Austpac Resources N.L.

Annual General Meeting

13 November 2003

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Corporate Objective

TO CREATE SIGNIFICANT AND SUSTAINABLE WEALTH FOR SHAREHOLDERS

- By becoming the world's largest producer of ultra high-grade synthetic rutile
- By licensing technologies for non-SR applications to generate additional income

Newcastle Pilot Plant

- Fluid Bed Roasting
- Magnetic Separation
- Bulk Leaching
- Fluid Bed Calcination
- F.B. Agglomeration
- Acid Regeneration

Over 78 different types of ilmenite successfully tested

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Austpac's Technologies and Know-How

- ERMS[(1)] – high temp magnetising roast (>750ºC)[(FB)]
- LTR – low temp magnetising roast (<650°C)[(FB)]
- ERMS SR roast – high temp oxidation/reduction (<995°C)[(FB)]
- HCl leaching – batch[(FB)], continuous[(2)] leach vessels
- EARS[(1)] – regeneration of HCl from Fe chloride[(FB)]

[(FB)]Fluid bed process, [(1)]Patented, [(2)]Patent pending

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The ERMS SR Process

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ERMS SR FLOW SHEET

Mineral separation plant

Heavy mineral concentrate

Magnetic separation

ERMS roaster

Roasted ilmenite

REGENERATED ACID

SPENT ACID

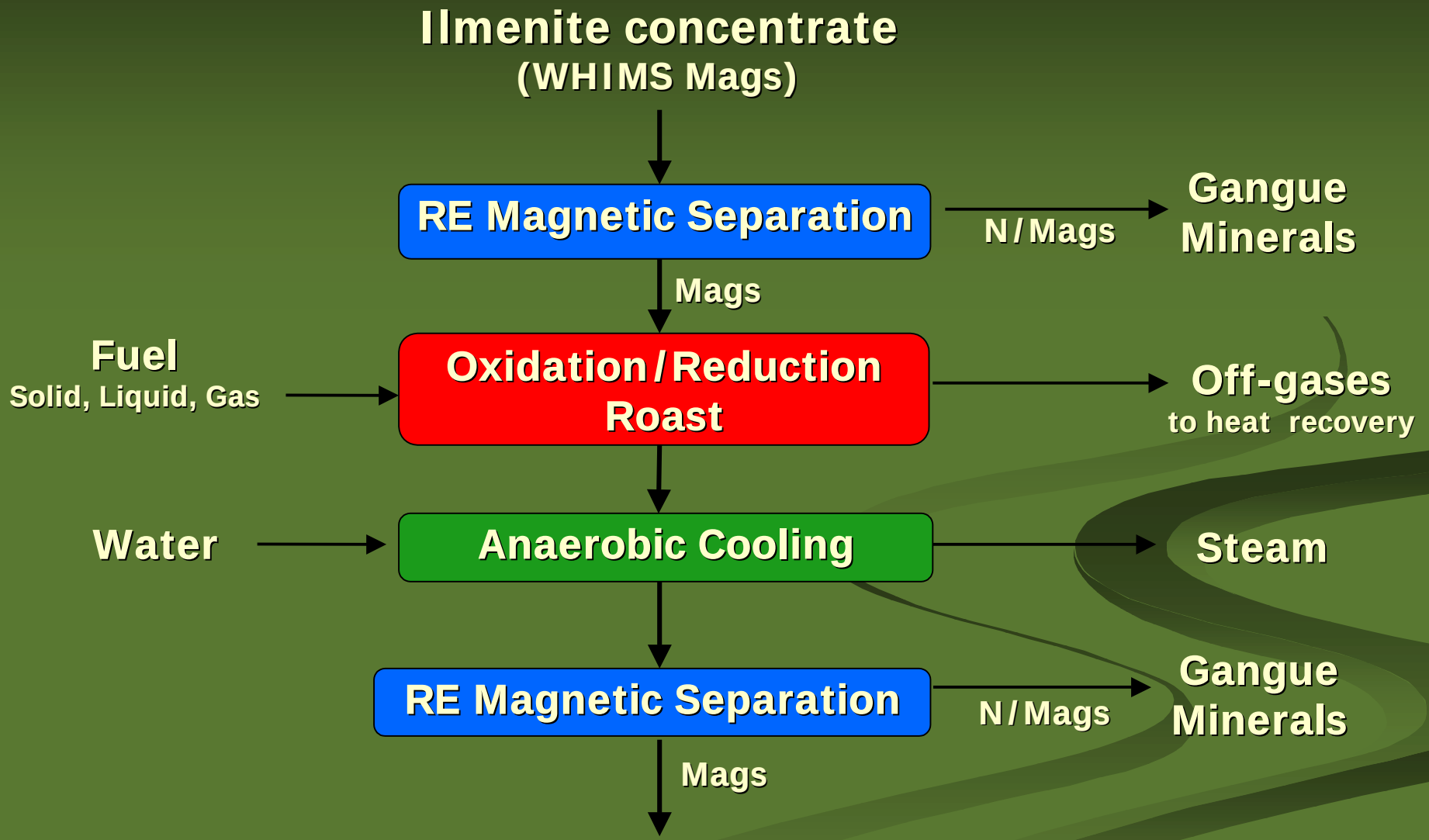
Saleable iron pellets

EARS acid regeneration plant

ERMS leach vessels

Synthetic rutile

ERMS SR Roast



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ERMS SR

Oxidation - Reduction Roasters

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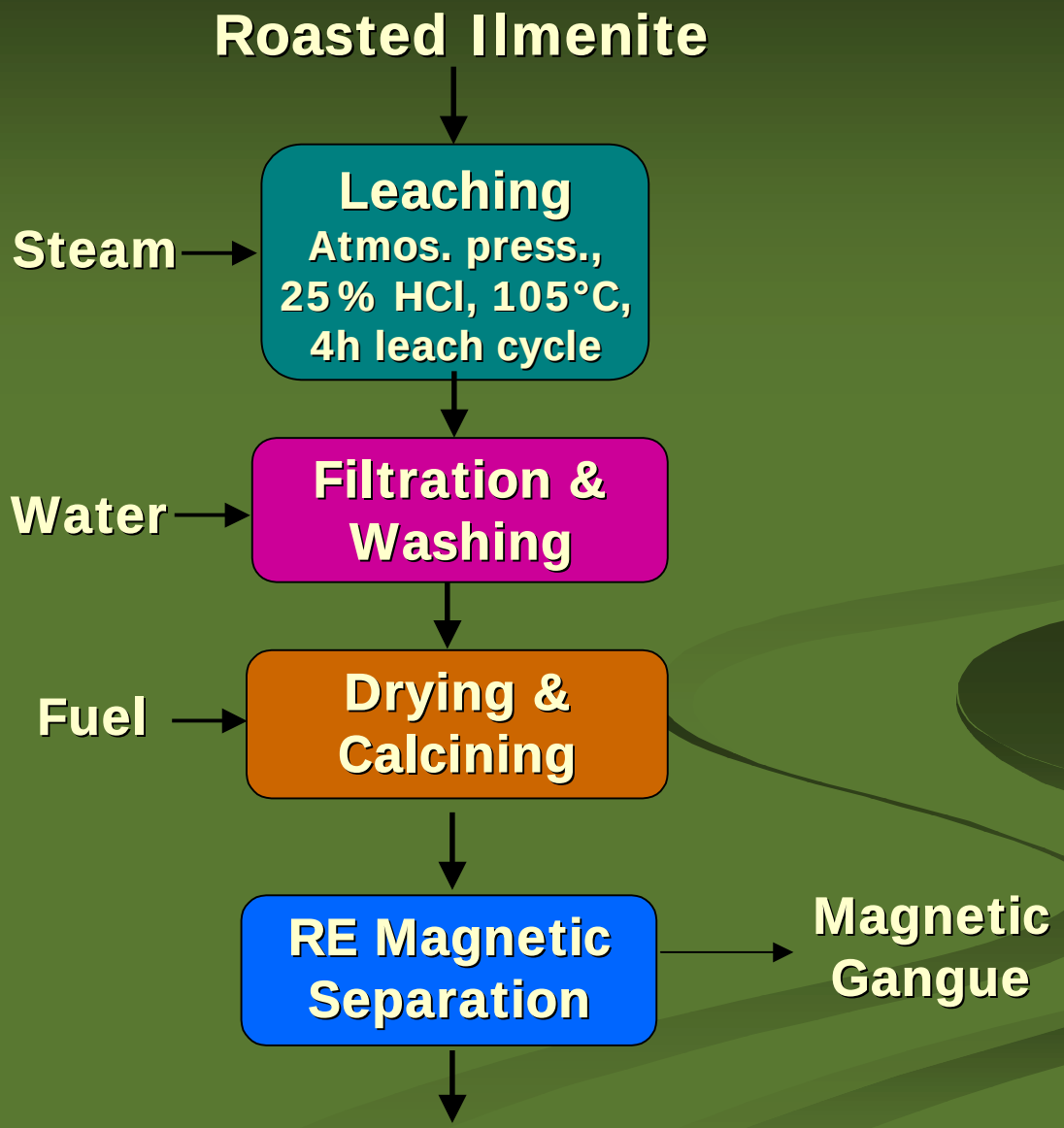
ERMS SR Leach



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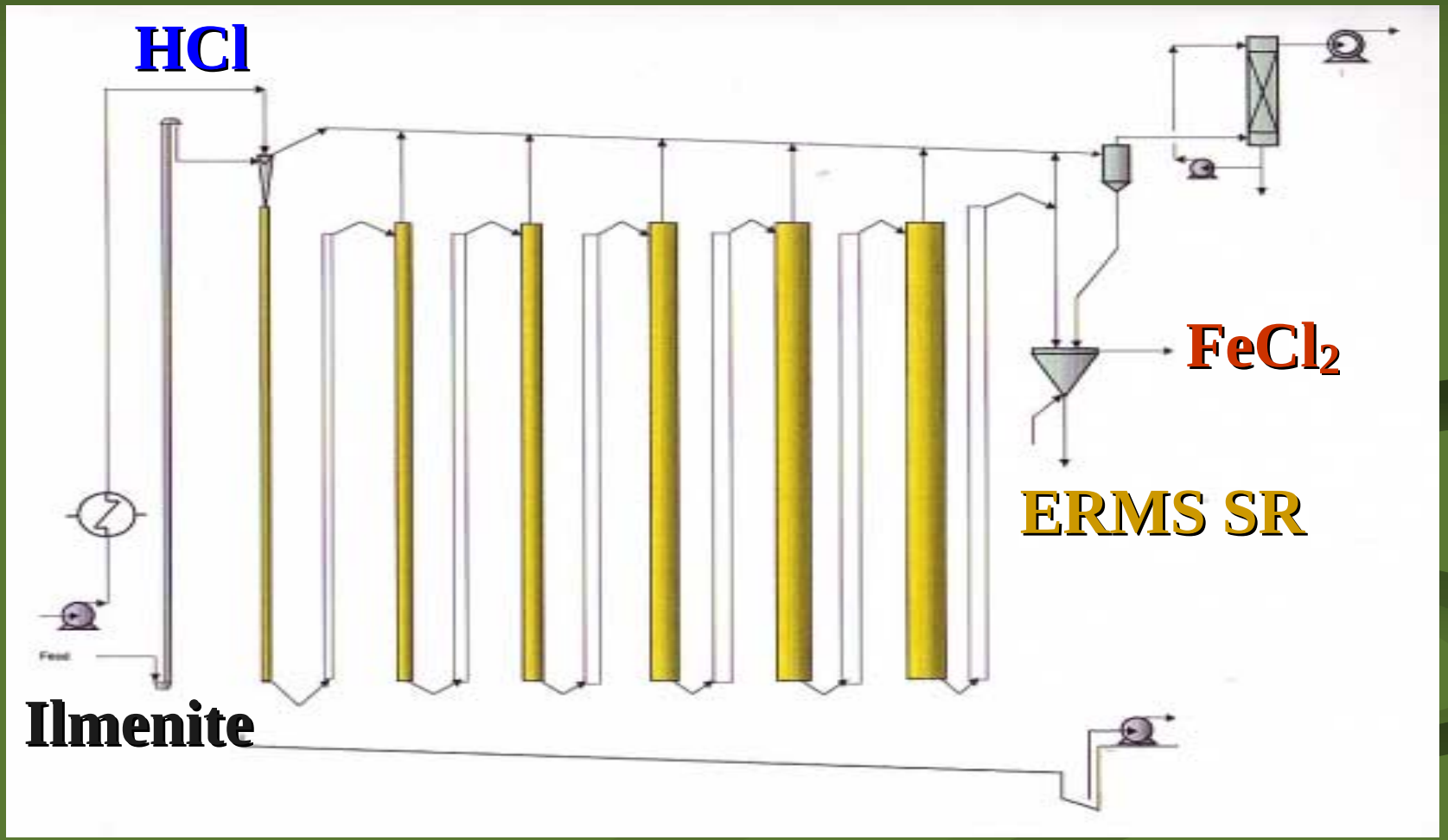
Continuous Leach Reactor

(Patents pending)



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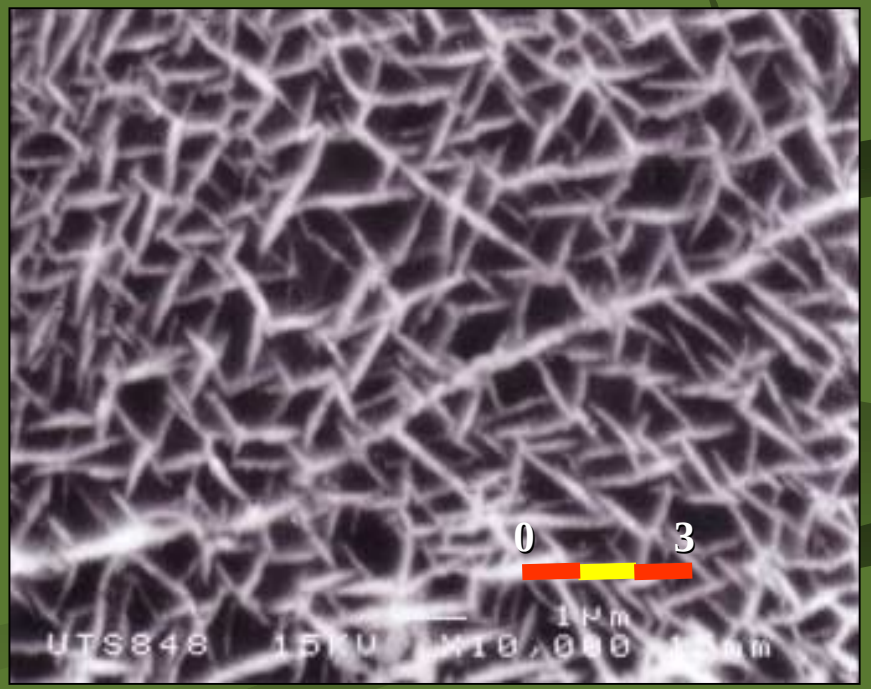
ERMS SR

Chemical Analysis

(N.S.I. ilmenite)

TiO_2	98.00%
Fe_2O_3	0.55%
SiO_2	0.57%
Al_2O_3	0.17%
Cr_2O_3	0.01%
CaO	<0.01%
MgO	0.02%
MnO	0.01%
U+Th	<10ppm



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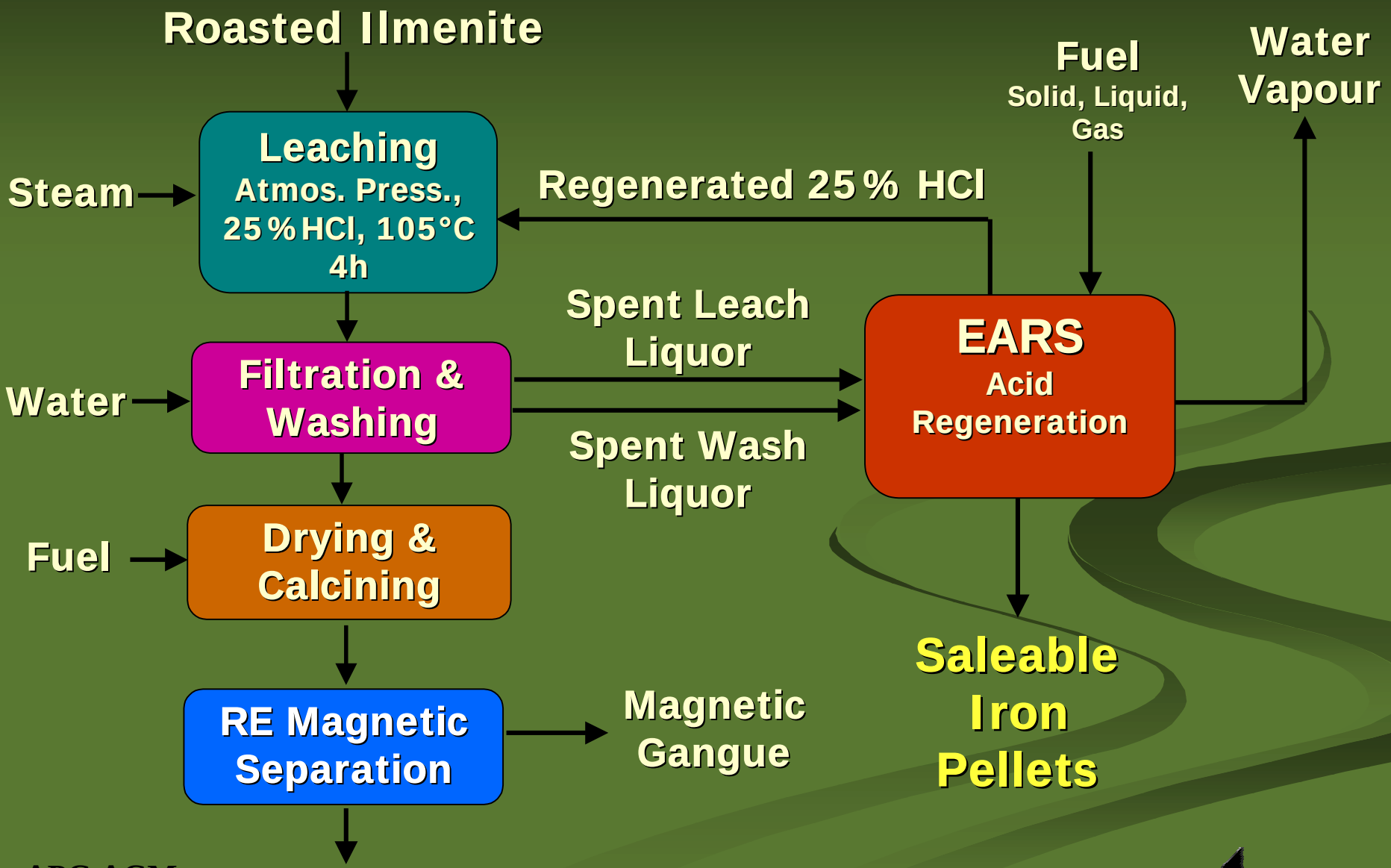
ERMS SR Leach & EARS A.R.



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Titanium Dioxide Pigment

The role of ERMS

Synthetic Rutile

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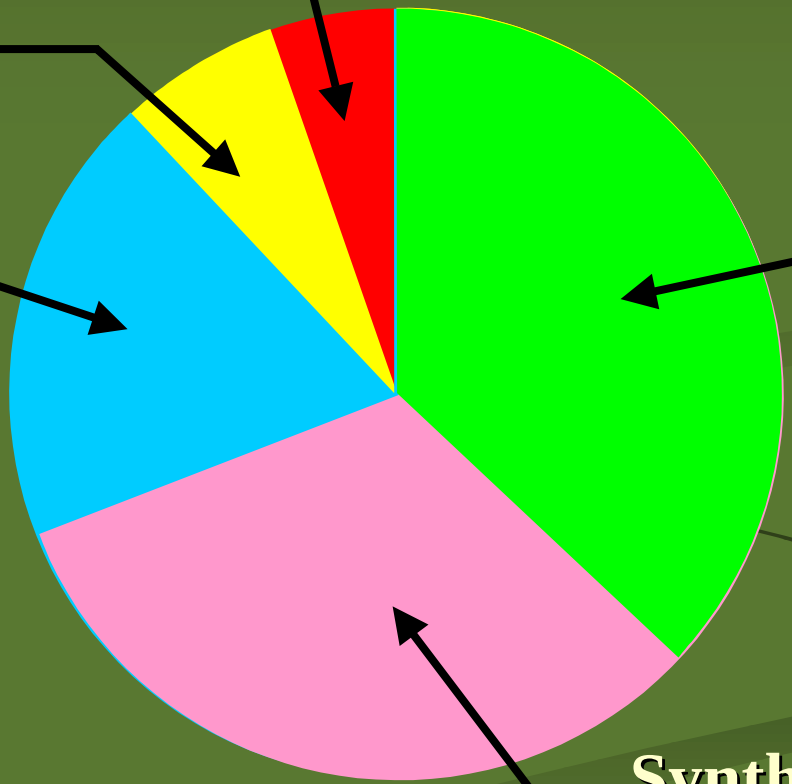
The Titanium Industry and ERMS SR

- 95% of titanium used as TiO_2 pigment
- $US8 billion industry; 3% pa growth
- Five producers account for 75% of global capacity
- Two manufacturing processes – **Chloride** (60%) and **Sulfate** (40%)
- Chloride process requires high-grade feedstock

Chloride Feedstocks



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Source: Mineralex Agencies

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Ilmenite Upgrading

Process	Ilmenite Feedstock	Impurity Removal	Limitations
Titania Slag	Low TiO_2	None	Power Cost
Becher SR	High TiO_2	Some Mn	Coal, Fe Oxide
Benilite SR	Wide range	Mg,Ca,U+Th	Acid, Fe Oxide
ERMS SR	Wide range	Mn,Mg,Ca, U+Th,V, Cr	None

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SR Quality

Ultra high-grade feedstock for TiO_2 pigment and titanium metal

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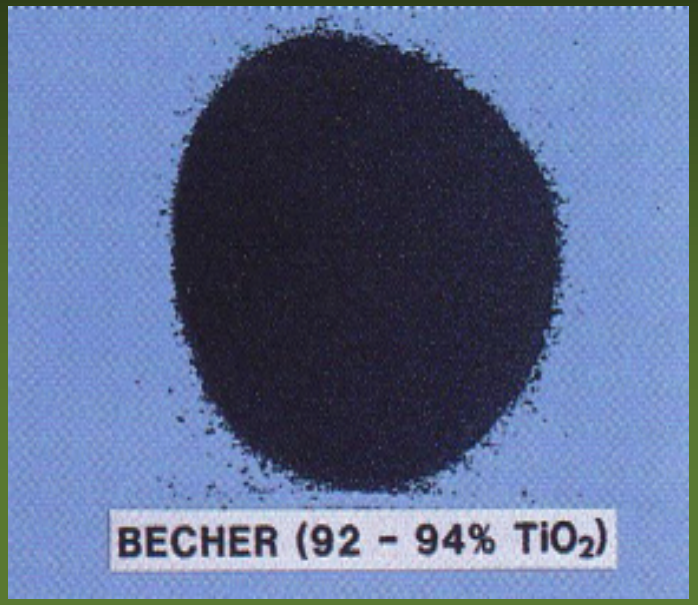
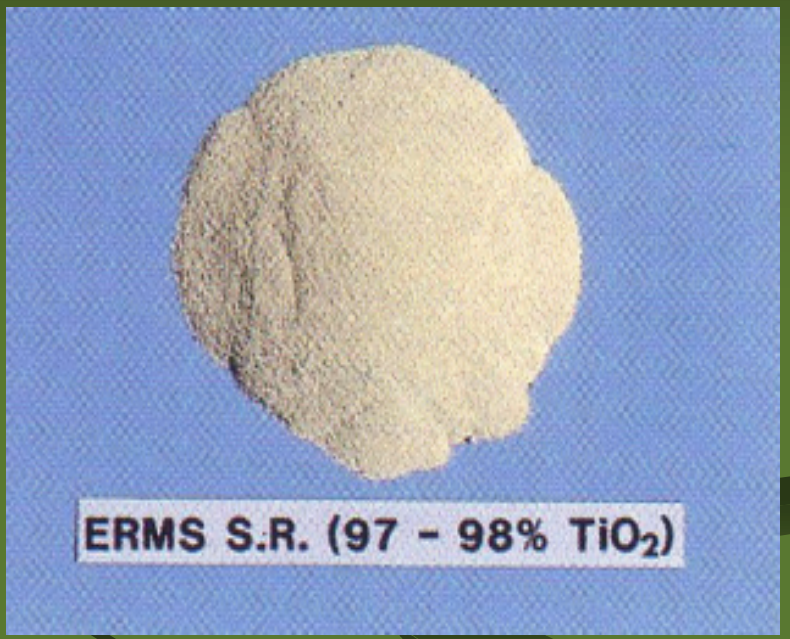
SR Quality





Ultra high grade feedstock for TiO_2 pigment and titanium metal

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Ilmenite Upgrading Costs ($US/t)

Process	Capital	Operating	Price	Margin
ERMS SR	**450**	**140**	**420**	**280**
Becher SR [1]	550	150	350	200
Titania Slag	970	190	300	110 [2]
Benilite SR	750	280	380	100

Notes: [1] *The Becher process is ore and coal specific.*

[2] *Excludes value for pig iron ~$140/t*

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The Competitive Advantage of ERMS SR

- Applicable to all ilmenites
- Ultra high quality synthetic rutile product
- Saleable iron co-product ("DRI" pellets)
- Continuous process; fuel - solid, liquid or gas
- Most environmentally friendly SR process
- Lower capital and operating costs
- High margin business

The Eastern Australian ERMS SR Project

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Why 30k tpa of ERMS SR?

- New type of feedstock; ultra high-grade
- Immediate market of >25,000t for plant trials by TiO_2 pigment and Ti-metal producers
- Market shortfall in 2006 of >50,000t
- Economics of 30k tpa plant are attractive
- A bankable ERMS SR project requires:
  - Long term ilmenite supply contract
  - Take-or-pay agreement for SR product

New Agreements for SR Plant

- Ilmenite supply – CRL; 70k tpa, 10yrs +
- Chrome-contaminated concentrate ex North Stradbroke Island
- ERMS SR sales; Iluka; 30k tpa, 5yrs +
- Take-or-pay agreement, SR market price with minimum price covering operating and financing costs
- Subject to Bankable Feasibility Study
- BFS to cost $5M, 6 months to complete

30k tpa ERMS SR Plant

- Capital cost: $50 million
- Assumes 60% debt, $20 million equity requirement
- Timetable:
  - BFS - 6 months, commencing January 2004
  - Financing – 3 months
  - Construction – 15 months
  - Commissioning – 3 months, commencing end 2005
  - Full production in 2006

30k tpa ERMS SR Plant Cash Flow (100% Austpac)

Capital Cost	$A	50.0	million
Sales (pa, SR & FeOx)	$A	23.6	"
Operating Cost (pa)	$A	7.0	"
Net Cash Flow (pa, EBIT)	$A	16.6	"
Payback	3 years		
IRR (ungeared)	27%		

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ERMS SR Plants in Eastern Australia

- 30k tpa plant fully operational by 2006
- Potential for expansion of first plant
- Iluka option to participate in these plants
- Economies of scale at 100k tpa ERMS SR
- Murray Basin potential – Iluka?

The LTR Process

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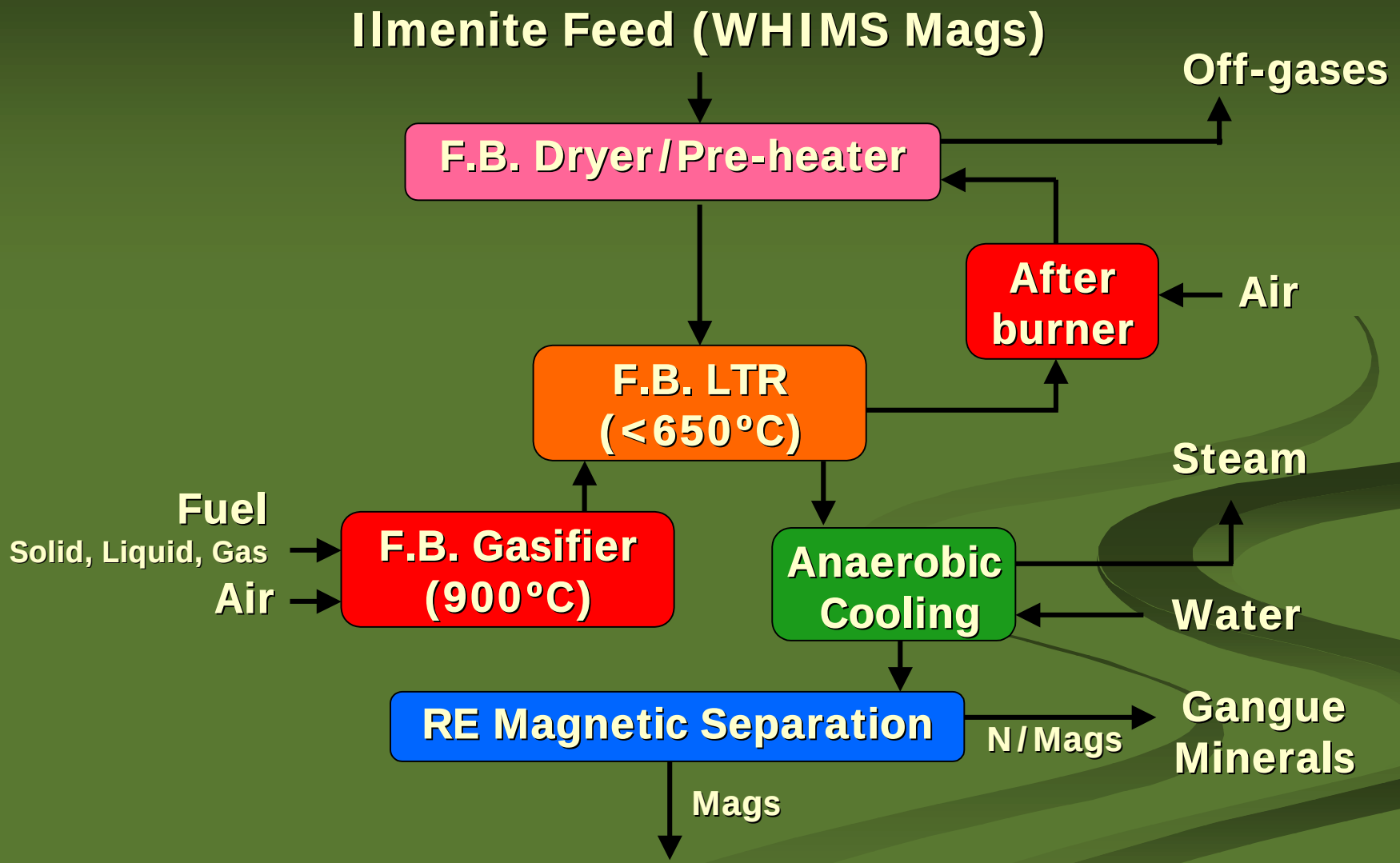
The LTR Process

- "Low temperature" roast: <650ºC, 20-30 min
- Effective on fresh and weathered ilmenites
- High ilmenite recovery – generally >90%
- TiO_2 in ilmenite is <u>not</u> rutilized, thus soluble in acid – suitable for chloride <u>and</u> sulfate process
- Applicable where gravity/magnetic separation is ineffective – eg Murray Basin (chromite removal)

LTR Roast



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LTR Roaster & Afterburner

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LTR Roast - Results

Component (%)	Murray Basin (3)		Murray Basin (4)	
	Feed	Product	Feed	Product
TiO_2	55.0	61.5	59.1	63.0
Fe_2O_3	28.6	35.4	31.8	34.3
Cr_2O_3	1.17	0.28	1.30	0.24
SiO_2	4.03	0.82	0.61	0.63
Al_2O_3	2.99	0.72	1.17	0.84
P_2O_5	0.30	0.09	0.13	0.12

LTR Projects

- **N.Z. Steel**
  - Treatment of mine tailings
  - 2.5 tph LTR roaster under construction
  - Commissioning and test program commences January 2004
- **BeMaX's Pooncarie project**
  - 7 day continuous LTR run successfully completed
  - Ausenco preparing turnkey proposal for LTR plant
  - 15 tph LTR roaster to remove chromite from ilmenite

AUSTPAC'S FUTURE

- Emerging synthetic rutile producer; 30k tpa
- Future expansion of ERMS SR production
- Platform technologies:
  - LTR roasting
    - N.Z. Steel – 2.5 tph plant under construction
    - BeMaX – Murray Basin; 15 tph plant planned
  - EARS acid regeneration
    - Steel and other industries – ongoing negotiations

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ERMS SR

The way forward for Austpac