

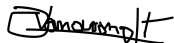
PROJECT ASSURE
DIAMOND VERIFICATION INSTRUMENT STANDARD
TEST RESULTS

Assessment Report for: Magilabs Oy / EXA



Prepared For: Luc Auer
Natural Diamond Council Belgium VOF
Hoveniersstraat 22
2018 Antwerpen

Received Date: December 14th 2023
Assessment Dates: January 2024
Testing ID Number: 2024-01
Report Date: February 19th 2024
Approved by:



Quinten Van Avondt
Lab Manager

LETTERS & REPORTS: Universiteit Antwerpen (UAntwerp) letters and reports are issued for the exclusive use of the clients to whom they are addressed. No quotations from reports or use of the UAntwerp name is permitted except as expressly authorized in writing. Letters and reports apply only to the specific materials, products or processes tested, examined or surveyed and are not necessarily indicative of the qualities of apparently identical or similar materials, products or processes. The liability of UAntwerp with respect to services rendered shall be limited to the amount of consideration paid for such service and not include any consequential damages. This report or certificate does not relieve sellers/suppliers from their contractual responsibility with regard to the quality/quantity of this delivery, nor does it prejudice clients' right to claim towards sellers/suppliers for compensation for any apparent and/or hidden defects not detected during our random inspection or testing. UAntwerp has not performed a complete analysis of the product. The results contained in this report indicate that the product has passed or failed the specific tests only. These test results, even if rated as "Passed," do not indicate or certify that the product is safe for commercial or consumer use.

 Universiteit Antwerpen	Magilabs Oy EXA		
	Date:	February 19 th 2024	Testing ID: 2024-01

DIAMOND VERIFICATION INSTRUMENT

Manufacturer's Name: Magilabs Oy
Instrument Model: EXA
Serial Number: MAGF7324072SP
Software Version: 1.6.0.1 (a)
Lab Manager: Quinten Van Avondt
Analyst /Operator : Cindy De Plukker

Manufacturer stated diamond verification instrument description and features:

- Manual stone feed
- User interpretation (natural or refer) / automated test results possible but not tested
- Single stone testing
- Results: natural or refer
- Distinguishes natural diamonds from potentially diamonds and diamond simulants

Manufacturer stated diamond verification instrument limitations:

- Loose and mounted colorless stones
- Stone size of 0.005ct (1 mm) or greater
- Stone color of D to N
- Stone clarity – no limitation specified in the user manual
- Any cut shape polished diamond or rough diamond

INSTRUMENT PERFORMANCE ASSESSMENT

ASSESSMENT CRITERIA

The ASSURE testing methodology and performance metrics are dependent on the operational capabilities of the diamond verification instrument being tested. These are defined by the following three categories:

Category 1- Screen diamonds from synthetic diamonds. This category of device is intended for discrimination of diamonds from synthetic diamonds. It cannot distinguish diamonds from diamond simulants and therefore requires stones to be pre-screened to ensure no simulants are introduced into the device.

Category 2 – Screen diamonds from synthetic diamonds and diamond simulants. This category of device is intended for discrimination of diamonds from synthetic diamonds and diamond simulants. This device cannot distinguish synthetic diamonds from diamond simulants.

Category 3 – Screen diamond from synthetic diamonds from diamond simulants. This category of device is intended for discrimination of diamonds, synthetic diamonds and diamond simulants from each other. This device can distinguish synthetic diamonds from diamond simulants.

LETTERS & REPORTS: Universiteit Antwerpen (UAntwerp) letters and reports are issued for the exclusive use of the clients to whom they are addressed. No quotations from reports or use of the UAntwerp name is permitted except as expressly authorized in writing. Letters and reports apply only to the specific materials, products or processes tested, examined or surveyed and are not necessarily indicative of the qualities of apparently identical or similar materials, products or processes. The liability of UAntwerp with respect to services rendered shall be limited to the amount of consideration paid for such service and not include any consequential damages. This report or certificate does not relieve sellers/suppliers from their contractual responsibility with regard to the quality/quantity of this delivery, nor does it prejudice clients' right to claim towards sellers/suppliers for compensation for any apparent and/or hidden defects not detected during our random inspection or testing. UAntwerp has not performed a complete analysis of the product. The results contained in this report indicate that the product has passed or failed the specific tests only. These test results, even if rated as "Passed," do not indicate or certify that the product is safe for commercial or consumer use.

 Universiteit Antwerpen	Magilabs Oy EXA		
	Date:	February 19 th 2024	Testing ID: 2024-01

Instrument performance for classifying the different kinds of stones was assessed against:

- ☐ Diamond Verification Instrument Standard Part 1 – Diamond Verification Instrument for Screening Diamonds from Synthetic Diamonds (November 9, 2021)
- ☒ Diamond Verification Instrument Standard Part 2 – Diamond Verification Instrument for Screening Diamonds from Synthetic Diamonds and Diamond Simulants (November 9, 2021)
- ☐ Diamond Verification Instrument Standard Part 3 – Diamond Verification Instrument for Screening Diamonds, Synthetic Diamonds, and Diamond Simulants (November 9, 2021)

as referenced in sections 7.3 and 7.4 of the Diamond Verification Instrument Standard – General Requirements for Evaluation Diamond Verification Instruments (November 9, 2021). Any deviations from the Standard are noted below:

Closed-back jewellery (small set jewellery) and jewellery with foiled back glass (primary set jewellery) was excluded from testing

 Universiteit Antwerpen	Magilabs Oy EXA		
	Date:	February 19 th 2024	Testing ID: 2024-01

DEFINITIONS:

Diamond Accuracy	<i>Diamond test stones correctly classified as Diamond.</i>
Synthetic Diamond Accuracy	<i>Synthetic Diamond test stones correctly classified as non-diamond (Synthetic Diamond / Diamond Simulant).</i>
Diamond Simulant Accuracy	<i>Diamond Simulant test stones correctly classified as non-diamond (Synthetic Diamond /Diamond Simulant)</i>
Diamond Referral Rate	<i>Diamond test stones classified as Referral.</i>
Synthetic Diamond Referral Rate	<i>Synthetic Diamond test stones classified as Referral</i>
Diamond Simulant Referral Rate	<i>Diamond simulant test stones classified as Referral</i>
Diamond False Positive Rate	<i>Non-Diamond test stones (Synthetic Diamond and/or Diamond Simulant) incorrectly classified as Diamond.</i>
Diamond False Negative Rate	<i>Diamond test stones incorrectly classified as non-diamond (Synthetic diamond/Diamond Simulant)</i>
Synthetic Diamond False Negative Rate	<i>Synthetic Diamonds incorrectly classified as Diamond.</i>
Diamond Simulant False Negative Rate	<i>Diamond Simulants incorrectly classified as Diamond.</i>
Testing Speed	The average speed at which the diamond verification instrument evaluates the stones in the PRIMARY loose sample set , including set-up time (if any)
Operating Speed	For auto-loading diamond verification instruments only, the average speed at which stones are evaluated once the instrument achieves a steady-state. Does not include set-up time.

NOTE: Diamond False Negative Rate is equivalent to the Synthetic Diamond / Diamond Simulant False Positive Rate for diamond verification instruments of Operation Category 2 (ASSURE Standard Part2, Section 12)

LETTERS & REPORTS: Universiteit Antwerpen (UAntwerp) letters and reports are issued for the exclusive use of the clients to whom they are addressed. No quotations from reports or use of the UAntwerp name is permitted except as expressly authorized in writing. Letters and reports apply only to the specific materials, products or processes tested, examined or surveyed and are not necessarily indicative of the qualities of apparently identical or similar materials, products or processes. The liability of UAntwerp with respect to services rendered shall be limited to the amount of consideration paid for such service and not include any consequential damages. This report or certificate does not relieve sellers/suppliers from their contractual responsibility with regard to the quality/quantity of this delivery, nor does it prejudice clients' right to claim towards sellers/suppliers for compensation for any apparent and/or hidden defects not detected during our random inspection or testing. UAntwerp has not performed a complete analysis of the product. The results contained in this report indicate that the product has passed or failed the specific tests only. These test results, even if rated as "Passed," do not indicate or certify that the product is safe for commercial or consumer use.

 Universiteit Antwerpen	Magilabs Oy EXA		
	Date:	February 19 th 2024	Testing ID: 2024-01

TEST STONE SETS USED FOR EVALUATION

Loose, Polished Stone Test Sets	Diamond	Synthetic Diamond	Diamond Simulant
Primary Sample Set (>2.0 mm, D-J color)	☒	☒	☒
Supplementary Smalls Sample Set (1.0-2.0 mm, D-J color)	☒	☒	☒
Mounted, Polished Stone Test Sets	Diamond	Synthetic Diamond	Diamond Simulant
Primary Sample Set (>2.0 mm, D-J color)	☒	☒	☒
Supplementary Smalls Sample Set (1.0-2.0 mm, D-J color)	☐	☐	

Notes: Jewellery pieces containing foiled back glass were not tested in the Primary Sample Set

CLEANING PROCEDURE OF STONES PRIOR TO TESTING

Test stones sets are cleaned in an ultrasonic bath of isopropanol for 2 minutes and dried prior to testing to reduce grease and electrostatic charge, as per Section 8 of ASSURE Standard.

LABORATORY CONDITIONS AT TIME OF ASSESSMENT

Condition	Requirement	Actual
Temperature (°C)	18 to 25°C	20°C
Humidity (%)	50 to 65%	54 %

RESULTS OF INSTRUMENT PERFORMANCE ASSESSMENT – LOOSE STONES

Performance Metric	Primary	Uncertainty ^[1]	Smalls	Uncertainty ^[1]
Diamond accuracy (%)	94.5	1.1	89.9	1.0
Synthetic diamond accuracy (%)	n/a ^[2]	n/a	n/a ^[2]	n/a
Diamond simulant accuracy (%)	n/a ^[3]	n/a	n/a ^[3]	n/a
Diamond referral rate (%)	5.5	1.1	10.1	1.0
Synthetic diamond referral rate (%)	100.0 ^[2]	0.0	100.0 ^[2]	0.0
Diamond simulant referral rate (%)	100.0 ^[3]	0.0	100.0 ^[3]	0.0
Diamond false positive rate (%)	0.0	0.0	0.0	0.0
Non-Diamond False Positive Rate (%)	0.0	0.0	0.0	0.0
Diamond false negative rate (%)	0.0	0.0	0.0	0.0
Synthetic diamond false negative rate (%)	0.0	0.0	0.0	0.0
Diamond simulant false negative rate (%)	0.0	0.0	0.0	0.0

LETTERS & REPORTS: Universiteit Antwerpen (UAntwerp) letters and reports are issued for the exclusive use of the clients to whom they are addressed. No quotations from reports or use of the UAntwerp name is permitted except as expressly authorized in writing. Letters and reports apply only to the specific materials, products or processes tested, examined or surveyed and are not necessarily indicative of the qualities of apparently identical or similar materials, products or processes. The liability of UAntwerp with respect to services rendered shall be limited to the amount of consideration paid for such service and not include any consequential damages. This report or certificate does not relieve sellers/suppliers from their contractual responsibility with regard to the quality/quantity of this delivery, nor does it prejudice clients' right to claim towards sellers/suppliers for compensation for any apparent and/or hidden defects not detected during our random inspection or testing. UAntwerp has not performed a complete analysis of the product. The results contained in this report indicate that the product has passed or failed the specific tests only. These test results, even if rated as "Passed," do not indicate or certify that the product is safe for commercial or consumer use.

 Universiteit Antwerpen	Magilabs Oy EXA		
	Date:	February 19 th 2024	Testing ID: 2024-01

Notes: ^[1] Uncertainty is expressed as absolute +/- range and reflects the consistency of the instrument's classification of stones for each of the three trials performed with the ASSURE sample.
^[2] All Synthetic Diamonds reported as referral for this instrument.
^[3] All Diamond Simulants reported as referral for this instrument.

RESULTS OF INSTRUMENT PERFORMANCE ASSESSMENT – MOUNTED STONES

Performance metric	Primary ^[4]	Smalls ^[3]
Diamond accuracy (%)	89.8	n/a
Synthetic diamond accuracy (%)	n/a ^[1]	
Diamond simulant accuracy (%)	n/a ^[2]	
Diamond referral rate (%)	10.2	
Synthetic diamond referral rate (%)	100.0 ^[1]	
Diamond simulant referral rate (%)	100.0 ^[2]	
Diamond false positive rate (%)	0.0	
Non-Diamond False positive rate (%)	0.0	
Diamond false negative rate (%)	0.0	
Synthetic diamond false negative rate (%)	0.0	
Diamond simulant false negative rate (%)	0.0	

Notes:

- ^[1] All Synthetic Diamonds are reported as referral for this instrument.
- ^[2] All Diamond Simulants reported as referral for this instrument.
- ^[3] Smalls set not tested (closed-back).
- ^[4] Samples containing foiled-back glass were not tested.

INSTRUMENT TESTING SPEED ASSESSMENT

Testing Speed approximates the usage turnaround time that could be expected by a novice user of the diamond verification instrument and is determined by the time required to evaluate the performance of the diamond verification instrument on the Primary Loose stone test set:

- Testing Speed accounts for the time directly associated with stone assessment including loading stones, programming any applicable instrument measurement parameters, analyzing the stones, and segregating the analyzed stones into respective instrument classified groups.
- Testing Speed does not include the time to initially warm-up the diamond verification instrument (if applicable) nor the time to separate diamonds from synthetic diamonds for each of the instrument classified groups of analyzed stones.
- Testing Speed does not include time associated with interruptions to the testing process.

Diamond verification instruments that continuously load and analyze stones (i.e., autoloading diamond verification instruments) shall also be assessed for a steady-state Instrument Operating Speed.

Testing speed, and instrument operating speed if applicable, are measured in triplicate. The mean value is reported in the Speed Test Results table below. The Uncertainty reflects the absolute +/- range of the results measured over the three trials.

LETTERS & REPORTS: Universiteit Antwerpen (UAntwerp) letters and reports are issued for the exclusive use of the clients to whom they are addressed. No quotations from reports or use of the UAntwerp name is permitted except as expressly authorized in writing. Letters and reports apply only to the specific materials, products or processes tested, examined or surveyed and are not necessarily indicative of the qualities of apparently identical or similar materials, products or processes. The liability of UAntwerp with respect to services rendered shall be limited to the amount of consideration paid for such service and not include any consequential damages. This report or certificate does not relieve sellers/suppliers from their contractual responsibility with regard to the quality/quantity of this delivery, nor does it prejudice clients' right to claim towards sellers/suppliers for compensation for any apparent and/or hidden defects not detected during our random inspection or testing. UAntwerp has not performed a complete analysis of the product. The results contained in this report indicate that the product has passed or failed the specific tests only. These test results, even if rated as "Passed," do not indicate or certify that the product is safe for commercial or consumer use.

 Universiteit Antwerpen	Magilabs Oy EXA		
	Date:	February 19 th 2024	Testing ID: 2024-01

SPEED TEST RESULTS (PRIMARY LOOSE SAMPLE)

Category	Stones per hour	Uncertainty
Testing Speed (all devices)	205	24
Operating Speed (auto-loading devices)	n/a ^[1]	n/a ^[1]

Notes: ^[1] not applicable for this device since the device has manual feed.

ADDITIONAL FINDINGS

Speed test measurements for testing include time required for user interpretation.

***** End of Report *****

LETTERS & REPORTS: Universiteit Antwerpen (UAntwerp) letters and reports are issued for the exclusive use of the clients to whom they are addressed. No quotations from reports or use of the UAntwerp name is permitted except as expressly authorized in writing. Letters and reports apply only to the specific materials, products or processes tested, examined or surveyed and are not necessarily indicative of the qualities of apparently identical or similar materials, products or processes. The liability of UAntwerp with respect to services rendered shall be limited to the amount of consideration paid for such service and not include any consequential damages. This report or certificate does not relieve sellers/suppliers from their contractual responsibility with regard to the quality/quantity of this delivery, nor does it prejudice clients' right to claim towards sellers/suppliers for compensation for any apparent and/or hidden defects not detected during our random inspection or testing. UAntwerp has not performed a complete analysis of the product. The results contained in this report indicate that the product has passed or failed the specific tests only. These test results, even if rated as "Passed," do not indicate or certify that the product is safe for commercial or consumer use.