

gravitas[®]

SEE Sustainability.



**Sustainable
Chrome Ore Beneficiation.**

24

51,996

Cr

Chromium

Chrome Beneficiation.

Chrome is one of the most important and indispensable industrial metals because of its hardness and resistance to corrosion. But it is used for more than the production of stainless steel and nonferrous alloys; it is also used to create pigments and chemicals used to process leather. Chrome is processed through physical means. There are typically four stages to beneficiation:

Ore Preparation.	Coarse Chrome Beneficiation.	Fine Chrome Beneficiation.	Water Recovery.
<ul style="list-style-type: none"> ▪ Crushing and screening to -80mm ▪ Screening of the -80mm into three sizes: <ul style="list-style-type: none"> ▪ -80+20mm ▪ -20+1mm ▪ -1mm 	<ul style="list-style-type: none"> ▪ -80+20mm - Lumpy Chrome processed using a Heavy Drum Separator ▪ -20+1mm - through dense medium cyclone ▪ Desired chrome grade is 38-40% for both size ranges. 	<ul style="list-style-type: none"> ▪ -1mm with 4 or more stages of spiral concentrators ▪ Multiple product grades produced: <ul style="list-style-type: none"> ▪ Metallurgical: 40-44% ▪ Chemical: +46% ▪ Foundry: 46% & AFS ▪ Refractory: 46% & size grading 	<ul style="list-style-type: none"> ▪ Thickening and filtration ▪ Cyclones + Ponds ▪ Tailing storage facilities

Challenges in Chrome Beneficiation.

Social, Economical & Environmental.



1. **High Carbon footprint:** Typical plants require multi-level structures, which also requires real estate. This means more steel, more cement is required, contributing to a higher carbon footprint.



2. **Water recirculation and re-use:** Water is scarce and must be shared with other human activities. Water losses occur mostly in tailings storage facilities through entrapment and evaporation, requiring fresh water for makeup.



3. **Chrome Losses:** this occurs due to technological limitations, liberation as well as particle size range. To increase recovery, complex circuits are often employed. Product grade control is also difficult due to ore variability resulting in additional losses.

See Sustainability with Gravitas®.

At Gravitas®, we use the 'right technology, right application' principle to develop efficient processes. Combining this principle together with our process knowledge and support, we co-create solutions that SEE (Social, Economic, Environmental) Sustainability.



The ChromEx™ System.

The ChromEx™ is a low carbon footprint (18sqm) process system, utilizing environmental and economically friendly technologies for efficient recovery of chrome ore, up to 50tph feed.

It is designed to recover chrome from tailings the following streams, at particle sizes ranges from 6mm down to 20 microns:

- Spiral tailings
- Thickener underflows
- Run of mine (ROM)



The EcoStack™ System.

The EcoStack™ is a high-capacity process system, utilizing the latest ultrafine screening technology for efficient dewatering of chrome tailings down to 50 microns.

The technology is suitable for:

- Dry stacking of chrome fines for co-disposal
- Water recovery and re-use
- Sizing



Tailings
below 10%



Use recycled
water



Rapid
deployment

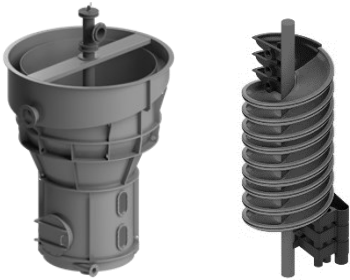


Low energy
consumption

Gravitas® Technology Suite.

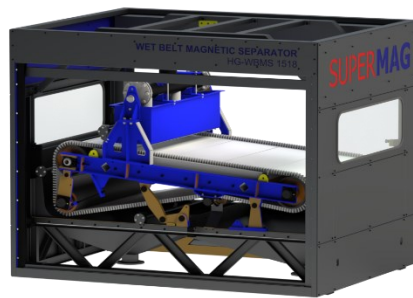
With our range of technologies, Gravitas® is well positioned to co-create value using the 'right technology, right application' principle.

Gravity Concentration.



- **Optima Separator®** offers high-capacity separation capability up to 6mm feed size. Capacities range from 10-180tph per unit.
- **Spiral Concentrators** offer simple separation at up to 5tph per unit.

Magnetic Separation.



- **The SuperMag™ Wet Belt Separator** is a permanent high intensity separator with strengths from 600 Gauss up to 13,000 Gauss.
- It is suitable for recovery of ultrafine ferrous minerals and metals.

Sizing & Dewatering.



- **The JetSizer™** offers higher, sharper cut sizes at 35-50 tons per square meter.
- **The Ultra-G™ shaker** is the next generation of ultrafine screening technology, offering superior dewatering capability at sizes down to 50 microns.

Our Test Capability.

Our test facility in Johannesburg, South Africa forms the core of our value co-creation process. Throughout our co-creation period, we will use our technology range to develop a sustainable beneficiation solution. Once proven at concept scale, we will provide a pilot scale unit for site conditions.

Let's Co-create a Sustainable Future.



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