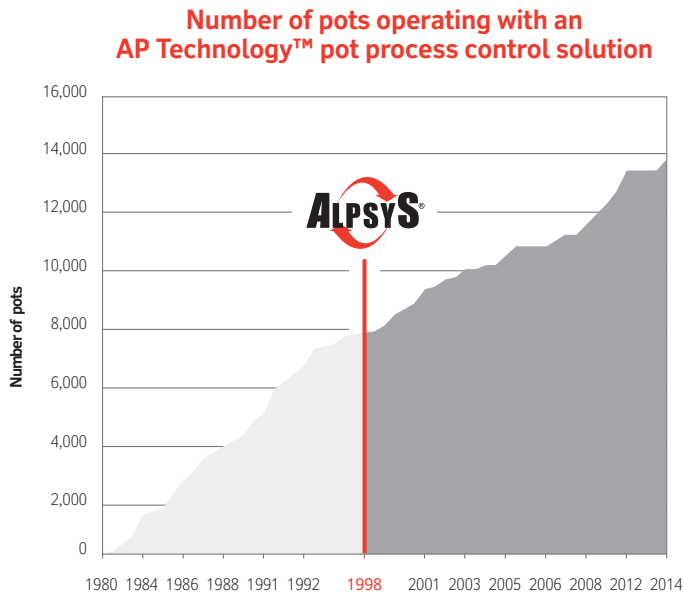


*ALBA 5, Bahrain.
Courtesy of ALBA*

Optimising both new and existing potlines

Developed and maintained by reduction experts, ALPSYS is one of the market's most advanced pot process control systems. It's built on the combined strengths of Aluminium Pechiney, RTA Alesa, Thales and Centralp, recognised leaders in their respective fields. This self-standing solution empowers you to maximise the performance of both new and existing potlines.

From R&D to maintenance, ALPSYS is the industry's most comprehensive pot control system. Its advanced technologies, equipment and support services enable you to optimise both the pot process and potline performance. A proven solution that's constantly evolving, ALPSYS is the heart of any reduction line.



An outstanding track record

Since 1998, ALPSYS has generated unsurpassed value for 19 customers worldwide, and counting, by:

- Delivering an efficient end-to-end operational system that meets customer needs right from start-up
- Adhering to a robust implementation plan based on decades of experience
- Leveraging a 'product approach' that ensures each new project benefits from the knowledge gained during previous ones, dramatically reducing the implementation problems and bugs experienced when such large-scale systems are developed from the ground up
- Continuously Integrating the latest developments in AP Technology™ process control solutions

Enhanced pot instability control

Saving energy by reducing the ACD requires operating the pots closer to their limits which often results in increased instability. ALPSYS's new high/low instability treatment reduces the pots' specific consumption by avoiding unnecessary additional resistances and providing more timely alarms of anode generated instabilities.

	ALPSYS	Ongoing projects
ADG	•	
Alba	•	•
Alma	•	
Alouette	•	
Aluar	•	
Hillside	•	
Hindalco – Mahan		•
Hindalco – Aditya		•
Jonquière	•	
Kitimat		•
Laterrière	•	
LRF	•	
Lochaber	•	
Ma'aden		•
Mozal	•	
Nalco	•	
Saint-Jean-de-Maurienne	•	
Sohar	•	
Tomago	•	

"I've been working in potlines at Alba for the last 35 years. In fact, I was in charge of the start-up of line 5, Alba's latest extension, which set a new world record by starting 336 pots in 77 days. The new ALPSYS system was a key part of this success. ALPSYS is easy to learn and use, and gives us rapid access to the right information. It is powerful and accurate, helping us achieve benchmark performances in high current efficiency and low anode effect frequency. Compared to the older pot control system in our other potlines, ALPSYS is delivering great improvements at Alba."

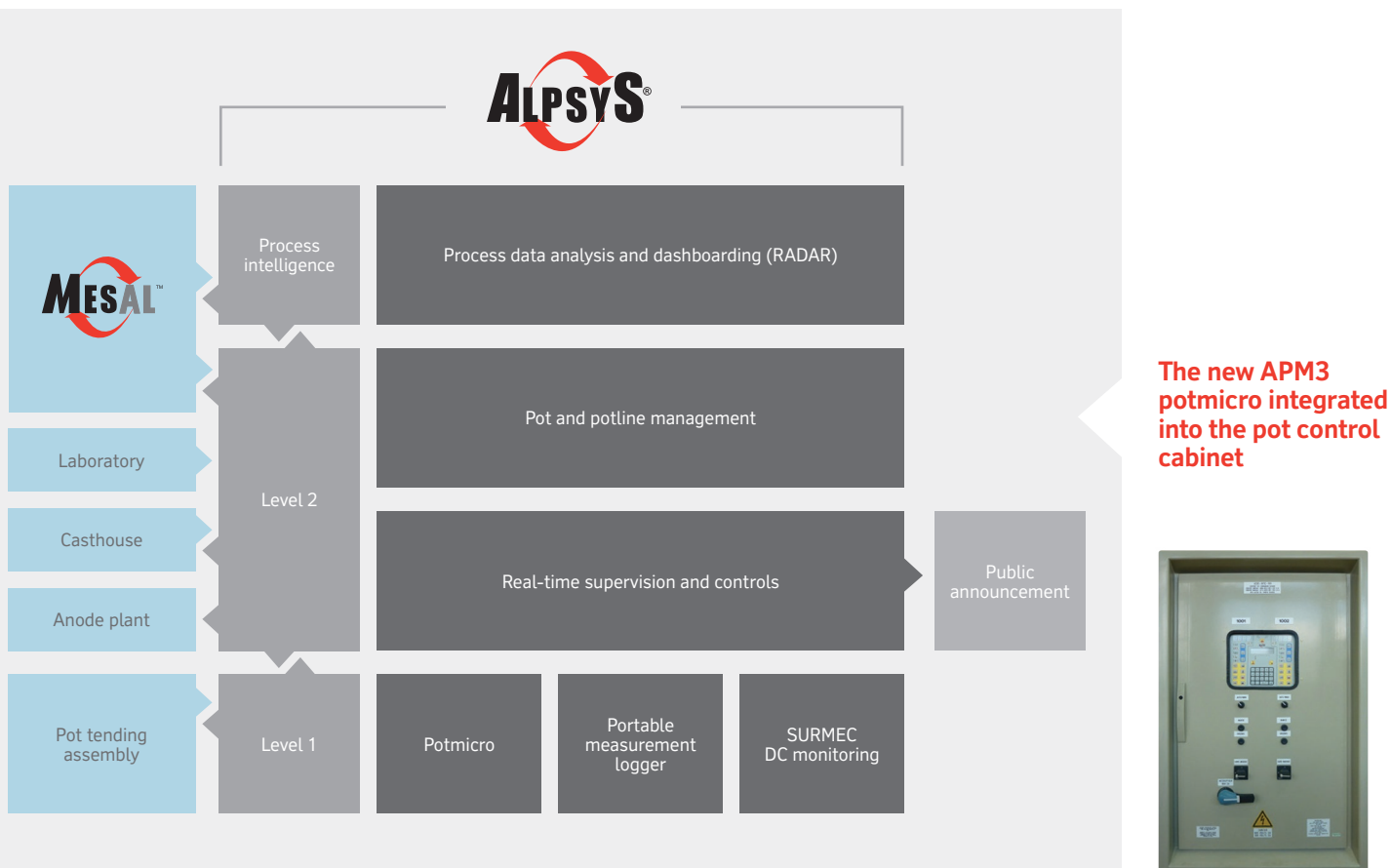
Ahmed Ghuloom

Manager, Reduction Line 4 and 5, Alba



Simple and user friendly

- Intuitive interface for easy learning and use of functions
- Quick access to additional data on each screen
- Linux and web-based user interface including online help
- Best of breed data navigation, process intelligence and dashboarding: RADAR (Reduction ALPSYS Data Analysis and Report) module
- Automatic transfer of manual pot measurements to system by PMLs (Portable Measurement Loggers)
- WiFi-based mobile solutions



Complete and integrated

- End-to-end data management from instantaneous pot control values to monthly technical potline reports
- Potmicros fitted with the latest R&D innovations including 4A alumina feeding and improved instability control, delivering advanced anode effect control, higher current efficiency and tighter anode-cathode distances
- Advanced functionality including work management, potline restart and cathode life history
- Potmicro to pot tending assembly communications
- Data exchanges with surrounding workshop supervision or manufacturing execution system (MES)
- SURMEC (monitoring system for DC metering) for reliable DC amperage and voltage measurement data

Safe, robust and reliable

- Each potmicro controlling up to two pots that operate independently to secure pot operations
- Permanent standby backup on Level 2 servers
- Resilient shop floor ethernet network loop
- Pot alarms on each potmicro and all workstations with public announcement systems for quick warning and intervention
- Robust potmicros capable of operating in the harshest potroom environment (fluorinated dust, high magnetic fields, electromagnetic noise, high voltages and extreme temperatures)
- Around the clock monitoring of measurement acquisitions, anode beam, CAFD (Crust Breaker and Alumina Feeding Device) and ATFD (Alumina Trifluoride Feeding Device) orders
- Continuous monitoring of DC voltage for open-circuit situations by SURMEC

World class performance

Benchmark performances with ALPSYS stem from our 30 years of experience in pot process control system implementation worldwide. When used on the latest AP Technology™ pots, ALPSYS consistently delivers benchmark results including:

- Current efficiency above 96%
- Anode effect rate below 0.03 anode effect per pot per day
- Anode effect duration below 15 seconds
- DC consumption below 13,000 kWh/t

Whether driving the latest AP60 or other pot technologies, ALPSYS boosts the performance of your reduction process by:

- Maximising current efficiency through tight control of anode/cathode distance, bath chemistry and alumina feeding
- Reducing your smelter's environmental footprint by lowering the anode effect rate and related gas emissions as well as controlling voltage and energy consumption
- Empowering operators with easy detection of abnormal pots and access to operating parameters
- Increasing labour productivity through a work management programme, advanced and flexible reporting and integrated infrastructure



As a key part of the comprehensive AP Technology™ smelter package, ALPSYS is supported by a team of experts delivering services throughout our customer's systems lifecycle.

Services

- Delivery management
 - Equipment engineering
 - Software configuration and parameterisation to fit specific local needs
 - Project management
 - Factory acceptance tests
 - On-site installation (with local partners) and supervision
 - Pre-commissioning and start-up
- Training for operation (IPH - Institut Paul Héroult) and maintenance
- System maintenance
 - Software and system maintenance and support
 - Hardware repairs and spares for Level 1 equipment
- ALPSYS operation support
- Process tuning and optimisation assistance
- Product R&D and continuous development
- Software upgrades

“The ALPSYS system has played a major role in allowing Hillside PL3 to demonstrate superior performance results, compared not only to PL1 and PL2 which still use the older system, but also to most of the AP30+ family. Hillside PL3 has succeeded in driving the pot control process beyond the limitations of progressive amperage increases and cathode performance. Through effective alumina feeding regulation, ALPSYS has enabled us to achieve anode effect frequencies of less than 0.10/pot/day compared to 0.18-0.20/pot/day with the older system. Our goal now is to bridge the gaps across our payload size, quality and bottom line. That is why we sought and received approval to convert our PL1 and PL2 to the full ALPSYS system, extending the tangible benefits already seen in PL3.”

Dayalan Reddy

Superintendent, Reduction, Hillside

ALPSYS User Club and Forum

ALPSYS is more than a product and a technical solution. It's also a community of 19 sites and four development and support groups. As we strive to help the ALPSYS community achieve world class performance, you have much to gain by connecting with this large installed base. Join the ALPSYS User Club and participate in the ALPSYS Forum.

New '4A' alumina feed algorithm

Eleven smelters are now achieving unrivalled performance thanks to Rio Tinto Alcan's latest auto adaptive alumina control solution.

- Anode effect rate reduced by 50%
- Current efficiently increased by 0.3%
- Bath alumina concentration reduced by 20%

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