



## ASSURE TEST PROCESS



All Diamond Verification Instruments have been tested with the verified ASSURE Sample in accordance with the Diamond Verification Instrument Standard by an independent third-party laboratory.

### 1. ASSURE SAMPLE

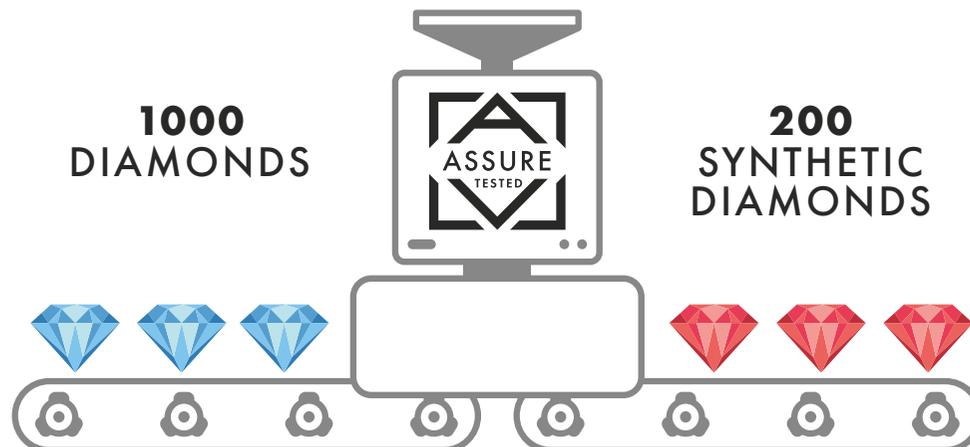
The ASSURE Sample is the set of stones used to test the Diamond Verification Instrument. It consists of a carefully selected mix of diamonds, synthetic diamonds and, when applicable, diamond simulants. The ASSURE Sample is designed to be very challenging and to include a broad range of types of natural diamond and synthetic diamond. It is not intended to replicate ordinary commercial use of the instrument in question. Accordingly, ASSURE test results are not necessarily an indicator of how effectively the instrument would perform in normal commercial operating conditions.

#### ASSURE Core Sample

We put together a sample of 1,000 diamonds, 200 synthetic diamonds and, if applicable, 200 diamond simulants. The proportion of

synthetic diamonds is much higher than would be normal in a contaminated parcel, which enabled the instruments to be tested on a broad range of synthetic diamond material without the need for an excessively large natural diamond sample.

The ASSURE Sample has a significantly higher proportion of synthetic diamonds than would be normal in a contaminated parcel and includes very challenging custom-made synthetic diamonds which are not commercially available for gem applications. Therefore, these results need to be interpreted in the context of that sample.





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### The ASSURE Core Sample contains:

- ◇ Natural diamonds with a controlled type I/II distribution
- ◇ HPHT synthetic diamonds and CVD synthetic diamonds, some of which have received specialised treatments during and after the growth process
- ◇ Diamond simulants including cubic zirconia, foil backed glass crystals, synthetic moissanite and colourless synthetic corundum. Note that only instruments claiming to be able to handle diamond simulants are tested on these samples

The natural diamonds and diamond simulants are commercially sourced. Most of the synthetic diamonds are also commercially sourced, but some are not yet available on the market as they are currently both too difficult to produce and prohibitively costly for commercial purposes. However, they help further assess the extent to which the instruments tested are future-proof.

All stones in the ASSURE Core Sample are larger than 2.00 mm in girdle diameter, D-J colour, round brilliant cut, and mixed clarity. Results initially published in the ASSURE Directory are obtained with the ASSURE Core Sample.

### Important Note

The ASSURE Sample includes synthetic diamonds that are not yet commercially available to the jewellery industry. We have included these custom-made synthetic diamonds (which are grown using the most advanced synthesis technology available) in order to ensure that the ASSURE Program is future-proof and differentiates effectively and fairly between the instruments. Consequently, an instrument's performance in a real life situation is likely to be better than in test conditions,

as they are unlikely to be confronted by such a challenging sample of stones with such a high proportion of synthetic diamonds.

### Additional Samples

Many of the Diamond Verification Instruments have capabilities that range outside the ASSURE Core Sample. To test some of those capabilities we developed additional samples:

- ◇ ASSURE Sample B: Larger than 2.00mm girdle diameter, K-Z colour, round brilliant cut, mixed clarity
- ◇ ASSURE Sample C: 1.00-2.00 mm girdle diameter, D-J colour, round brilliant cut, mixed clarity
- ◇ ASSURE Sample D: 1.00-2.00 mm girdle diameter, K-Z colour, round brilliant cut, mixed clarity
- ◇ ASSURE Simple Jewellery: Open back jewellery set with D-J colour, round brilliant cut, mixed clarity stones
- ◇ ASSURE Intricate Jewellery: Closed back jewellery set with D-J colour, round brilliant cut, mixed clarity stones
- ◇ ASSURE Melee Jewellery: Open back jewellery set with D-J colour, round brilliant cut, mixed clarity stones

The results of these additional tests will become available in the ASSURE Directory over the coming months. To access the test results from the additional samples, please download the UL test report on respective instrument's page in the ASSURE Directory.

### Sample Verification

The test samples have been verified by two gemmological laboratories prior to use as part of the ASSURE Sample.

We wish to extend our gratitude to [AGS Laboratories](#), [Gemological Institute of America \(GIA\)](#) and [De Beers Group Industry Services](#) for generously volunteering their time, expertise and resources.

### Test Laboratories



## 2. DIAMOND VERIFICATION INSTRUMENT STANDARD

All Diamond Verification Instruments were tested in the same way to ensure the test results are comparable. The standardised test method is outlined in the Diamond Verification Instruments Standard.

The Diamond Verification Instrument Standard specifies how the performance of Diamond Verification Instruments can be evaluated in a robust and rigorous manner. There are three different test protocols for how to test the instruments; each test protocol applies to a category of instruments that operate in a similar way.

### Operation Category 1

Instruments that separate diamonds from synthetic diamonds. These instruments cannot handle diamond simulants. Consequently, when you use these instruments in your operations, you will have to pre-screen all stones to ensure there are no diamond simulants.

### Operation Category 2

Instruments that separate natural diamonds from synthetic diamonds and diamond simulants. These instruments should be able to distinguish between a diamond simulant and a natural diamond. However, these instruments cannot distinguish between a diamond simulant and a synthetic diamond. The stones that have been categorised as "non-natural diamond" will have to go through further testing in order to determine whether they are diamond simulants or synthetic diamonds.



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### Operation Category 3

Instruments that separate diamonds, synthetic diamonds and diamond simulants. These instruments can separate synthetic diamonds from diamond simulants.

### Standard Development

The Diamond Verification Instrument Standard was developed in collaboration with UL, the world leading safety consulting and certification company. The development was supported by manufacturers worldwide who collaboratively shared information and knowledge about how their instruments operate. The first draft of the standard was subjected to an initial testing phase, "beta testing", using three different instruments to ensure practical applicability.

Throughout the development of the standard, we sought expertise from a Technical Committee to ensure scientific rigour. The Technical Committee consists of leading scientists and academics from major gemmological laboratories across the world, such as Technological Institute for Superhard and Novel Carbon Materials (FSBI TISNCM), GIA (Gemological Institute of America), Gemmological Institute of India (GII), De Beers Group Industry Services (DBGIS), National Gemstone Testing Center (NGTC), Swiss Gemmological Institute (SSEF) and Scientific and Technical Research Center for Diamond (WTOCD).

### 3. INDEPENDENT THIRD-PARTY TEST AGENCY

To ensure the integrity and independence of the test process, the tests are managed by an independent third-party test laboratory. For the first round of testing UL is appointed as the independent test agency. UL performed the tests in their laboratory in Canton, Massachusetts, United States. The tests were performed on behalf of the manufacturers of the instruments in accordance with the Diamond Verification Instrument Standard.

If you have any questions on the ASSURE Test Process and ASSURE Sample, contact us on [assure@diamondproducers.com](mailto:assure@diamondproducers.com).

