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## HYPROMAG AND MKANGO RARE EARTHS SECURE UK GOVERNMENT GRANT FUNDING

### Highlights

- **HyProMag Ltd (“HyProMag”) and Mkango Rare Earths UK Ltd (“Mkango UK”) have been awarded grants totalling £218,932 by Innovate UK to advance their medium-loop (via remelting) and long-loop (via chemical processing) rare earth magnet recycling routes - both underpinned by the patented Hydrogen Processing of Magnet Scrap (“HPMS”) technology developed at the University of Birmingham for demagnetising and liberating end-of-life (“EoL”) rare earth magnets from scrap streams. HyProMag is the exclusive licensee of the HPMS process.**
- **These recycling routes are complementary to the short-loop rare earth magnet recycling and manufacturing being commercialised by HyProMag in the UK, Germany and the United States, and provide additional flexibility to maximise value and minimise the carbon footprint for a broader variety of NdFeB feeds including EoL sources and pre-production swarf.**
- **In the REEmelt Project, HyProMag will collaborate with Less Common Metals (“LCM”), ADEY Innovation Ltd (“ADEY”) and the University of Birmingham (“UoB”) to liberate EoL rare earth magnets via HPMS, followed by remelting, strip casting and remanufacture into a new sintered rare earth magnet for demonstration in an ADEY magnetic filter.**
- **In the Sustainable Alternative to Hydrometallurgical Processes (“SAHP”) Project, Mkango UK will collaborate with Imperial College spin-out, Nanomox Ltd (“Nanomox”), to validate its novel Oxidative Ionothermal Synthesis (“OIS®”) process at pilot scale, which provides an opportunity to lower the environmental impact and cost of long-loop chemical processing, leveraging off the existing pilot facilities already developed by Mkango UK at Tyseley Energy Park in Birmingham.**

**London / Vancouver: October 3, 2024** – Mkango Resources Ltd. (AIM/TSX-V: MKA) (the “Company” or “Mkango”) is pleased to announce that HyProMag and Mkango UK have been awarded grants totalling £218,932 as part of the [CLIMATES \(Circular critical materials supply chains\) programme](#), a £15 million investment delivered by Innovate UK, which aims to strengthen the UK’s supply chain resilience within critical minerals. Both HyProMag and Mkango UK are 100% owned subsidiaries of Maginito Limited (“Maginito”), which is 79.4% owned by Mkango and 20.6% owned by CoTec Holdings (“CoTec”).

**Mike Biddle, Exec Director for Net Zero at Innovate UK, stated:** *“An electric vehicle and many green technologies not only requires Cobalt, Lithium and Graphite for the battery but also Rare Earth Elements for the high-performance permanent magnets used in the electric motors. The innovative partnerships we are funding will explore novel ways to support our supply of these Rare Earth Elements in the UK and have enormous potential. Backing from Innovate UK will accelerate their work towards commercialisation.”*

**REEmelt**

REEmelt is a £589,852 project focused on medium-loop rare earth magnet recycling (via remelting) to produce NdFeB strip cast alloys for remanufacture back into sintered rare earth magnets for demonstration in an ADEY magnetic filter. ADEY developed the world's first magnetic filter device (The MagnaClean®) and these are installed on over 10 million central heating systems worldwide.

Recycled NdFeB liberated from scrap streams via the HPMS process will be remelted and strip cast by LCM at its commercial operations in Ellesmere Port, UK, to provide a feed for magnet making. The remelting process has the effect of reducing impurities and enhancing the chemical composition, also allowing the opportunity for additional blending. LCM has the equipment, technology and expertise for remelting and alloy manufacture, with HyProMag and the University of Birmingham focused on HPMS and magnet manufacture, and ADEY focused on product demonstration. Medium-loop recycling via remelting is complementary to short-loop and long-loop recycling also being developed by UoB, HyProMag and Mkango UK, and progressing this additional capability gives even more flexibility to process different scrap streams and provide tailored recycling solutions with potential for greater recycling and recovery rates across all applications.

**Nick Mann, Managing Director of HyProMag stated:** *"We are very pleased to be working with market leaders in their respective fields, enhancing opportunities to add value and build relationships ahead of our targeted UK commercialisation early next year. This project significantly enhances our opportunities to process different scrap feed and to broaden the range of potential products."*

**Aaron Riley, General Manager of Less Common Metals stated:** *"We are excited to support an additional UK project focussed on advancing the circular economy and building an alternative route for rare earth magnets. As part of the Innovate UK-funded REEmelt project, LCM will collaborate with HyProMag Ltd, ADEY Innovation Ltd, and the University of Birmingham to recycle and remanufacture rare earth magnets from end-of-life sources. By utilising Hydrogen Processing of Magnet Scrap (HPMS) technology, developed at the University of Birmingham and exclusively licenced to HyProMag, rare earth magnets will be liberated from scrap, remelted, and strip cast at our site in Ellesmere Port in the Northwest of England."*

*This innovative process reduces impurities and enhances the chemical composition of rare earth elements, allowing for tailored recycling solutions. Collaboration is key and partnerships will enhance supply chain opportunities, minimize carbon footprint, and maximize value from different scrap streams. LCM looks forward to fostering key relationships through this project, which complements existing short and long-loop recycling efforts and supports the UK's push toward greater supply chain resilience in critical materials."*

**Helen Isherwood, Managing Director of ADEY Innovation Ltd stated:** *"We have been working with HyProMag and Birmingham University for some time and have been very impressed by their tenacity and commitment to resolving the challenge of recycling rare earth magnets. We are delighted that they have secured additional funding to further progress a project that has the potential to provide a very practical solution to addressing carbon net zero and supply chain challenges."*

**Prof David Brown, Industrial Professor of Magnetic Materials at the University of Birmingham stated:** *"The University of Birmingham's Magnetics Materials Group has been at the forefront of materials development, manufacturing technologies and characterisation for over 50 years. Our experienced team and bespoke suite of equipment and processing capabilities are ready to add value and deliver the goals of the REEmelt project. In particular, the Group operates specialised pilot-scale furnaces for alloying, strip-casting and jet-casting kilogram-scale batches of complex alloys. The ability to control the cast structure of rare earth based permanent magnet materials is absolutely critical to their ultimate performance."*

#### **SAHP – OIS(R) as a Sustainable Alternative to Hydrometallurgical Processes**

This is a £249,682 project focused on long-loop rare earth magnet recycling (via a chemical route) to process NdFeB feeds from EoL sources and pre-production swarf to produce rare earth oxides and carbonates. The project will test Nanomox's OIS® process at pilot scale, via integration with Mkango UK's existing long-loop pilot

facilities at Tyseley Energy Park in Birmingham, and will enable completion of feasibility studies to fully evaluate the process.

Nanomox has developed a novel and highly innovative synthetic manufacturing process, termed OIS<sup>®</sup>, which can process polymetallic materials to selectively extract and recover target metals allowing for more efficient recycling and processing of industrial waste streams. OIS<sup>®</sup> uses green catalytic solvents (ionic liquids) which facilitate processing in the absence of volatile and hazardous chemicals. These ionic liquids can be recycled, lowering process waste and associated processing costs.

Following the commissioning of its long-loop pilot plant in July 2024, Mkango UK has been progressing process optimisation activities, scoping studies, and evaluation of bolt-on technology enhancements, which will now include OIS<sup>®</sup>, enabling the evaluation of different options for long-loop recycling on a commercial basis.

**Nielson Beddoe, Process Engineering Manager of Mkango UK stated:** *“We are very excited to be working with Nanomox – this project is fully aligned with our strategy to evaluate new technologies for integration with our long-loop process, enhancing options for commercial development whilst developing opportunities for lowering the carbon footprint, environmental impact and operating costs.”*

**Francisco Malaret, CEO and Co-founder at Nanomox, stated:** *“I am thrilled to collaborate with experts in the REE space to expand the capabilities of our OIS<sup>®</sup> process to critical minerals essential for advancing green technologies. I believe ionic liquids will play a pivotal role in enabling sustainable REE processing. On behalf of the Nanomox team, I’d like to thank our commercial partners and the funding agency for this opportunity to explore new avenues for innovation.”*

#### **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, 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 UK, focused on long loop rare earth magnet recycling in the UK via a chemical route.

Maginito and CoTec are also rolling out the HPMS recycling technology into the United States via the 50/50 owned HyProMag USA LLC joint venture company. HyProMag is also evaluating other jurisdictions, and recently launched a collaboration with Envipro on rare earth magnet recycling in Japan.

Mkango also owns the advanced stage Songwe Hill rare earths project and an extensive rare earths, uranium, tantalum, niobium, rutile, nickel and cobalt exploration portfolio in Malawi, and the Pulawy rare earths separation project in Poland.

#### **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. Generally, forward looking statements can be identified by the use of words such as “targeted”, “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 success of REEmelt and SAHP to achieve their aims and the commercial application of the results, the availability of (or delays in obtaining) financing to develop the various recycling plants in the UK, Germany and the US, governmental action and other market effects on global demand and pricing for the metals and associated downstream products for which Mkango is researching and developing, 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 business of Maginito and separation business of Mkango, availability of scrap supplies for 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 various recycling plants of Maginito and future investments in the United States pursuant to the cooperation agreement between Maginito and CoTec, the outcome and timing of the completion of the feasibility studies, cost overruns, complexities in building and operating the plants, and the positive results of feasibility studies on the various proposed aspects of Maginito'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 disclaims any intention and assume no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by applicable law. Additionally, the Company undertakes no obligation to comment on the expectations of, or statements made by, third parties in respect of the matters discussed above.

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