

AUSTPAC RESOURCES NL

(ASX Code: APG)

May 2001

Development of mineral sands processing technologies

Recommendation: Long Term Buy

Austpac has continued to aggressively pursue development of its innovative ERMS and EARS mineral sands treatment technologies, with the company now operating on several fronts. The most advanced area is India, where the company is finalising a joint venture feasibility study on an integrated ERMS/EARS plant, whilst in the Murray Basin of southeastern Australia the company's technologies are being trialed for a number of potential clients, as well as on its own large WIM 150 deposit. We maintain our recommendation on Austpac Resources as a Long-Term Buy.

OVERVIEW

After commencing its corporate life as a gold explorer, Austpac changed its focus in 1997 to concentrate entirely on pursuing development of its patented ERMS and EARS mineral sands processing technologies. The revolutionary technologies allow for substantial value-adding by upgrading ilmenite (an abundant but low-value titanium mineral) at modest cost into a high-value product known as synthetic rutile. Synthetic rutile is used as a primary feedstock in the chloride process, which in turn is used to manufacture titanium dioxide pigment. This white pigment is the primary colouring used in the manufacture of paint, plastics and paper. Austpac has been able to develop the technologies in-house and on a very modest budget.

The first major application of Austpac's technologies will occur with the proposed construction of an integrated ERMS and EARS processing plant in India's Orissa State under a joint venture comprising Ticor and Indian Rare Earths. A development decision is expected later this year, with first production expected in the second half of 2002. Ticor is meeting all of Austpac's initial funding commitments. We believe that this is just the first of many deals that will allow Austpac to tap the enormous potential offered by the Indian mineral sands industry. Austpac is also progressing several potential development opportunities in Australia's Murray Basin, which we anticipate could open up a second major development front for the company.

CORPORATE DETAILS

Last Sale Price:	\$0.09	Year High/Low:	\$0.22/\$0.08
Issued Shares:	340 million	Market Cap:	\$31 million
Avg Monthly T'over:	5.8 million		

DIRECTORS' PROFILE

Alfred Paton, Chairman: Engineering background, with more than 50 years' business experience. Formerly MD and Chairman of Placer Pacific and Kidston Gold Mines, and a director of Placer Dome. He is currently Chairman of AuIron Energy Ltd.

Michael Turbott, Managing Director: Exploration background, with 29 years mining industry experience. Former director and Vice President of Kennecott Exploration (Australia) and Chairman of Denham Coal Associates and a director of Denham Coal Management Ltd.

Harold Hines: Over 50 years experience in operations, development, management and consulting in the mineral sands and alluvial mining industry. He is Managing Director of International Mineral Developments Pty Ltd.

Terry Cuthbertson: Extensive international corporate experience, including extensive knowledge of India. Former senior partner with KPMG Corporate Advisory Services and Group Finance Director with Tech Pacific. He is currently Chairman of Telco Australia Ltd.

EXPLANATION OF AUSTPAC'S ERMS & EARS TECHNOLOGIES

Austpac has been processing ilmenite for more than ten years and has subsequently developed two proprietary processes that have direct application to the mineral sands/titanium dioxide industry. The first is ERMS, which stands for Enhanced Roasting and Magnetic Separation, whilst the second is EARS, which stands for Enhanced Acid Regeneration System. The technologies have tremendous potential, have been developed in-house, and are patented and exclusive to Austpac.

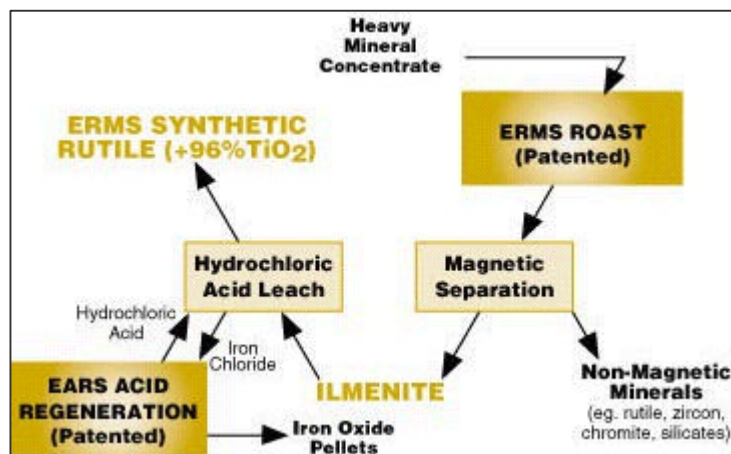
What is titanium dioxide pigment and what are its applications ?

Titanium dioxide (TiO₂) pigment is the brilliant white pigment used in the paint and plastics industries, and to a lesser extent in the paper industry. TiO₂ pigments are superior to all other alternatives and are highly sought by paint and other manufacturers throughout the world. The global TiO₂ pigment market has grown over the last 20 years by 3% p.a. and is now worth around US\$8 billion annually.

What are the benefits of Austpac's ERMS/EARS technologies ?

The chloride process, a more environmentally friendly process than the older sulfate process, currently produces more than 60% of the world's TiO₂ pigment. The chloride process, however, requires a feedstock with a high TiO₂ content (generally >85%). Most natural sources of high TiO₂ minerals such as rutile, are now exhausted, so chlorinatable feedstock is manufactured from ilmenite, a common mineral generally containing around 50% TiO₂. Upgrading can be achieved either by electrosmelting, which produces titania slag, or by chemical processing to produce the >90% TiO₂ material known as synthetic rutile.

Simplified flow diagram of the ERMS and EARS processes



Austpac's ERMS & EARS technologies, when combined, can produce the world's highest quality synthetic rutile (>96% TiO₂), at a claimed cost advantage of as much as 25%. The ERMS roasting process more effectively magnetises ilmenite than comparable methods, so it can be easily separated from other minerals. The EARS acid regeneration system reconverts iron chloride (a by-product of the acid leaching process) into hydrochloric acid at a significantly lower cost than the alternative methods, whilst a plant is also up to 50% cheaper to build. Both technologies are also environmentally friendly and the end-products are free of the radioactive issues associated with alternate technologies. The successful treatment of ilmenite samples from over 60 deposits indicates that ERMS and EARS are the only technologies able to process any sort of ilmenite anywhere in the world. ERMS and EARS are potentially the most significant and efficient mineral sand technologies available in the world.

COMMERCIAL DEVELOPMENT OF AUSTPAC'S TECHNOLOGIES

Austpac has at least three major and separate initiatives through which it is progressing its technologies to commercial development. In chronological order these comprise:

i. South Africa

In 1998 Austpac issued two technology licences to Iscor Limited - the major South African steel producer. The first was for the commercial application of Austpac's ERMS technology and the second was for its EARS technology. The issue of the licences followed two years of testing by Iscor. The technologies will be used in conjunction with Iscor's US\$300 million heavy mineral project, which includes a mine, separation plant and a 250,000 tpa titania slag smelter, situated near Richards Bay in KwaZulu-Natal Province. These licences represent a strong vote of confidence in Austpac's technologies by a major international corporation. Licence fee payments, which we estimate to be worth at least \$5M to Austpac, will commence upon project start-up, although no firm decision has yet been made.

ii. India

In mid-1998 Austpac signed an agreement with Indian Rare Earths Limited (IRE), the government entity that controls all mineral sand developments in India. This agreement involved the investigation of establishing an ERMS synthetic rutile plant in India, to be known as the AusRutile Project. IRE became interested in the ERMS process in 1997 when Austpac demonstrated that the technology could produce high-grade synthetic rutile from ilmenite sourced from three substantial deposits on India's east coast. The deposits have an aggregate resource base of more than 120 million tonnes of economically viable ilmenite, representing approximately 8% of the world's known resources. They have the potential to support annual production of 500,000 tonnes of synthetic rutile for more than 70 years.

Following lengthy negotiations with potential project partners and financiers, Austpac announced in July 2000 a worldwide joint venture agreement with Ticor Ltd. The deal will allow immediate development of the AusRutile Project and will give Austpac and Ticor an equal 37% share in the newly formed AusRutile India joint venture company, which will hold the partners' 74% project stake with IRE retaining 26%. Under the deal, Austpac will receive a series of payments we estimate at around \$3 million based on agreed development milestones being achieved. Ticor will also provide loan funds for Austpac's share of the initial synthetic rutile plant.



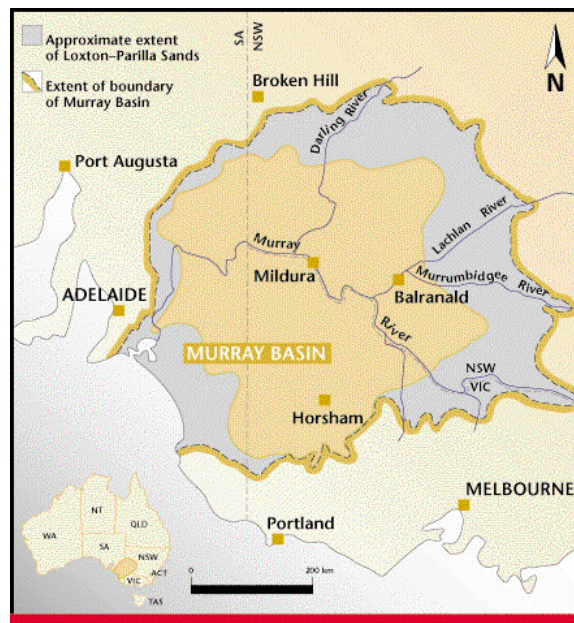
The proposed integrated ERMS and EARS plant will be located at IRE's OSCOM facilities in Orissa State and will have a conservative capacity of 10,000 tpa, although we anticipate eventual capacity of closer to 15,000 tpa. The feasibility study for the 10,000 tpa plant is well advanced and we expect it to be finalised by July 2001, with a formal commitment decision shortly after. We anticipate actual commencement of project construction in the second half of 2001, with first production commencing in the second half of 2002. Austpac has already completed definitive testwork and Brisbane-based Ausenco is undertaking engineering design and detailed costings for the feasibility study, whilst Jacob's H & G of Mumbai India is providing local support for infrastructure, construction and environmental aspects. It is estimated that the capital cost of the plant will be around US\$10 million. As provided for under the Austpac-Ticor joint venture, all project costs including testwork at Austpac's Newcastle facility, are being 100% funded by Ticor. In fact Ticor has provided Austpac with capital for all project expenditure since March 2000.

With respect to potential returns, we estimate that the initial 10,000 tpa project could generate annual after-tax cashflows of US\$2 million with a payback period of four years, which would generate an after-tax internal rate of return of greater than 15%. Upon successful demonstration of the plant, a +200,000 tpa plant is planned at an estimated capital cost of US\$210 million, of which Austpac's share would be US\$78 million. This plant would generate forecast annual revenues of US\$105 million and pre-tax cashflows of US\$62 million, of which Austpac's share would be US\$23 million – or A\$44 million. We estimate a high internal rate of return of around 30%.

iii. Murray Basin, southeastern Australia

In recent years, mineral sands exploration activity in the Murray Basin of eastern Australia has undergone a resurgence. This is primarily as a result of the discovery of coarser grained deposits compared to the finer grained, uneconomic deposits, which have been known for years in the basin. These Murray Basin deposits are probably the last significant resource of premium ilmenite in Australia and could potentially attract a significant price premium. When traditional magnetic separation is used to process the sands, the resulting ilmenite generally contains >1% Cr₂O₃, which means that the ilmenite concentrate is either unsaleable (Cr₂O₃ < 0.4% is required), or at best cannot command a premium price.

Map showing the location of the Murray Basin



Austpac has so far undertaken ERMS testwork on behalf of five Murray Basin exploration companies and its technology has been shown to be highly effective in reducing the chrome content of the ilmenite concentrate to acceptable levels. Austpac's aim is to licence its technology to these emerging producers, which in turn could generate significant returns over the medium-to-longer terms. A major testwork programme is being undertaken by Austpac during 2001 at its Newcastle pilot plant, which will form part of a feasibility study to produce a premium synthetic rutile for TiO₂ pigment manufacture. Negotiations for a licence to use the ERMS process to upgrade ilmenite and remove chromite from the ilmenite concentrate are well advanced.

Austpac is also pursuing the development of mineral sands opportunities on its own acreage, using its technologies within its own right. During 2000, Austpac on behalf of the Austpac-Ticor joint venture successfully tendered for Block 1 in the Murray Basin, an ex-Rio Tinto area near Horsham in Victoria that contains the WIM 150 resource as well as a further three fine-grained WIM-type heavy mineral accumulations. WIM 150 lies within the 933 sq km EL 4521 and comprises a large, fine-grained mineral sands resource that has been extensively drilled over an area of almost 200 sq km. Around 800 drillholes have been drilled within the limits of the WIM 150 global resource

area, for a resource of 4,900 million tonnes at a grade of 2.2% heavy minerals. The drilling has also defined a higher-grade core area of around 40 sq km comprising 1,000 million tonnes at a grade of 4.0% heavy minerals. Importantly in mining terms, the WIM deposit is relatively flat-lying and is overlain by just 5-10 metres of overburden, with the core area having an average stripping ratio of just 0.8:1.

Austpac recently completed an initial bulk sampling on the heavy mineral horizon of the WIM 150 deposit, with more than 400 tonnes of ore stockpiled for upgrading. A heavy mineral concentrate will be produced from the bulk sample for processing at Austpac's Newcastle pilot plant. The heavy mineral suite is fine-grained and therefore requires treatment to produce readily saleable products. Bench scale testwork undertaken during 2000 on similar fine-grained heavy minerals from another deposit was successful and the main focus of the forthcoming pilot plant programme is to produce a marketable synthetic rutile product from this large ilmenite resource.

In terms of financial projections, the establishment of a large-scale mineral sands operation at WIM 150 in say 2003/04 could cost in the vicinity of A\$400 million, with Austpac's 50% share being \$200 million. In broad terms we might expect annual sales revenues of around A\$300 million, whilst net cashflows could be in the vicinity of \$140 million (Austpac's share \$70 million). Provided the pilot plant testwork during 2001 demonstrates the viability of upgrading the fine-grained minerals, WIM 150 could be the foundation of a major new domestic growth front for the company.

KEY APPOINTMENTS STRENGTHEN AUSTPAC'S MANAGEMENT TEAM

Austpac has recently made several key appointments in order to strengthen its management team. Mr Terry Cuthbertson has been appointed to the board as a non-executive director, as he has extensive Indian business experience. He is also the Chairman of Telco Australia and a non-executive director of Open Telecommunications. Mr John Downie has been appointed as General Manager – Project and technology Development, as he possesses an extensive background in the development of mineral processing plants, and has broad mining and chemical industry experience. He will oversee the completion of the AusRutile project design study and the project's implementation in the second half of 2001. We believe these appointments are particularly timely, given the much higher level of corporate activity in which Austpac is now involved.

OUTLOOK AND RECOMMENDATION

Through its growing participation in various types of mineral sands deals, we anticipate Austpac becoming a key player in the mineral sands industry. The company is now positioned at a very exciting stage, with the emergence of excellent short and long-term business opportunities. In India alone, Austpac appears set to become a significant player for at least the next 20 years. We expect the results of the current feasibility study by the end of May, with formal approval for project go-ahead in June/July. In the meantime, the company is receiving cash reimbursements from Tigor for past expenditure as performance targets are met. Austpac is set to receive a further \$350,000 in October, so it remains fully funded.

Austpac is also at the forefront of developments in the Murray Basin, although unlike other participants in the Basin it has the added appeal of a pioneering new technology. Whilst Austpac's profile in the Basin is lower than most of the other participants, we expect this to change as the market better appreciates its Murray Basin ground position and the significance of its technologies. We expect positive results from the company's Murray Basin testwork over the next few months, with the potential for deals with emerging Basin producers.

The recent modest performance of Austpac's share price belies the significant developments and high level of technical and corporate activity taking place behind the scenes. The timing and quality of Austpac's recent managerial appointments reflect this. Our assessed fair value for Austpac, based on estimates of future Indian income streams and the potential for Murray Basin development, remains at between \$0.40 and \$0.50 a share. We expect investor interest to increase significantly with the imminent release of the Indian feasibility study and production go-ahead.

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