

**Manage and optimise the complexity
of your stockpiles and blending**

BlendOpt



Paradyn

**Integrated
Value-chain
Optimisation**



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Simultaneous optimisation of process feed control strategies, stock inventories, and product portfolio using BlendOpt

Manganese operations can have a high level of complexity associated with ROM stocks and quality management with implications for contract delivery, sales and overall product portfolio.

Plans for processing, stockpiling, satisfying contractual requirements and product portfolio optimisation are difficult to align with enterprise objectives if each planning activity is developed separately instead of holistically. In practice, value-chain optimisation is only achievable through integrated planning. By integrated planning, we mean coordinated planning of decisions between mining, processing, logistics, and sales. While the importance of integrated planning is recognised, its execution is difficult without the right tools to support this process.

BlendOpt is the first mathematical optimisation software tool that supports complete integrated planning of sales and manganese value-chain strategies. Starting with a mine schedule, BlendOpt discovers strategies for how product should be processed, blended, and allocated to different product concentrates with the objective of maximising profit while satisfying contract specifications. Mathematically optimised plans are created using algorithms that test thousands of possible plans in search of the highest profit from the data provided.

BlendOpt for manganese mining and processing

The BlendOpt solution has been engineered to manage the complexity of the manganese value-chain and can support decision making in the following areas :-

- In recent years Manganese ore price volatility has been quite high - BlendOpt can help manage volatility by supporting decision makers within the operation to make high quality cost-effective decisions in the context of unpredictable changes in prices that lead to dependable quality outcomes.
- Manganese operations can have an unnecessary level of complexity in their stock yards, with BlendOpt's Collaborative Mathematical Optimiser (CMO) it is possible to discover ROM stockpiling strategies which simplify reserving decisions and eliminate complexity while still providing robust quality control.
- BlendOpt can generate schedules and plans that support feed streams to processing plants that satisfy operational constraints.
- BlendOpt aligns multi-time horizon contracts (e.g. 1 year to 5 year contracts), and integrates these contractual obligations with scheduled activities.
- Satisfy all of your value-chain quality constraints including Mn, Fe, P, SiO₂, CaO, Mg:Fe Ratio constraints, and many others that impact processing, while minimising the impact of sale price penalties - BlendOpt can incorporate complex penalty functions and quality constraints and discover integrated schedules and plans that maximise revenue potential of your operation.
- BlendOpt can do all of the above, and much more simultaneously, so decisions for one objective are not in opposition to another at different decision points or points in time, but align silos across the operation.

The BlendOpt Solution

Paradyn's BlendOpt value-chain platform powered by Collaborative Mathematical Optimisation (CMO) can help you:

- Satisfy constraints in your value-chain
- Optimise for any objective including tonnage, revenue, and cost
- Optimise and integrate operational, tactical and strategic planning from minutes to years
- Improve collaboration and synchronisation between planning and operations
- Publish reports to relevant stakeholders
- Reconcile forecast with actuals
- Optimise reserving, processing, blending and logistical decisions
- Product portfolio optimisation
- 'What-If' scenario analysis



Read our articles to learn about Paradyn's innovative value-chain optimisation technology and how it can help your operation.