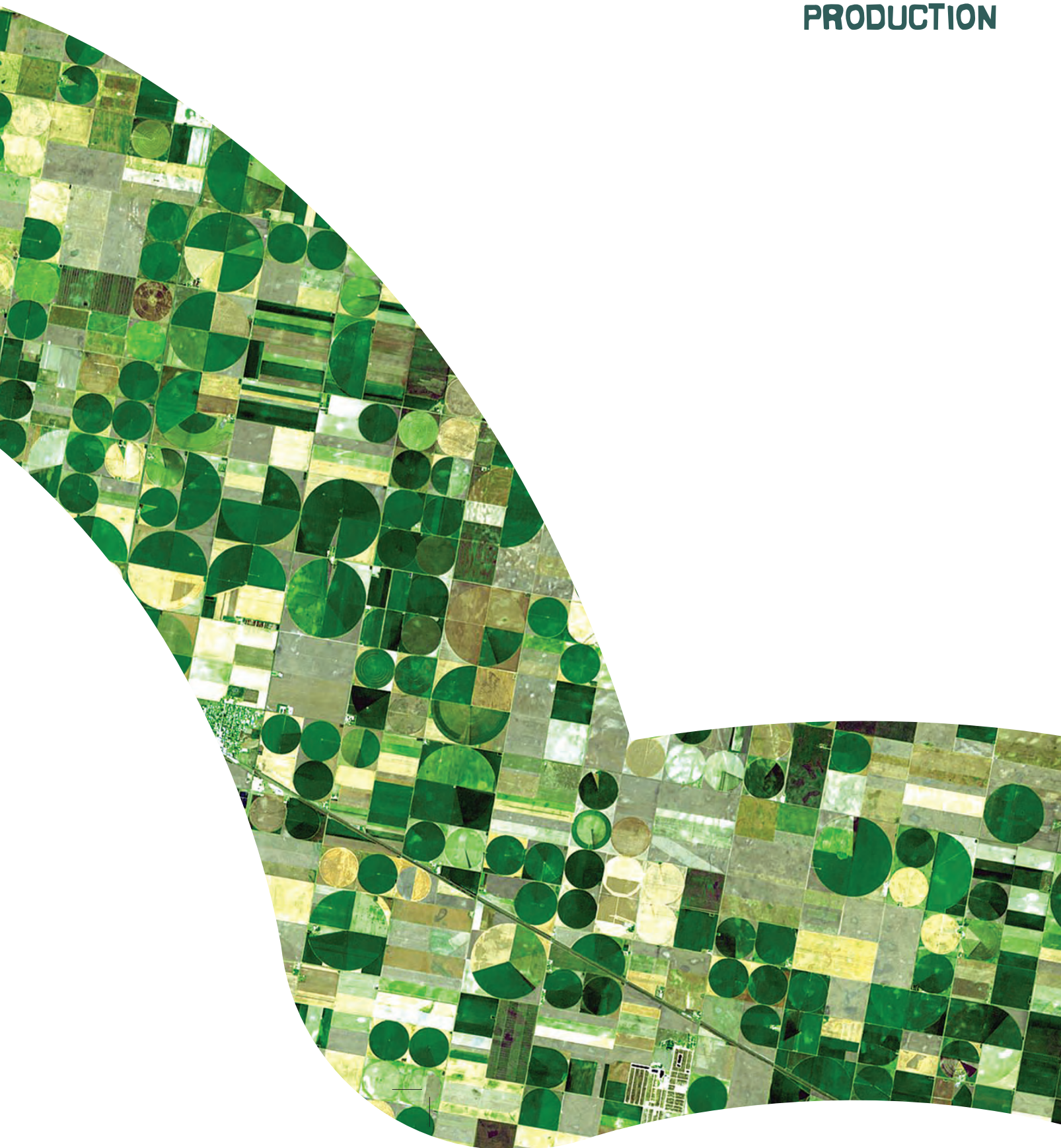


**ELANDSFONTEIN
PHOSPHATE ROCK FOR
PHOSPHORIC ACID AND
SUPERPHOSPHATE
PRODUCTION**



We are Kropz

Kropz is an explorer, mine developer, miner and supplier of phosphate rock to sub-Saharan Africa and worldwide markets.

Kropz has developed South Africa's largest sedimentary phosphate deposit, known as Elandsfontein - the world's newest and most innovative phosphate mine, producing up to 1,5Mtpa of 32% P₂O₅ phosphate rock from a highly automated processing plant (Earth Plant 1) with online analysis and advanced process control. Streamline mining methods and efficiencies in Earth Plant 1 allow for continuity of production.

Elandsfontein phosphate rock has a proven consistency of grade and is suitable for phosphoric acid, superphosphate production and direct application.

The product is of high quality and is low in cadmium and other impurities.

Elandsfontein is ideally positioned for export and is advantaged by simple logistics, ensuring timely supply in addition to an ethical route to market. Kropz has dedicated warehousing, ship berthing and loading facilities at the deep water Port of Saldanha Bay, which is located just 40km from the mine via a national freight road.

At the heart of Kropz lies its caring approach towards its people and communities, as well as the environments in which it operates, with the goal of Elandsfontein becoming the world's first truly green mining operation.

Elandsfontein Phosphate Rock was tested at Prayon Technologies in Belgium

Findings of acidulation test work completed at Prayon include:

- 27% P₂O₅ phosphoric acid was easily produced in the attack stage.
- A final 52% P₂O₅ phosphoric acid was produced without any challenges.
- Fast gypsum filtration rates were observed.
- Merchant grade DAP and MAP was produced.
- The final gypsum was tested for radioactivity and is suitable to be used as a building material.

Product Specifications

Phosphate	P ₂ O ₅	%	32.0
Aluminium Oxide	Al ₂ O ₃	%	1.14
Arsenic	As	ppm	10
Cadmium	Cd	ppm	5.0
Calcium Oxide	CaO	%	46.0
Carbon (organic)	C	%	<0.05
Chlorine	Cl	ppm	<50
Chromite	Cr ₂ O ₃	%	0.02
Fluorine	F	%	3.66
Iron Oxide	Fe ₂ O ₃	%	1.67
Lead	Pb	ppm	30
Magnesium Oxide	MgO	%	0.58
Potssium Oxide	K ₂ O	%	0.25
Sodium Oxide	Na ₂ O	%	0.6
Silica	SiO ₂	%	7.0
Thorium	Th	ppm	6.4
Titanium	Ti	ppm	90
Titanium Oxide	TiO ₂	%	0.11
Uranium	U	ppm	30
MER			0.1

Key features of Elandsfontein Phosphate Rock for phosphoric acid production

Key results of phosphoric acid production with Elandsfontein Phosphate Rock

Attack Stage

- Dissolution of the phosphate rock was good and regular throughout all the tests.
- Process recoveries obtained during the pilot tests were excellent at around 98%.
- There were no reactor blockages and sulphate levels were easily controlled.
- Defoamer was added to control slight foam generation.

Filtration

- No kaolin or any crystal habit modifier was required.
- Filtration is fast with good size and shape of crystals obtained.
- The good gypsum crystallisation means that very few fine particles pass through the filtration process.

Concentration

- 52% P_2O_5 phosphoric acid was produced without any challenges.

P_2O_5

The P_2O_5 content is good for sedimentary phosphate rock, which means that less rock is consumed for industrial use than other widely used phosphate rock.

CaO / P_2O_5 Ratio

The CaO / P_2O_5 ratio of 1:46 indicated that the sulphuric acid consumption will be lower than most other sedimentary phosphate rock deposits.

CO_2 and Organic Matter

CO_2 and organic matter is low which will limit foaming inside the reactors. Nonetheless, CO_2 content should be sufficient to ensure a good reactivity of the rock.

F, SiO_2 , Al_2O_3

There is no need to add a silico-aluminous additive to the phosphate. Elandsfontein Phosphate Rock has enough active SiO_2 and Al_2O_3 to neutralise free HF, which allows it to avoid severe corrosion impact of free HF on stainless steel equipment.

Chlorine

Chlorine content is sufficiently low, such that the corrosion rate will be limited and will not be a concern in the attack stage.

Cadmium

Cadmium content in Elandsfontein Phosphate Rock is extremely low, enough not to affect the quality of manufactured fertilizer and meeting even the strictest cadmium regulations of any authority.

MgO

The MgO levels of the Elandsfontein Phosphate Rock is low and does not negatively affect acid viscosity.





Advantageous Freight Routes

