

First Graphene is now selling graphene into the mining sector

Maybe the less said about last week the better. People keep telling me that September is traditionally the worst month of the year. Maybe we are just seeing this again. About the only thing that was pleasing was the strength in the gold price.

The strong rebound of share prices we saw in August has stalled in September with many of the charts retracing their breakout movements. Viewed in the isolation of technical charting analysis, these retracement moves are common and often necessary in order to build for the next leg upwards. The rebound had been too aggressive to be sustainable. Now the market is looking for reasons why it should go higher, apart from the dissipation of the selling mentality that dominated from February to July.

That reason is certainly not the news that dominated geopolitics last week. We are seeing confirmation of the view that when you start a war, there is no certainty in what the outcomes will be. So it is with the escalation of the Iran War. News that the Houthis have moved in to control shipping movements through the Red Sea took the oil price to the highest prices seen for six months.

The US stock indexes rebounded nicely on Friday, but this was largely the end of week recovery from a four day losing streak, aided by the US CPI number matching forecasts with a core annual rate of 2.4%. This helped to allay interest rate fears from earlier in the week.

Grigor Sentiment Oscillator

Charts in Uptrend: 41% (41%)
Charts in Downtrend: 29% (26%)

First Graphene is now selling into polyurethane uses in mining for fire retardancy and strength

Last week, FGR announced a new commercial application through the sale of PureGRAPH® to Pacific Urethanes Pty Ltd, which incorporates the graphene into its polyurethane formulations before supplying them to manufacturers of mining-service and mineral-processing equipment. The applications include screening media, wear liners, slurry systems, conveyor components, pumps and piping, chute and hopper liners, seals and protective coating. The addition of graphene improves fire retardancy while improving durability and wear performance.

The backstory - better doesn't turn on everyone

FGR has known of graphene's ability to provide these improvements for a number of years, having completed successful test work. For example, it has been common knowledge that if screens in iron ore processing plants catch fire during regular maintenance activities, the results can be catastrophic. A few years back RIO lost over \$100m when a screen fire got out of control and the plant had to shut down for three months. All of the Pilbara iron ore

companies have suffered from similar incidents at some point.

The issue arises when the screens are being replaced and a red hot bolt (after being cut by welding) falls on the screen material and ignites the highly flammable polyurethane. It has been shown that the addition of graphene raises the ignition point of these polymers from atmospheric oxygen levels (circa 22%) to > 30% oxygen. No ignition means no fire - just a smouldering. The addition of graphene also improves the life of these screen through reduced wear.

As wonderful as this sounds, FGR had issues in getting the contractors to adopt the superior product, on behalf of the mining companies. They effectively blocked the potential improvement from being implemented, probably because the improved efficiency meant reduced profits to them. So, FGR hit a roadblock.

Pacific Urethane deal is earlier in the food chain

The deal just announced has graphene being introduced to the polyurethane systems at an earlier point. Customers across the mining sector are increasingly demanding higher-performing polyurethane products that deliver improved fire retardancy, abrasion resistance and durability.

Once the ball is rolling, and we can see the benefits on a commercial scale, it should be only a matter of time before competitors realise they have to play catch up. So, this is the leading edge of the path to improving productivity right across the mining sector and widespread adoption. It promises to be a good growth curve that will have implication beyond even mining.

Polymer is always flammable if not modified

In very simplistic terms, polymers (and plastics) come from oil and hydrocarbon feedstock. That makes them very flammable from the outset and potentially very dangerous if not treated. As it happens, many fire retardants are actually harmful to human health in a number of ways and we are gradually seeing tighter regulations as a result, especially in Europe. Graphene is a very good additive with more benign side effects and some positive effects e.g. improved strength. The link to the video below from Neil Armstrong is very informative on fire retardancy and the commercial opportunity.



The Bottom Line

We have been waiting a length of time for the adoption of graphene to gather momentum (especially me). We know of the benefits it can provide but the challenge is to place it in commercial perspective. It is a disruptive material, but many people do not want to be disrupted. Nevertheless, the process has started.

This latest announcement is significant as the deal with Pacific starts to open up the vast global urethane mining products market worth US\$2.6bn p.a. Not only that, but the potential market extends to many other sectors. It establishes a commercial pathway by which customers can benefit without having to make changes at their end.

Disclosure: Interests associated with the author own shares in First Graphene and he is a non-executive chairman.

Terrain gets some serious backing

We have mentioned Terrain Minerals (TMX) in the past, seeing it as an inexpensive but promising gold explorer in WA. Like many tiny gold explorers, the need to raise funds to advance its project is a perennial struggle.

Last week Terrain announced a big win with the news that Gandel Metals is making a strategic \$1m investment at a 33% premium to the market price. Combined with a non-renounceable issue at 4¢, on a ratio of 1 for 9.85 shares, the total capital raising exercise could bring in \$2.5m. There are attaching unlisted, 6¢ three-year options to sweeten the deal.

The funds have been earmarked for a 10,000m drilling project at the Lightning Project, on infill and extensional drilling. At the moment there is a MRE of 54,000 oz, but the Company is looking for a multiple of this number. Once Terrain gets a better handle on how much gold it has, it will

be in the position where it can start to talk to treatment plants within trucking distance e.g. Golden Range (Capricorn Metals).

Recent news flow has included the identification of seven new IP drill targets in the vicinity of Lightning that offer possibilities of repeat bodies. Additionally, it has announced good metallurgical leaching results from its Larin's Lane rare earths project, 350 km NE of Perth, achieving 83% recovery from clay material. REE recovery actually achieved 99% recovery with thermal pre-treatment (calcination). Scandium was confirmed as a recoverable credit and there were good signs of recoverable gallium. The ASX release of 2 September provides detailed information on the test work undertaken.

The Bottom Line

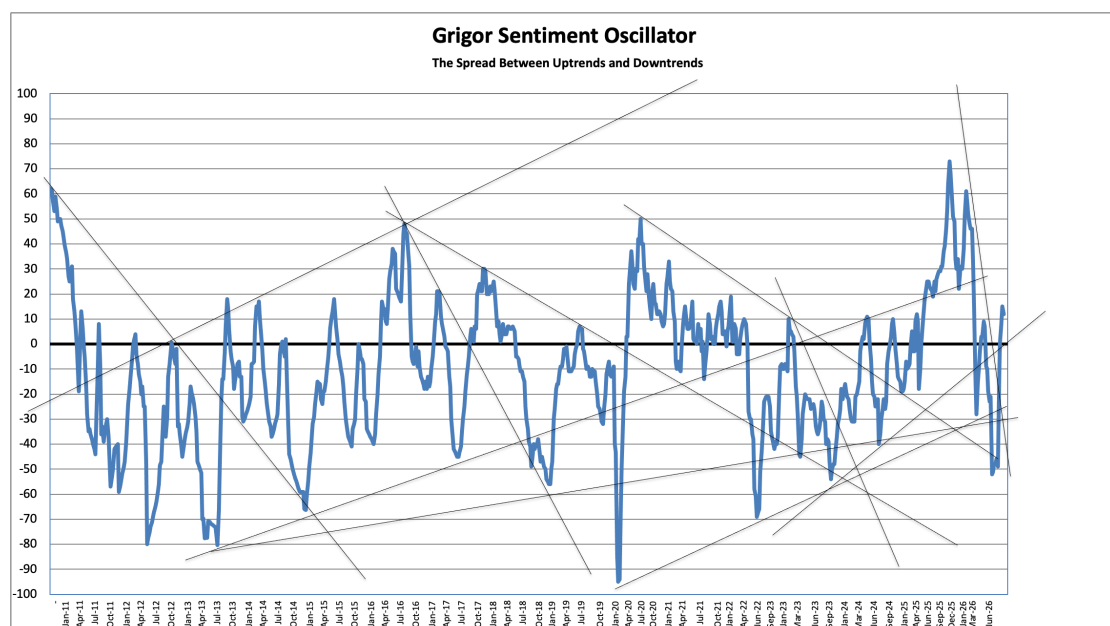
The capital raising is an important step in keeping the wheels turning and the generation of important news flow. To get the support of Gandel Metals is a big win, as these guys have a discerning eye and not the average investors in the market. Gandel has been the driving force behind the growth of Alkane Resources over the years into a credible mid-sized gold and antimony producer with operations in NSW and Victoria.

Now, all Terrain has to do is drill baby drill ... and grow the gold resource. Shareholders can afford to be optimistic.

Disclosure: Interests associated with the author own shares in Terrain Minerals

Follow-up on Yandal Resources

Since our little commentary on Yandal's (YRL) share price falling to a low of 13¢, it recovered nicely to rise to 22¢ over a few days, a gain of 69%. It even penetrated the downtrend line. However, it has slipped below it late last week. All of these moves have been on very small volumes.



Grigor Sentiment Oscillator: Sentiment stalled last week with many pullbacks in share prices. Next week will be important in determining whether these consolidate at the lower levels, or recapture downtrends. There were 41% (41%) of shares under coverage in uptrend, and 29% (26%) in downtrend

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Detailed Chart Comments

NB. Only the bold comments have been updated. Comments in grey type are from previous weeks and will be less relevant. Please note that this list is a cross section of the market. It IS NOT a list of recommendations.

Indices	Code		Trend Comment	
All Ordinaries	XAO		breached uptrend	
Metals and Mining	XMM		pullback	
Energy	XEJ		uptrend	
Stocks	Code		Trend Comment (updated comments in bold)	Main Interest
Aguia Resources	AGR		at lows	phosphate, gold
Akora	AKO		testing downtrend	iron ore
Alkane Resources	ALK		bounced off support line	gold
Alligator Energy	AGE		pullback	uranium
Alpha HPA	A4N		testing downtrend again	HPA
American Rare Earths	ARR		sideways	rare earths
American Tungsten & Antimony	AT4		steep rise	antimon
Anax Metals	ANX		rising again	copper
Andean Silver	ASL		heavy pullback	silver
AnteoTech	ADO		testing downtrend	batteries
Arafura Resources	ARU		new low	rare earths
Ardea Resources	ARL		breached downtrend	nickel
Ark Mines	AHK		surge out of downtrend	rare earths
Astral Resources	AAR		surge higher	gold
Aureka	AKA		spike higher	gold exploration
Auric Mining	AWJ		sideways through downtrend	gold
Aurora Energy Metals	1AE		on resistance line	uranium
Aurum Resources	AUE		surge out of steepest downtrend	gold exploration
Australian Gold and Copper	AGC		stronger	base metals, silver, gold
Australian Rare Earths	AR3		breached downtrend	rare earths
Australian Strategic Materials	ASM		breached downtrend	rare earths
BCI Minerals	BCI		rising	salt
BHP	BHP		pullback	diversified, iron ore
Ballard Mining	BM1		testing downtrend	lithium
Ballymore Resources	BMR		breached downtrend	gold exploration
Barton Gold	BGD		rising again	gold exploration
BCI Minerals	BCI		improving	salt
Beach Energy	BPT			oil and gas
Beetaloo Energy	BTL		breaching downtrend	gas
Bellevue Gold	BGL		on resistance line	gold
Black Cat Syndicate	BC8		testing downtrend	gold
Boa Resources	BOA		bounced on support line	copper
Boab Metals	BML		rising again	silver/lead
Brazilian Rare Earths	BRE		down	rare earths
Brightstar Resources	BTR		good rise	gold

Broken Hill Gold (ex Pac Gold)	BH6		at highs pre placement	gold
Broken Hill Mines	BHM		rising	base metals
Canadian Phosphate	CP8		breached downtrend	phosphate
Caravel Minerals	CVV		testing downtrend	copper
Carnaby Resources	CNB		spike out of downtrend on takeover	copper
Castile Resources	CST		improving	gold/copper/cobalt
Catalyst Metals	CYL		rising again	gold
Cazaly Resources	CAZ		breached downtrend	rare earths
Centaurus Metals	CTM		testing downtrend	nickel/cobalt/HPA
Challenger Gold	CEL		down	gold
CNG Resources	CGR		consolidating after rise	gold exploration
Cobalt Blue	COB			cobalt
CuFe	CUF		testing downtrend	bismuth, Cu, Au
Cyprium Metals	CYM		rising	copper
Energy Transition Metals	ETM		down	rare earths
EQ Resources	EQR		new high	tungsten
Estrella Resources	ESR		spike higher	manganese
Evolution Mining	EVN		breached downtrend	gold
Felix Gold	FXG		sideways at lows	gold exploration, antimony
Finder Energy	FDR			oil/gas
First Graphene	FGR			graphene
Flagship Minerals	FLG		sideways through downtrend	gold
Gateway Mining	GML		steep rise	gold exploration + gallium
GBM Resources	GBM		rising	gold
Genesis Minerals	GMD		steep rise	gold
Globe Metals and Mining	GBE		back in downtrend	niobium
Gold 50	G50		testing downtrend	gold exploration + gallium
Golden Horse	GHM		good rise	gold exploration
Great Boulder Resources	GBR		new low	gold exploration
Green360 Tech	GT3		down	kaolin
Hamelin Gold	HMG		rising	gold exploration
Hawk Resources	HWK		rising	scandium
Heavy Minerals	HVY		down	garnet
Horizon Gold	HRN		uptrend	gold
Iltani Resources	ILT		down	antimony
Iluka Resources	ILU		back to lows	mineral sands
Investigator Resources	IVR		testing downtrend	silver
Kantra Copper (Hillgrove Resources)	KAN		rising	copper
Jupiter Mines	JMS		sideways	manganese
Kaiser Reef	KAU		rising	gold
Kingfisher Minerals	KFM		testing downtrend	copper expl.
Kalamazoo Resources	KRZ		breached downtrend	gold
Kalina Power	KPO		rising	data centre power

Koba Resources	KOB		rising	uranium
Larvotto Resources	LRV		down	gold, antimony
Litchfield Minerals	LMS		new low	copper exploration
Lindian Resources	LIN		down	rare earths + bauxite
Lode Resources	LDR		testing downtrend	antimony, silver
Lynas Corp.	LYC		steep rise	rare earths
Mammoth	M79			gold exploration
Many Peaks	MPK			gold exploration
Marmota	MEU		down	gold/uranium exploration
Maronan Metals	MMA		rising	silver/lead
Matsa Resources	MAT		new low	gold
Meeka Gold	MEK		testing downtrend	gold
MetalsX	MLX		rising	tin, nickel
Meteoric Resources	MEI		rising again	rare earths
Midas Minerals	MM1		breached downtrend	lithium
Mithril Silver & Gold	MTH		testing downtrend	silver, gold
Native Mineral Resources	NMR		testing downtrend	gold
New Murchison	NMG		rising	gold
Nexgen Energy	NXG		still down	uranium
Novo Resources	NVO		down	gold exploration
Omega Oil	OMA		rising again	oil
Pacific Lime & Cement	PLA		testing uptrend	renewables, cement
Paladin Energy	PDN		breached downtrend	uranium
Pantoro Gold	PNR		steep rise	gold
Patriot Battery Metals	PMT		new low	lithium
Peninsula Energy	PEN		collapse	uranium
Perseus Mining	PRU		rising again	gold
Phosco	PHO		sideways	phosphate
Pilbara Minerals	PGL		testing downtrend	gold
PolarX	PXX			gold exploration, base metals
Power Minerals	PNN		new high	rare earths
QMiner	QML		improving	copper
Regis Resources	RRL		steep rise	gold
Revolver Resources	RRR		at lows	copper
Richmond Vanadium	RVT		breached downtrend	vanadium
RIO	RIO		consolidating	diversified, iron ore
Rox Resources	RXL		new high	gold
RTG Mining	RTG		new high	copper
Rumble Resources	RTR		rising	zinc, gold, tungsten exploration
Santana Minerals	SMI		testing downtrend	gold
Santos	STO		at highs	oil/gas
Sarytogan Graphite	SGA			graphite
Scorpion Minerals	SCN		down	gold exploration
Sinclair Gold (was AQI)	SGC		testing downtrend	gold exploration

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Siren Gold	SNG		down	gold exploration
Skylark Minerals	SKM		down	gold exploration
Somerset Minerals	SMM		bounced off lows	copper exploration
Southern Palladium	SPD		sideways pattern	PGMs
Stanmore Coal	SMR		rising	coal
St George Mining	SGQ		down	rare earths, niobium
Stellar Resources	SRZ		improving	tin
Sun Silver	SS1		breached downtrend	silver
Sunrise Metals	SRL		down	scandium
Tamboran Resources	TBN		spike higher	gas
Theta Gold	TGM		on support line	gold
Tivan	TVN		resuming downtrend	fluorite
Torque Metals	TOR		recovering from lows	gold exploration + lithium
Toubani Resources	TRE		new low	gold
Verity Resources	VRL		down	gold
Vertex Minerals	VTX		steep rise	gold
Waratah Minerals	WTM		testing downtrend	gold exploration
Westgold Resources	WGX		steep rise	gold
West Wits Mining	WWI		testing downtrend	gold
Whitehaven Coal	WHC		breached downtrend	coal
White Cliff Minerals	WCN		sideways	copper exploration
WIN Metals	WIN		down	gold
Yandal Resources	YRL		risen to resistance line	gold exploration
Totals	41%	59	Uptrend	
	29%	42	Downtrend	
		145		

Guides to Chart Interpretations

- Charts usually go from one trend (up or down) into the other via a period of indecision and uncertainty during which the trend can either recover or change. This period is signified by the orange colour. The orange represents both the greatest risk and greatest reward possibilities.
- Once a chart is in confirmed up or downtrends, it is not uncommon for 10-20% of that trend to have already transpired.
- There are trends within trends. The focus of this chart review is the immediate trend that affects the sentiment, i.e. it can be a downtrend within a long-term uptrend.
- Not every chart warrants a new comment every week. The new comments are in bold type. Grey-type comments may be dated.
- Individual charts provide a single view. It is valuable to look at charts of other companies in similar commodities, and the overall sentiment is also very valuable. Not many stocks can swim against the tide.
- We periodically add or delete charts, sometimes for obscure reasons. If a chart consistently gives poor signals or is very erratic, we may delete it. Sometimes we add a chart because we want to see what all the fuss is about. We do have a preference for charting stocks that we cover in our research as well.
- Errors and omissions may occur from time to time, especially in fast-moving markets.

Amber Lights in Tables: Just a reminder, if the amber light is used in the table – it is when the charts are ambiguous or when there is a change of trend taking place. If a chart is breaching a downtrend, it can either be a positive sign or a trap. Only once it has done more work can it be confirmed as a new uptrend. Maybe it is a new uptrend (or conversely a new downtrend); the risk-takers can decide to jump on board early (or sell). They will maximise their profits (or minimise their losses if indeed it is the start of the new uptrend (or downtrend). More risk-averse investors should wait a little longer, being prepared to give up some of the gains in return for greater certainty.

Weightings of Sectors Represented in the Company Charts

Sector	No. of Companies	Weighting
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Gold	35	24.1%	
Gold Exploration	23	15.9%	
Copper	13	9.0%	
Rare Earths	13	9.0%	
Uranium	6	4.1%	
Oil/Gas/Hydrogen	6	4.1%	
Silver	7	4.8%	
Iron Ore/Manganese	5	3.4%	
Antimony	4	2.8%	
Lithium	3	2.1%	
Graphite/graphene	2	1.4%	
HPA/Kaolin	2	1.4%	
Nickel	2	1.4%	
Scandium	2	1.4%	
Tungsten	1	0.7%	
Tin	2	1.4%	
Coal	2	1.4%	
Bismuth	1	0.7%	
Niobium	1	0.7%	
Potash/Phosphate	3	2.1%	
Base metals	1	0.7%	
Vanadium	1	0.7%	
PGMs	1	0.7%	
Mineral Sands	1	0.7%	
Cobalt	1	0.7%	
Other	7	4.8%	
Total	145		

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