



GRAPHITE

Independent Metallurgical Operations Pty Ltd (IMO) has significant experience in the development of Graphite process flowsheets. Our team has proven capabilities in the design and management of Graphite testwork programs, project feasibility studies and operations throughout Australia and worldwide.

Our scope of service ranges from geometallurgical characterisation, through to management of process development testwork, process flowsheet design, scoping, prefeasibility and definitive feasibility studies, client representation, plant commissioning, ramp up and process plant optimisation.



PROJECT

CLIENT

OUR WORK

| | | |
|--|---|--|
| <p>Graph-Mada Graphite Mine, Madagascar</p> | <p>Bass Metals Ltd</p> | <p>Onsite process plant audit, surveys, graphite recovery increase and commissioning of upgraded equipment. Offsite and onsite metallurgical testwork utilizing current process plant to size new equipment for process plant upgrade. Process plant upgrade design and process engineering. Commissioning of upgraded process plant in Q2 2018.</p> |
| <p>Nicanda Hill and Ancuabe Graphite Projects, Mozambique</p> | <p>Triton Minerals Ltd</p> | <p>Management and supervision of FS testwork program including variability testwork, achieving >98% TC concentrates on selected size fractions. Client process engineering assistance.</p> <p>Competent person signoff on ASX statements.</p> <p>Generation of bulk marketing concentrates. Pilot Plant operation assistance and supervision.</p> <p>Graphite technical marketing including product quality relative to key market specifications. Scoping and design of technical marketing product testwork and preparation of product data sheets.</p> |
| <p>Epanko Graphite Project, Tanzania</p> | <p>EcoGraf Ltd (former Kibaran Resources Ltd)</p> | <p>Graphite feasibility flowsheet development testwork including conventional and vibra-milling comminution, gravity and magnetic beneficiation; flotation; product dewatering and drying and hydrometallurgical leaching studies.</p> <p>Design and Management of a 2 tonne semi continuous pilot plant.</p> <p>Process engineering support on client's HF-free purification process.</p> |
| <p>Nunasvaara Graphite Project, Northern Sweden</p> | <p>Talga Resources Ltd</p> | <p>Microcrystalline Graphite flowsheet development testwork and scoping study based on parallel production of Graphite and Graphene product streams through to locked cycle testing and pilot stage flowsheet validation. Graphene product refining to generate a >99% TC product suitable for customer testwork.</p> |
| <p>Balama Graphite Project, Mozambique</p> | <p>Mustang Resources</p> | <p>Process flowsheet development testwork on oxide ore to determine potential graphite flake content using a proven flowsheet and expandable graphite testwork on specific concentrate fractions.</p> |

► Please contact us for more details on how we can provide you with assistance and support to your project.

www.indmetops.com.au

IMO Consulting & Operations

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GRAPHITE (continued 1)

| PROJECT | CLIENT | OUR WORK |
|---|--------------------------|--|
| Caula Graphite Project, Mozambique | Mustang Resources | Graphite Beneficiation amenability testwork and flake characterisation. |
| Kambale Graphite Project, Ghana | Castle Minerals | Metallurgical testwork characterizing the flake content and graphite grade of final saleable concentrate. Bench scale optimisation testwork followed by a bulk flotation program which generated a saleable (>95%) bulk graphite concentrate. Concentrate currently being tested to confirm lithium-ion battery suitability via downstream micronisation / spheroidisation, purification and battery testwork. |
| Graphite Purification Project, Australia | Hazer Group | Development of an electrochemical leaching and purification process to remove Iron from synthetic graphite, including flowsheet, based on revision of testwork and design data. Followed by a conceptual study, being based on full-scale production expected to be 15 tonnes per day of graphite feed to the ECPP circuit. |
| Oakdale Graphite Project (Oar Resources), South Australia | Battery Limits Pty Ltd | Flowsheet development and graphite beneficiation amenability testwork to produce a graphite concentrate. |
| Orom-Cross Graphite Project (Blencowe Resources), Uganda | Battery Limits Pty Ltd | Bulk pilot flotation testwork program generating a bulk graphite concentrate, followed by tailings characterization testwork. |
| Springdale Graphite Project (Comet Resources), Western Australia | Battery Limits Pty Ltd | Optimised graphite flotation testwork generating a concentrate. |
| Balama Graphite Project, Mozambique | Syrah Resources Ltd | Independent technical assessment of process plant, including a technical data review based on the definitive feasibility study and historical project testwork. Examination of alignment of the supporting testwork with process plant performance and mine plan. |
| Lump Graphite Operation, Sri Lanka | Margosa Graphite Limited | Due diligence on the potential acquisition of a graphite operation in Sri Lanka, aiming to produce a refined spheroidised product suitable for the battery industry. This included on-site process plant evaluation, capital cost estimate, mass balance, process flow diagram, process design criteria (PDC) and CAPEX. |

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GRAPHITE (continued 2)

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| Sarytogan Graphite Project, Kazakhstan | Copperbelt AG | Graphite flotation development and optimisation testwork, determining the distribution and quality of flake graphite of the project. |
| Lac Rainy Graphite Prospect, Canada | Corporate Recovery Services | Independent review of previous metallurgical testwork program. Scoping, management and performance of additional testwork program generating sufficient material for downstream refinery and battery testwork. |
| Springdale Graphite Project, Western Australia | Comet Resources Ltd and Strike Resources Ltd | Graphite flowsheet development to produce a saleable concentrate. Graphene flowsheet development including electrochemical exfoliation. Graphene Nano Platelet generation. Graphite refining to produce a >99% TC product suitable for battery testwork. Battery testwork management. |
| Burke Graphite Project, Queensland | Comet Resources Ltd and Strike Resources Ltd | Graphite flowsheet development to produce a saleable concentrate. Graphene flowsheet development including electrochemical exfoliation. Graphene Nano Platelet generation. Graphite refining to produce a >99% TC product suitable for battery testwork. Battery testwork management. |
| Yongwon Graphite Project, South Korea | Peninsula Mines Ltd | Graphite flowsheet optimisation on a fine graphite ore. Achieved a 97% TC final concentrate grade from flotation only. Competent person signoff on ASX statements. |
| Mongolian Graphite, Mongolia | Asian Battery Minerals | Flowsheet development and metallurgical testwork to characterise the flake content and graphite grade of a final saleable concentrate. |
| Geumam Graphite Project, South Korea | Battery Mineral Resources Ltd | Data review, flowsheet development for the production of a saleable graphite concentrate and scoping of testwork program. |
| Tanzanian Graphite Project, Tanzania | Eminent Minerals Ltd | Metallurgical testwork to characterise the flake content and graphite grade of a final beneficiation concentrate generated from a graphite bearing ore. |
| Burke Graphite Project, Queensland | Strike Resources Ltd | Process flowsheet development for the production of a saleable graphite concentrate. Metallurgical testwork determining the amenability of graphene electrochemical exfoliation on the project's ore. |

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GRAPHITE (continued 3)

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| Graphite Bull Project, Western Australia | Buxton Resources Ltd | Production of a saleable (>95%) graphite concentrate utilised in a downstream process which generated a final spheroinised purified (>99.95 TGC) product suitable for use in lithium-ion batteries. |
| Burke Graphite Project, Western Australia | Lithium Energy | Metallurgical bulk flotation program to generate a high bulk graphite concentrate for further downstream refinery testwork. |
| Donnelly River Graphite Deposit, Western Australia | CSA Global Pty Ltd | Metallurgical testwork (flotation) to characterise the amenability of the deposit's ore to beneficiation. |
| Ajana Graphite Project, Western Australia | Anson Resources Ltd | Graphite flowsheet optimisation and sample characterisation testwork program management. Competent person signoff on ASX statements. |
| Toamasina Graphite Project, Madagascar | Cougar Metals NL | Graphite flowsheet development testwork to produce a high flake (>65% +180 µm) high grade (>98% TGC) graphite concentrate. Competent person signoff on ASX statements. |
| Kookaburra Gully Graphite, South Australia | Lincoln Minerals Ltd | Design and Management of PFS level Metallurgical Testwork covering: Comminution, Flotation and Comprehensive Tailings Characterisation noting certain environmental restrictions. |
| Antsirabe Graphite Mine, Madagascar | Power Stand Development Ltd | Testwork management and metallurgical testwork: Graphite ore comminution characterisation and graphite processing flowsheet development and flake characterisation. |
| Sarytogan Graphite Project, Kazakhstan | Sarytogan Graphite Ltd | Bench scale optimisation and bulk flotation testwork program to generate a bulk graphite concentrate for further downstream refinery and battery testwork. |
| Cleo Uranium Project, Northern Territory | Kingsland Minerals Ltd | Flowsheet development and graphite beneficiation amenability testwork to produce a graphite concentrate. |

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