

TSODILO RESOURCES LIMITED
ANNOUNCES GEOTECHNICAL LAB RESULTS FOR THE
PRELIMINARY ECONOMIC ASSESSMENT OF ITS XAUDUM IRON
PROJECT IN BOTSWANA

FOR IMMEDIATE RELEASE

September 20, 2021

TORONTO, ONTARIO - Tsodilo Resources Limited ("Tsodilo" or the "Company") (TSX-V: TSD) (OTCQB: TSDRF) (FSE: TZO) is pleased to announce positive geotechnical lab test results for its wholly owned Xaudum Iron Project. These are the first set of geotechnical lab tests conducted on the Xaudum Iron Formation (XIF) and indicate that the XIF materials are competent and have good to moderate strength properties and will result in a positive set of geotechnical parameters to be used in the ongoing Preliminary Economic Assessment ("PEA") of the XIF project.

Rock strength data is important in generating slope designs for safe mining and this set of lab test data will contribute to further geotechnical studies into rock mass rating for pit stability and pit wall design during the engineering stage of the PEA. The aim of conducting lab tests on these XIF samples is to measure the ranges at which the XIF will fail under tension, compression and shear on their discontinuities. To test the above-mentioned strength properties, the selected samples from XIF Geodomains were subjected to the following tests: Unconfined Compressive Strength, Brazilian Tensile Strength, and Direct Shear Strength. These tests were conducted at the Botswana International University of Science and Technology (BIUST) by the Mining and Geological Engineering department and the results can be found in Table 1 (<http://www.tsodiloresources.com/i/pdf/2021-09-17-Table-1.pdf>).

Tsodilo's Chairman and CEO, James M. Bruchs, commented "The results were what we expected, they show that the XIF materials are all within standard mechanical rock property ranges and that there will be no geotechnical issues arising from the XIF materials and confirm that the XIF will show "normal" pit wall angles as assumed in the Company's previous resource reporting."

31 geotechnical tests were processed by BIUST, see [Table 1](#). A summary of the completed geotechnical test works is set forth below:

18 Unconfined Compressive Strength (UCS) tests gave the following results:

- Fresh Banded Magnetite formation (MBA) has a **Very Strong Rock** Strength Classification with a UCS average value of **132.7 MPa**. Cataclastic mode of failure is the most prevalent in these MBA samples where the samples break irregularly at high stress without following any plane of weakness;
 - Cataclastic is common in hard and brittle rocks, this mode of failure suggests that MBA banding is not necessarily a plane of weakness;
- Weathered Banded Magnetite (MBW) has a **Strong Rock** Strength Classification with a UCS average value of **81.3 MPa** ;
 - MBW tends to break along foliation suggesting that there are micro-fractures developed along foliation caused by weathering;
- Diamictite Schist Formation (DIA) has a **Strong Rock** Strength Classification with a UCS average value of **57.2 MPa**. DIA is predominantly the main country rock in the XIF and will make up the bulk of the pit wall materials during mining of the XIF;

- This Geodomain exhibits single shear as the dominant mode of failure which can be attributed to foliation and schistosity of this rock type that creates a plane of weakness;
- Diamictite Schist Weathered formation (DIAW) has a **Medium Strong Rock Strength Classification** with a UCS average value of **31.6 MPa**;
 - DIAW breaks easier along the schistosity foliation suggesting the weathering exacerbates the schistosity weakness planes of the rock mass;
- Calcrete Overburden (CAC) has a **Strong Rock Strength Classification** with a UCS average value of **80.4 MPa**;
 - Axial splitting is the dominant mode of fracture for this rock type.
- [Table 1: Part A](#) shows the UCS test results

8 Brazilian Tensile Strength (BTS) tests gave the following results:

- MBA gave a Strong to Very Strong tensile strength with an average of **9.65 MPa**;
- DIA gave a Medium Strong to Strong tensile strength with an average of **8.82 MPa**;
- [Table 1: Part B](#) shows the BTS test results
- The BTS values for DIA and MBA were plotted against UCS results and compared with other rock strength values in the literature showing the strong nature of these materials, see Figure 1.

4 Direct Shear Strength (DSS) tests on open discontinuities (joints) on DIA Geodomain gave the following results:

- These joints gave effective friction angles ranges from **19.29°** (Poor) to **36.87°** (Good) and the effective cohesion of the joint surface ranged from **27.02 kPa** to **273.81 kPa**;
 - The cohesion values are considered to be moderate low to moderate when compared to other geological scenarios in the literature, see Figure 2;
- The friction angle ranges show that the material along the joint surface has variable amounts of “weak” phyllosilicate materials (dominated by biotite) due to the schistic nature of the DIA; and
 - Group A (Figure 2) showing appreciable phyllosilicate (biotite) material and thus lower effective friction angles, compared to Group B (Figure 2);
- These results of these DSS tests are well within normal results for materials like the DIA.
- [Table 1: Part C](#) shows the DSS test results

Geotechnical Lab Test Conclusions

The UCS and the BTS strength tests indicate that the XIF major Geodomains are competent and strong in both dimensions of compression and tension. The UCS mode of failure indicates that DIA, DIAW and MBW tend to show a preferred mode of failure related to the foliation. This is not as common for MBA and CAC. The joint discontinuities tested for DSS lean towards poor and fair characterizations.

These are the first set of geotechnical lab tests conducted on the XIF and show that the XIF materials are competent and will result in a good set of geotechnical parameters to be used in the ongoing PEA. These geotechnical lab tests show that the XIF materials are all within standard mechanical rock property ranges and that there will be no geotechnical issues arising from the XIF materials confirming that the XIF will show “normal” pit wall angles as assumed and presented in the Company’s XIF resources report (see *Press Release of 9/14/2014* on the Company’s website for further details).

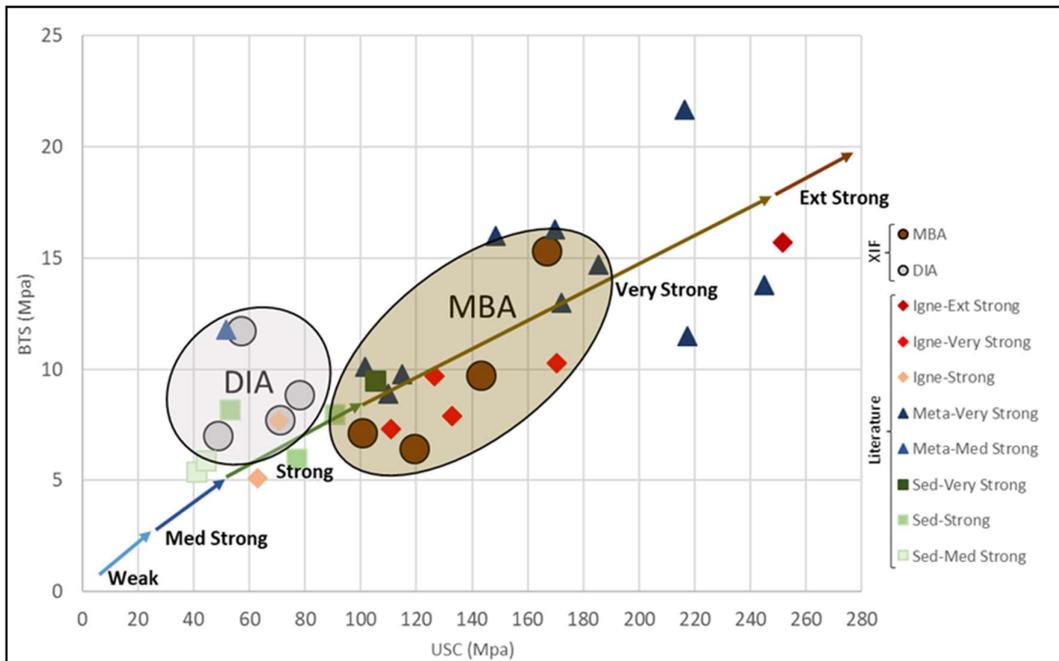


Figure 1. Brazilian Tensile Strength (BTS) Vs UCS results of DIA and MBA compared with other rock sample data from literature. Modified after Perras et al., (2014) and data from references therein.

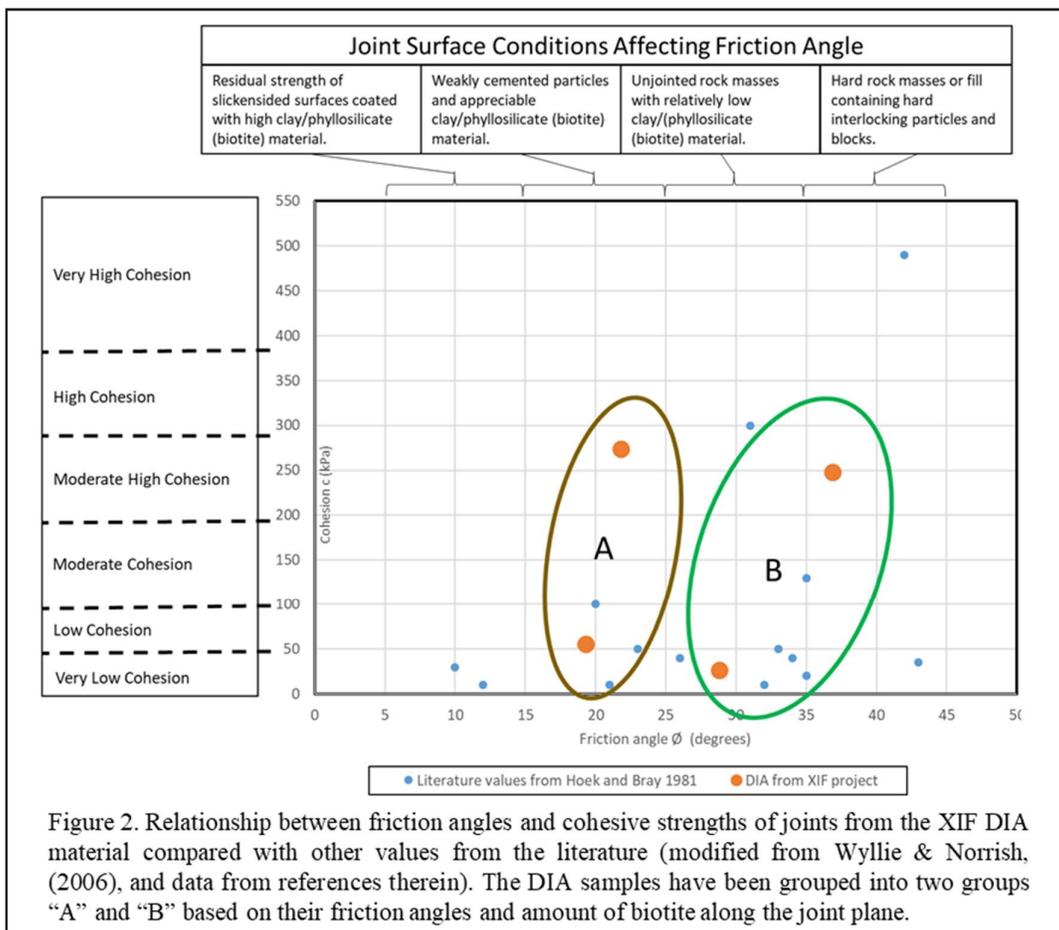


Figure 2. Relationship between friction angles and cohesive strengths of joints from the XIF DIA material compared with other values from the literature (modified from Wyllie & Norrish, (2006), and data from references therein). The DIA samples have been grouped into two groups "A" and "B" based on their friction angles and amount of biotite along the joint plane.

References

- Chakraborty, S., Bisai, R., Palaniappan, S. K., & Pal, S. K. (2019). *Failure Modes of Rocks under Uniaxial Compression Tests: An Experimental Approach*. Journal of Advances in Geotechnical Engineering Volume 2 Issue 3, 1-8.
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- Wyllie, D. C., & Norrish, N. I. (2006). *Rock Strength Properties and their Measurements*. 372-390. Chapter 14 from *Landslides: Investigations and Mitigations* by Turner, K. A. and Schuster, R. L. (ISBN: 030906208X)

About Botswana International University of Science and Technology

The Botswana International University of Science and Technology is a Government of Botswana supported institution established as a research-intensive University that specializes in Engineering, Science and Technology at both undergraduate and graduate (Master's and Doctoral) levels. It aims to increase competitiveness, economic growth and sustainable development; address the shortage of skilled scientists and technologists; increase movement of skilled people across national boundaries; stimulate research, innovation, and technology transfer; improve society's aspirations to improve health, wealth and well-being; address increased demand for access to tertiary education; and enable a more competitive and innovative tertiary education sector.

The University is a national strategic initiative that is intended to serve as one of the key platforms for transforming Botswana's economy. Because of its research emphasis, BIUST works with the private sector to meet emerging skills needs of the industry, as well as identifies challenges that can be solved through applied research. (www.biust.ac.bw).

About the XIF Project

- ◇ The project is located in the North-West District of Botswana and is proximate to the Namibian boarder and lies twenty-two (22) miles from the town of Divundu in Namibia. The Walvis Bay-Ndola-Lubumbashi Development Corridor (previously known as the Trans-Caprivi), line linking Zambia and Namibia is planned to pass through Divundu providing access to Walvis Bay, Namibia's deep-sea port.
 - The Company has joined the Walvis Bay Corridor Group (WBCG). Currently the portion of the corridor between Grootfontein (Namibia) to Katima Mulilo located on the Zambia border is the portion of the corridor closest to the Xaudum Iron Project. In March 2021, the Namibian Ministry of Works and Transport commissioned a Feasibility Study for the Trans-Zambezi Railway Extension Grootfontein -- Rundu - Katima Mulilo. The proposed rail extension between Grootfontein and Katima Mulilo is significant to Tsodilo as the extension is planned to pass through Divundu. The feasibility study is expected to be completed by the end of 2021 and its results will be considered in our Preliminary Economic Assessment (PEA).
 - The project is also located within forty-three (43) miles of the proposed Mucusso line to Angola's Namibe Port.
- ◇ Preliminary work on the Xaudum Iron project has defined a CIM compliant Inferred Mineral Resource Estimate of 441 million tonnes (Mt) with an average grade of 29.4% Fe, 41.0% SiO₂, 6.1% Al₂O₃ and 0.3% P for the Block 1 magnetite XIF.
- ◇ Block 1 is a fraction of the potential XIF magnetite resource. An extrapolated exploration target has defined the XIF to be in the order of 5 to 7 billion tonnes at 15 - 40% Fe. This exploration target was generated by inversion modelling of ground

magnetic geophysical data which was compared and moderated to volumes from drilling data within Block 1 and its potential quantity and grade is conceptual in nature. To date, there has been insufficient exploration to define a mineral resource other than in Block 1 and it is uncertain if further exploration will result in the target being delineated as a mineral resource. See **Press Release of 9/14/2014** on the Company's website for further details.

- ◇ Metallurgical magnetic separation results (Davis Tube Recovery) show an average concentrate of 67.2% Fe, 4.2% SiO₂, 0.5% Al₂O₃, 0.07% P is obtained at P80 grind size of 80 microns, although higher grades are possible at finer P80's. See **Press Release of 12/17/2013** on the Company's website.
- ◇ Further exploration will be focused on Block 2a where the Company expects an increase in the resource.

An informational presentation of the project outlining more information can be found on the Company's website at http://www.tsodiloresources.com/i/pdf/Tsodilo-Iron-Project-Overview_May-2021_Website.pdf.

More technical information a report prepared by SRK Consulting (UK) Ltd. for Gcwihaba Resources (Pty) Ltd. titled "*Mineral Resource Estimate for the Xaudum Iron Project (Block 1), Republic of Botswana*" with an effective date of August 29, 2014 and filed on SEDAR under the Company's profile at www.sedar.com.

About Tsodilo Resources Limited

Tsodilo Resources Limited is an international diamond and metals exploration company engaged in the search for economic diamond, metal deposits and industrial stone at its Bosoto (Pty) Limited ("Bosoto"), Gcwihaba Resources (Pty) Limited ("Gcwihaba") and Newdico (Pty) Ltd. ("Newdico) projects in Botswana and its Idada 361 (Pty) Limited ("Idada") project in Barberton, South Africa. The Company has a 100% stake in Bosoto (Pty) Ltd. which holds the BK16 kimberlite project in the Orapa Kimberlite Field (OKF) in Botswana and the PL216/2017 diamond prospection license also in the OKF. The Company has a 100% stake in its Gcwihaba project area consisting of seven metal (base, precious, platinum group, and rare earth) prospecting licenses all located in the North-West district of Botswana. The Company has a 100% interest in its Newdico industrial stone project located in Botswana's Central District. Additionally, Tsodilo has a 70% stake in Idada Trading 361 (Pty) Limited which holds the gold and silver exploration license in the Barberton area of South Africa. Tsodilo manages the exploration of the Newdico, Gcwihaba, Bosoto and Idada projects. Overall supervision of the Company's exploration program is the responsibility of Dr. Alistair Jeffcoate, Project Manager and Chief Geologist of the Company and a "qualified person" as such term is defined in National Instrument 43-101.

This press release may contain forward-looking statements. All statements, other than statements of historical fact, that address activities, events or developments that the Company believes, expects or anticipates will or may occur in the future (including, without limitation, statements pertaining to the use of proceeds, the impact of strategic partnerships and statements that describe the Company's future plans, objectives or goals) are forward-looking statements. These forward-looking statements reflect the current expectations or beliefs of the Company based on information currently available to the Company. Forward-looking statements are subject to a number of risks and uncertainties that may cause the actual results of the Company to differ materially from those discussed in the forward- looking statements, and even if such actual results are realized or substantially realized, there can be no assurance that they will have the expected consequences to, or effects on the Company. Factors that could cause actual results or events to differ materially from current expectations include, among

other things, changes in equity markets, changes in general economic conditions, market volatility, political developments in Botswana and surrounding countries, changes to regulations affecting the Company's activities, uncertainties relating to the availability and costs of financing needed in the future, exploration and development risks, the uncertainties involved in interpreting exploration results and the other risks involved in the mineral exploration business. Any forward-looking statement speaks only as of the date on which it is made and, except as may be required by applicable securities laws, the Company disclaims any intent or obligation to update any forward-looking statement, whether as a result of new information, future events or results or otherwise. Although the Company believes that the assumptions inherent in the forward-looking statements are reasonable, forward-looking statements are not a guarantee of future performance and accordingly undue reliance should not be put on such statements due to the inherent uncertainty therein.

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Neither the TSX Venture Exchange ("TSXV") nor its Regulation Services Provider (as that term is defined in the policies of the TSXV) accepts responsibility for the adequacy or accuracy of this news release. This news release may contain assumptions, estimates, and other forward-looking statements regarding future events. Such forward-looking statements involve inherent risks and uncertainties and are subject to factors, many of which are beyond the Company's control, which may cause actual results or performance to differ materially from those currently anticipated in such statements.

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