

Hypromag Achieves Further Technical Milestones as Piloting Ramps Up in Advance of Commercial Rare Earth Magnet Production in The UK, Germany and USA

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LONDON, June 16, 2025 - [Mkango Resources Ltd.](#) (AIM:MKA)(TSX-V:MKA) ("Mkango") and [CoTec Holdings Corp.](#) (TSXV:CTH)(OTCQB:CTHCF) ("CoTec") are pleased to provide a technical update for HyProMag Limited ("HyProMag") and its ongoing advanced pilot programme for the scale-up and roll out of Hydrogen Processing of Magnet Scrap ("HPMS") technology to produce domestically sourced and short-loop recycled rare earth magnets with a minimal carbon footprint in the UK (2025), Germany (2025) and United States (2027).

The ongoing advanced pilot programme at the University of Birmingham is proceeding in parallel with development of the commercial scale plant at Tyseley Energy Park in Birmingham, UK.

HPMS technology was developed by the Magnetic Materials Group at the University of Birmingham ("UoB"), underpinned by approximately US\$100 million of research and development funding. HPMS has major competitive advantages over other rare earth magnet recycling technologies, which are largely focused on chemical processes but do not solve the challenges of extracting magnets from end-of-life scrap streams and only produce rare earth oxides or mixed rare earth carbonates, which require further processing. HyProMag provides the solution, producing a value-added, magnet product for direct sale to domestic customers across multiple jurisdictions.

Over the course of the previous 12 months, HyProMag has made significant technical progress to support its efforts in optimising design criteria, processing different NdFeB scrap feed materials and producing recycled, low carbon, commercial, magnets of different technical grades. To date, the University of Birmingham Pilot plant has produced over 3,500 magnets of commercial grade from various waste streams. Sample magnets have been provided to commercial partners for extensive testing and product verification and will support continued off taker due diligence over the coming 12 months for the UK, Germany and U.S. businesses.

Recent progress and technical milestones for HyProMag include the following:

- Further optimisation of HPMS for different NdFeB scrap sources - HPMS continues to demonstrate very effective removal and recycling of magnets from electric motor rotors, where they are embedded in laminated stacks of transformer steel. HyProMag is engaging with multiple parties in this sector to provide pre-processing and recycling solutions, as well as in other sectors such as e-bikes, medical devices and professional audio units.
- Hard disk drive (HDD) magnets continue to be an important feedstock for HyProMag with HPMS now successfully demonstrated on at least 18 different morphologies of HDDs and commercial grade N45M and N42M magnets produced from the liberated HPMS powder. These and other magnets produced via HPMS from other scrap sources, ranging in grade from N48 remanence and UH coercivity, are currently being tested in a wide range of applications, including automotive, audio and others.
- In collaboration with ZF Automotive and UoB, HyProMag has recently supplied magnets for prototype testing in automotive ancillary applications which were successfully tested by ZF, with performance nearly identical to magnets made from virgin materials as indicated in the recent press article: <https://www.engineerlive.com/content/recycling-and-reusing-motor-magnets>.
- As a key partner in the Securing Critical Rare Earth Materials ("SCREAM") project, GKN Automotive was instrumental in delivering simulation and physical testing to verify that the HyProMag magnets produced via short-loop recycling have equivalent performance to primary magnets of the same grade.

- The first production-ready HDD magnet separation system has been built by INSERMA ANOIA SL ("Inserma") [i] and is expected to be delivered to the UK in Q3. The system has been shown to more accurately identify and remove the magnets from HDD for HPMS processing at scale. The addition of a printed circuit board removal module is at an advanced stage of development, which would be transformational for the process and enhances the Information Security requirements of HDD Recycling.
- Increased magnetic performance has been achieved through further optimisation of the HPMS and magnet manufacturing processes, with positive feedback from customers who are currently stress testing magnet prototypes. Further technical details, including magnet grades and performance achieved, are elaborated in a detailed HyProMag technical bulletin, which can be accessed via the following link:
<https://hypromag.com/executive-summary-of-recent-technical-progress-by-hypromag-ltd-june-2025>
- Magnets produced from HPMS generated alloys are the first sintered NdFeB magnets to be produced in the UK since the closure of Philips in Southport in December 2003. This capability for manufacture of sintered, commercial grade magnets need not be confined to producing magnets directly from scrap and can be further enhanced by blending with new cast alloys made from virgin mine-sourced metals or recycled metals.
- Acceleration of research and development (R&D) work on blending recycled HPMS powders with virgin materials (from primary as well as medium and long loop recycled sources) is underway, which will broaden the range to higher magnet grades available for commercial purchase and aligns strongly with incoming thresholds for minimum recycled content under the European Union Critical Raw Materials Act.
- Over 100 different blends of recycled material have been created in the last six months to meet R&D and customer requirements, with magnets derived from both single and blended batches of HPMS powder demonstrating consistent performance and further validating the short-loop recycling and magnet manufacturing process.
- Whether in collaborative projects, such as SusMagPro and REEsilience in Europe and UKRI (United Kingdom Research and Innovation) projects RaRE, REAP, SCREAM, ReREwind and REEmelt, or through other collaborations, HyProMag's development partners remain confident of its continuing progress. A recent article has been published which has acknowledged the quality of magnets produced for rotating machines:

<https://www.engineerlive.com/content/recycling-and-reusing-motor-magnets> .
- Rare earth magnets derived from HPMS will be extremely low in their Product Carbon Footprint (PCF). For further details and breakdown see
<https://mkango.ca/news/hypromag-usas-iso-compliant-product-carbon-footprint-study-confirms-exceptionally-low->

Through the abovementioned workstreams, together with further optimisation and development of blending and grain boundary technologies, HyProMag expects to significantly expand the range of commercial grades produced as illustrated below:

Will Dawes, Mkango CEO commented: "HyProMag is going from strength to strength with the support of its excellent and growing team, as well as from the University of Birmingham and its other partners. The company is well placed to capitalise on the increasing demand for more robust supply chains and sustainably sourced magnetic materials - technologies being commercialised by HyProMag will be transformational for the sector, and we look forward to first sales in UK and Germany in the coming months, as well as completion of detailed engineering in the USA in advance of large-scale project development."

Julian Treger, CoTec CEO commented: " We are very pleased with the continued progress of HyProMag in advance of the commissioning of the UK and German plants. The learnings from these plants and the University of Birmingham's pilot plant programme represent a significant opportunity for HyProMag USA to optimise and refine the detailed design phase. Furthermore, the production of a wide range of magnet grades for U.S. customers from multiple scrap feedstocks will support our financing and off take activities."

Nick Mann, HyProMag Limited MD commented: "The improvements on magnetic properties made are down

to the increased understanding gained by the metallurgical team on how to process, blend and sinter differing input feed stocks to achieve a consistent grade of magnet. As we begin production at Tyseley we are testing, collaborating and supplying our commercial partners with our magnets against specifications and are demonstrating good alignment with their products."

Sean Worrall, GKN Automotive Chief Engineer Product Sustainability commented: "As the key physical testing and simulation partner, we are pleased to confirm that the recycled magnets replicated expected performance exceptionally closely during testing. This means HyProMag's short-cycled magnets can be reliably used in motor design simulation to deliver real world performance. The HPMS process enables a supply chain of sustainable, competitive, rare-earth magnets, decoupled from the problems of the virgin material supply chain"

2025 University of Birmingham (UoB) Accelerated Pilot Programme

In parallel with commissioning of the commercial plants in UK and Germany, and to support ongoing HyProMag USA LLC ("HyProMag USA") detailed design [ii] , HyProMag has further invested in piloting utilising the UoB infrastructure, onboarded new production engineers and tripled the throughput capacity of the UoB pilot vessel and associated processes. During a six-month period, multiple sources of scrap feeds will be processed with a target of two tonnes of HPMS power produced and converted into commercial grade magnets. HyProMag will provide these samples to potential customers, as well as targeting further improvements in the engineering design criteria, recoveries and magnet making capability to support commercial developments in the UK, Germany and U.S.

The main objectives of the 2025 UoB Accelerated Pilot Programme are to:

- Provide NdFeB block and finished magnet samples to customers , to support product marketing, offtake discussions and scale-up in Europe and North America, and to complement HyProMag's 2025 commercial production of NdFeB alloys, blocks and finished magnets derived from the commercial scale plant being commissioned at Tyseley Energy Park (TEP) by the University of Birmingham.
- Enhanced QAQC planning - Commercial production at TEP is targeted at 600kg batches of HPMS powder that will be analysed by ICP-OE, XRF and gas analysis. These characterised batches will be blended for targeted magnet qualities based on the development know-how from piloting. These batches will be large and consistent in quality; 1.2 tonnes of blended powder can, for example, deliver 50,000 magnets based on a typical 25g speaker application. Sampling QAQC procedures are being developed with end-users.
- Further demonstrate and optimise HPMS , including pre-processing for larger volumes and broader variety of scrap feeds to derive optimal process conditions and estimates of recovery, NdFeB magnet content and yield to short loop recycling for different scrap feeds
- Complete further variability analysis across different HPMS batches of the same type of scrap feed.
- Further demonstrate the ability to blend HPMS powders from different HPMS batches of the same scrap feed with or without virgin feed additions

The Accelerated Piloting Programme targets over 50 additional HPMS runs over a six-month period covering principal scrap feeds containing: separated magnet scrap, VCMs from different sources, pre-processed HDD feed, surface mounted and embedded rotors from electric motors, MRI, wind turbine feed, speaker assemblies and other forms of NdFeB scrap material provided by strategic partners.

About Mkango Resources Ltd.

Mkango is listed on the AIM and the TSX-V. Mkango's corporate strategy is to become a market leader in the production of recycled rare earth magnets, alloys and oxides, through its interest in Maginito Limited ("Maginito"), which is owned 79.4 per cent by Mkango and 20.6 per cent by CoTec, and to develop new sustainable sources of neodymium, praseodymium, dysprosium and terbium to supply accelerating demand from electric vehicles, wind turbines and other clean energy technologies.

Maginito holds a 100 per cent interest in HyProMag and a 90 per cent direct and indirect interest (assuming

conversion of Maginito's convertible loan) in HyProMag GmbH, focused on short loop rare earth magnet recycling in the UK and Germany, respectively, and a 100 per cent interest in Mkango Rare Earths UK Ltd ("Mkango UK"), focused on long loop rare earth magnet recycling in the UK via a chemical route.

Maginito and CoTec are also rolling out HPMS recycling technology into the United States via the 50/50 owned HyProMag USA LLC joint venture company.

Mkango also owns the advanced stage Songwe Hill rare earths project in Malawi ("Songwe") and the Pulawy rare earths separation project in Poland ("Pulawy"). Both the Songwe and Pulawy projects have been selected as Strategic Projects under the European Union Critical Raw Materials Act. Mkango has signed a letter of Intent with Crown PropTech Acquisitions to list the Songwe Hill and Pulawy rare earths projects on NASDAQ via a SPAC Merger.

For more information, please visit www.mkango.ca

About CoTec Holdings Corp.

CoTec is a publicly traded investment issuer listed on the Toronto Venture Stock Exchange ("TSX- V") and the OTCQB and trades under the symbols CTH and CTHCF respectively. CoTec Holdings Corp. is a forward-thinking resource extraction company committed to revolutionizing the global metals and minerals industry through innovative, environmentally sustainable technologies and strategic asset acquisitions. With a mission to drive the sector toward a low-carbon future, CoTec employs a dual approach: investing in disruptive mineral extraction technologies that enhance efficiency and sustainability while applying these technologies to undervalued mining assets to unlock their full potential. By focusing on recycling, waste mining, and scalable solutions, the Company accelerates the production of critical minerals, shortens development timelines, and reduces environmental impact. CoTec's strategic model delivers low capital requirements, rapid revenue generation, and high barriers to entry, positioning it as a leading mid-tier disruptor in the commodities sector.

For more information, please visit www.cotec.ca.

About HyProMag USA LLC.

HyProMag USA is owned 50:50 by CoTec and HyProMag Limited. HyProMag Limited is 100 per cent owned by Maginito, which is owned on a 79.4/20.6 per cent basis by Mkango and CoTec.

For more information, please visit www.hypromagusa.com

Market Abuse Regulation (MAR) Disclosure

The information contained within this announcement is deemed by the Company to constitute inside information as stipulated under the Market Abuse Regulations (EU) No. 596/2014 ('MAR') which has been incorporated into UK law by the European Union (Withdrawal) Act 2018. Upon the publication of this announcement via Regulatory Information Service, this inside information is now considered to be in the public domain.

Cautionary Note Regarding Forward-Looking Statements

This news release contains forward-looking statements (within the meaning of that term under applicable securities laws) with respect to Mkango and CoTec. Generally, forward looking statements can be identified by the use of words such as "plans", "expects" or "is expected to", "scheduled", "estimates" "intends", "anticipates", "believes", or variations of such words and phrases, or statements that certain actions, events or results "can", "may", "could", "would", "should", "might" or "will", occur or be achieved, or the negative connotations thereof. Readers are cautioned not to place undue reliance on forward-looking statements, as there can be no assurance that the plans, intentions or expectations upon which they are based will occur.

By their nature, forward-looking statements involve numerous assumptions, known and unknown risks and uncertainties, both general and specific, that contribute to the possibility that the predictions, forecasts, projections and other forward-looking statements will not occur, which may cause actual performance and results in future periods to differ materially from any estimates or projections of future performance or results expressed or implied by such forward-looking statements. Such factors and risks include, without limiting the foregoing, the delivery and effectiveness of the HDD magnet separation system built by Inserma, the results of the Accelerated Pilot Programme at UoB, the availability of (or delays in obtaining) financing to develop Songwe Hill, the Recycling Plants being developed by Maginito in the UK, Germany and the US (the "Maginito Recycling Plants"), governmental action and other market effects on global demand and pricing for the metals and associated downstream products for which Mkango is exploring, researching and developing, geological, technical and regulatory matters relating to the development of Songwe Hill, the ability to scale the HPMS and chemical recycling technologies to commercial scale, competitors having greater financial capability and effective competing technologies in the recycling and separation business of Maginito and Mkango, availability of scrap supplies for Maginito's recycling activities, government regulation (including the impact of environmental and other regulations) on and the economics in relation to recycling and the development of the Maginito Recycling Plants, and Pulawy and future investments in the United States pursuant to the proposed cooperation agreement between Maginito and CoTec, cost overruns, complexities in building and operating the plants, and the positive results of feasibility studies on the various proposed aspects of Mkango's, Maginito's and CoTec's activities. The forward-looking statements contained in this news release are made as of the date of this news release. Except as required by law, the Company and CoTec disclaim any intention and assume no obligation to update or revise any forward-looking statements, whether because of new information, future events or otherwise, except as required by applicable law. Additionally, the Company and CoTec undertake no obligation to comment on the expectations of, or statements made by, third parties in respect of the matters discussed above.

For further information on Mkango, please contact:

Mkango Resources Limited
William Dawes Alexander Lemon
Chief Executive Officer President
will@mkango.caalex@mkango.ca
Canada: +1 403 444 5979
www.mkango.ca
@MkangoResources

SP Angel Corporate Finance LLP

Nominated Adviser and Joint Broker
Jeff Keating, Jen Clarke, Devik Mehta
UK: +44 20 3470 0470

Alternative Resource Capital

Joint Broker
Alex Wood, Keith Dowsing
UK: +44 20 7186 9004/5

For further information on CoTec, please contract:

CoTec Holdings Corp.
Braam Jonker
Chief Financial Officer
braam.jonker@cotec.ca
Canada: +1 604 992-5600

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[i]<https://mkango.ca/news/maginito-secures-exclusive-agreement-with-inserma-to-commercialise-automated-pre-proces>

[ii]<https://mkango.ca/news/cotec-and-mkango-appoint-lead-engineers-pegasustsi-and-bba-to-perform-engineering-prooc>

SOURCE: CoTec Holdings Corp.

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