

Personal Details

Nationality: Dutch

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Career Summary

Thirty three years of broad international exposure to the bauxite and alumina industry (22 of which with BHPBilliton), ranging from hands-on experience in plant commissioning and start-up, process engineering and production control, to corporate roles in business & technology development, and project evaluations.

Built up an in-depth understanding of the underlying factors controlling the technical and economic success of bauxite and alumina projects. Positions included deputy head plant control engineering, corporate chief process engineer, project development, and shareholder representative on joint venture committees. Self employed since December 2003 as independent technical and economic advisor to the bauxite and alumina industry, and director of TWS Services and Advice (website www.twsservices.eu).

TWS's clients include Aker Kvaerner, Aluminpro, BHP Billiton, Global Alumina, SNC Lavalin, SRK Consulting, UC Rusal, AMEC Foster Wheeler and Metacorp Group. Activities comprise due diligence, scoping/conceptual study, alumina refinery technology selection & flow sheet development, process improvement, independent technical and economic evaluations, and strategic advice. Projects include greenfield, brownfield and de-bottlenecking projects and existing operations in the bauxite & alumina industry.

Employment History

2003-Present	Techno-economic advisor to the Bauxite & Alumina Industry, Netherlands (NL)
1998-2003	Project & Process Development, BHP Billiton, NL
1992-1998	Alumina Technology & Business Development, Billiton, NL
1989-1992	Senior Process Engineer Spent Potlining, Billiton / Shell, NL
1986-1989	Production Control, Worsley Alumina, Australia
1982-1986	Process and Projects Engineering, Worsley Alumina (Shell / Reynolds), Australia
1978-1982	Process Engineer Nickel & Manganese Nodules, Billiton / Shell, NL and USA

Experience Profile

Benchmarking, audits, due diligence, economic evaluations of bauxite and alumina projects.

Development of new bauxite and alumina project opportunities in Latin America, Africa and Asia, including review of project aspects with host government agencies.

Co-developer of state of the art greenfield alumina refinery design, including benchmark technologies, layout optimisation and modern design philosophies.

Participation in the commissioning, start-up, production control and de-bottlenecking of the greenfield Worsley alumina refinery in Australia.

Education & Languages

1978: Master of Science Chemical Engineering, Delft University of Technology, Netherlands.

1980-1981: Finance and Economics related courses.

1986-1994: Several Shell management development courses.

Languages: Dutch, English – fluent; German – fair.

Relevant assignments

- Preparation of scoping / conceptual studies of alumina refinery projects in Africa and Asia.
- Due diligence of Processing Plant and Operating Cost for the feasibility study of a West African greenfield bauxite and alumina project.
- Analysis of the technical and economic performance and de-bottlenecking potential of the alumina refineries of one of the alumina industry's major players.
- Reviewed the "red side" technology package for a proposed greenfield bauxite and alumina project and proposed alternatives where appropriate.
- Extensive experience with technical and economic evaluations of existing and potential global bauxite/alumina projects in the context of China's alumina demand.
- Alumina refinery expert on a project identifying benchmark bauxite/alumina opportunities, including a review of bauxite resources, refinery technologies and economic evaluations of alumina production. Deposits with potential were visited. Project development aspects, such as mining codes and tax regimes were reviewed with government agencies.
- Hands-on experience with pre-commissioning, commissioning and start-up of a greenfield alumina refinery, de-bottlenecking and operations trouble shooting.
- Developed as team leader capital and operating costs of a new-design greenfield refinery.
- Developed as team leader major options to expand an Australian refinery's production capacity addressing key issues such as availability of resources, bauxite transport, infrastructure, environmental and plant technology aspects.
- Contributed to the development and negotiations of bauxite equalisation formulae which were used to allocate alumina production costs to refining project joint venture partners with each partner supplying its own bauxite from different mines.
- Performed a techno-economic analysis of bauxite hydraulic transport as alternative to conventional routes to develop isolated potential bauxite deposits.
- Visited bauxite mines extracting different types of bauxites: karst-type such as the open cast mines in Jamaica; lateritic plateau-type bauxite (Guinea, Suriname India Australia, and Vietnam) and deep seated bauxite (Suriname). The Awaso (Ghana) mine operates a beneficiation plant to upgrade bauxite quality.
- Visited more than a dozen alumina refineries employing alumina refining technologies from Reynolds, Alcan, Pechiney, Alcoa, Alusuisse and VAW.
- Assisted in alumina supply contract negotiations of industry major with customer aluminium smelters with respect to alumina quality impact on smelter operations.

Publications

- "Greenfield Dilemma – Innovation Challenges" (TMS Feb 2005, San Francisco, USA)
- "Operating Cost – Issues and Opportunities" (TMS Mar 2006, San Antonio, USA)
- "Greenfield Bauxite/Alumina Projects: Economics, Technology, Research and Design Center" (VAMI 75th Anniversary Oct 2006, St Petersburg, Russia)
- "Capital Cost: To Be or Not To Be" (TMS Feb 2007, Orlando, USA)
- "Opportunities for Cost Reduction by By-passing Security Filtration in Alumina Production" (Aluminium International Today (AIT) Sept/Oct 2009)
- "Redundancy of Security Filtration" (TMS Feb 2010, Seattle, USA)
- "Significance of Increased Greenfield Alumina Refinery Design Capacity" (ALUMINIUM Jan/Feb 2011)
- "New Development Model for Bauxite Deposits" (TMS Feb 2011, San Diego, USA)
- "New Development Model for Bauxite Deposits – Dedicated Compact Refinery" (TMS Mar 2013, San Antonio, USA)
- "Economies of Scale and Alumina Refining" (AIT Mar/Apr 2013)
- "New Alumina Project Approach – Dedicated design, Compact Capacity" (ALUMINIUM Jul/Aug 2013)
- "Sustainability Aspects of Bauxite Deposits and Alumina Refineries" (AIT Jan/Feb 2014)
- "Sustainability and Bauxite Deposits" (TMS Feb 2014, San Diego, USA)
- "Capital Charge – Tool for Economic Screening Purposes" (ALUMINIUM Jul/Aug 2014)
- "Relationship between Liquor Yield, Plant Capacity Increases, and Energy Savings in Alumina Refining" (JOM Sept 2014).
- "Sustainability and Alumina Refinery Design" (TMS March 2015, Orlando, USA)
- "Sustainability & Alumina Refinery Design" (ALUMINIUM Jul/Aug 2015)