



ALTA Metallurgical Services

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TREATMENT OF NICKEL-COBALT LATERITES SHORT OUTLINE

- Ore Characterization and Process Implications
 - Idealized Orebody Profile
 - Real Orebodies
 - Metallurgical Implications
- Commercial Treatment Processes
 - Pressure Acid Leaching
 - History
 - PAL Operations
 - Basic Flowsheet
 - Advantages and Disadvantages
 - Simplified PAL Reactions
 - Major Process Parameters
 - First PAL Plant – Moa Bay
 - Next Stage of PAL Development
 - Second Generation PAL Plants
 - Third Generation PAL Plants
 - Typical PAL Plant Design Criteria
 - Autoclaves
 - Preheaters
 - CCD Thickeners
 - Downstream Process Selection
 - Materials of Construction
 - Future Innovations
 - Reduction Roast-Ammonia leach (Caron) Process
 - History
 - Operations
 - Basic Flowsheet
 - Principles of Process
 - Key Reactions
 - Yabulu Operation
 - Advantages and Disadvantages
 - Smelting Processes
 - History
 - Operations
 - Process Principles
 - Advantages and Disadvantages
 - Ferronickel Smelting
 - Matte Smelting
 - New Smelting Projects
 - Smelting Process Developments
 - Koniambo Project

Processes Under development

- Heap Leaching
 - Status and Issues
 - Potential Advantages
 - Heap Leach Projects
 - Caldag Project
 - Murrin Murrin Project
- Atmospheric Agitated Tank Leaching
 - Status and Issues
 - Potential Advantages
 - Projects
 - Caldag Project
- Proposed Processes
 - Segregation Roasting
 - Sulphation Roast
 - Republic Steel Process
 - Aqueous Chlorination Process
- Laterite Project Development
 - Scoping Phase
 - Prefeasibility Phase
 - Final Feasibility Phase
 - Environmental Aspects
- Case Histories
 - Moa Bay PAL
 - Coral Bay (Rio Tuba) PAL
 - Yabulu Reduction Roast-Ammonia Leach
 - Cero Motoso Ferronickel Smelting
 - PT Inco Matte Smelting
- Postscript – Nickel Pig Iron Production