

M I S T E R C H R O N O

Principle of operation

The **PRESIDIUM DiamondMate** has been developed to distinguish between a diamond and its simulant. It makes use of the fact that a diamond conducts heat better than any known diamond simulant material. Other properties of diamond, such as its high refractive index, can be closely matched by other materials and they are therefore less useful in identifying this most precious gemstone.

The **PRESIDIUM DiamondMate** utilizes the same patented principle and basic design of electronic circuitry as all of its predecessors. The Heat Tip consists of two linked thermometers, one of which is heated electrically while the other is cooled by gemstone being tested. The difference between the temperature of two thermometers is a measure of the heat conductivity of the gemstone and gives rise to an electrical output that is amplified on a LED level meter. The meter reading thus indicates the heat conductivity.

Features

- 1.1 No waiting time between test - the recovery time after each test is approximately 2 seconds. The tester can be used continuously without the need to stop.
- 1.2 Available in two models :
 - a) For model : **DiamondMate-A** - it operates on 3 X AAA / IR03 / AM4 alkaline batteries or directly from an electrical outlet (220V / 110V ac) with an AC adapter. (AC adapter and alkaline batteries are optional for this model).
 - b) For model : **DiamondMate-C** - it operates on 3 X Nicad rechargeable batteries or directly from an electrical outlet (220V / 110V ac) with an AC adapter. (Batteries and AC adapter / charger are included for this model).
- 1.3 Pocket size - measuring only 160 x 30 x 20.5mm.
- 1.4 Low battery indicator - a small red light will appear to indicate low battery.
- 1.5 Metal detector - an audible intermittent beep will alert the user when the probe tip is in contact with any metal.

1.6 Measured diamond-the LED level meter will instantly light up to the green zone at the same time an audible continuous beep will alert the user of a successful test.

1.7 Low battery consumption - The alkaline batteries in the "DiamondMate-A" will last 3 times longer than any other diamond testers in the market.

Preparing the Presidium DiamondMate for use

2.1 a) Model : **DiamondMate-A**
This model operates on 3 x AAA alkaline batteries, simply insert the batteries into the battery compartment of the instrument and note \pm symbols. Only alkaline batteries should be used to optimise the life of your instrument. This model was tested to operate continuously for 7 hours using alkaline batteries. It also operates efficiently using an AC adapter connected directly to a suitable electrical outlet. Use only the adapter (optional) supplied by the manufacturer.

b) Mode : **DiamondMate-C**
When you receive the instrument from your dealer, the NICAD batteries will

M I S T E R C H R O N O

need to be charged for 6-8 hours prior to use. Simply insert the AC adapter / charger (supplied with this model) into a suitable electrical outlet. While charging your DiamondMate, it can be operated as normal via the AC source without any interference. A fully charged Nickel cadmium batteries will operate the instrument continuously for 2 hours.

- 2.2 Switch on the unit and wait for about 25 seconds to warm up the instrument. While in this preparation mode, a green light will blink continuously. The light will stop blinking when it is "READY" to be used.
- 2.3 Use just enough pressure to depress the protruding probe tip at right angle to the facet of the stone until it retracts completely into the housing. This will result in the lighting up of the red LED when a simulant is being tested and the green LED with a continuous audible beep when a diamond is being tested.
- 2.4 The PRESIDIUM DIAMONDMATE has been completely calibrated in the factory and no further adjustment / calibration is required.
- 2.5 This unit comes with an auto power down feature.

How to perform a test with your DiamondMate

- 3.1 Prepare your gemstones and testing must be done at room temperature. Hold the unit at approximately right angle to the facet of the gemstone that you are going to test. Apply just enough pressure to the probe to allow it to retract completely into the housing. With the fully retracted probe, it will automatically maintain a steady and constant contact between the probe and the facet of the gemstone where the measurement is taking place.
- 3.2 The LED will display the test result instantly with the lights rising rapidly to its maximum value within one or two seconds and thereafter it will fall gradually.
- 3.3 If the reading reaches the green zone, an audible continuous beep will activate signaling that a diamond is being identified and if the light stopped at any red zone, a simulant is being identified.

Note : This instrument can also be used as an aid to distinguish some known simulant (colour stone)such as :

Sapphire vs Tanzanite
Sapphire vs Iolite
Sapphire vs Spinel

Sapphire vs Citrine
Sapphire vs Topaz
Sapphire vs Glass

However further examination is recommended for final analysis of simulant.

- 3.4 When the probe is in contact with any metal an audible intermittent beep will be activated by the built-in metal detector.

Note : For proper operation of the metal detector, your fingers must be in contact at all times with metal plated serrated parts conveniently located on both sides of the tester. This user friendly feature was designed in such a way that most user's fingers will automatically be in contact with the serrated components while operating the tester.

Important notes

- 4.1 The gemstone must be clean and dry before testing, elaborate cleaning procedures are not necessary. The tip of the tester probe must also be clean to ensure proper contact with the gem. It is a good habit to rub the probe tip gently across a bond paper surface before testing and do it periodically.

- 4.2 For accurate testing, the instrument must be operated at room temperature (65-80°F / 18-27°C). Prior to any testing, always allow the gems / jewellery pieces to adjust to room temperature.

- 4.3 For testing of very small diamonds (10 points and below) the LED on the green zone may not light up to its maximum range. It is not uncommon to have only one green light lighted up. For measuring small loose stones, it is advisable to use a stone tray (optional) to achieve optimum accuracy.

- 4.4 Change batteries or recharge the batteries as soon as the low battery indicator light appears.

- 4.5 The PRESIDIUM DIAMONDMATE has undergone thorough and extensive laboratory tests and checks. It will give a clear and reliable indication of whether or not a particular gemstone is a diamond or otherwise.

Under no circumstances shall PRESIDIUM INSTRUMENTS PTE LTD, the manufacturer, or any of its distributors be liable for Direct or Indirect Damages Sustained in Connection with the PRESIDIUM DIAMONDMATE.

Maintenance

- 5.1 The probe tip of the instrument is very delicate and it should be handled carefully. One must exercise caution when removing the protective cap so as not to damage the tip. When the instrument is not in use, always replace the cap to protect the probe tip.
- 5.2 One must stop using the instrument when the low battery indicator is lighted up, this is to prevent any inaccurate measurements.
- 5.3 Do not leave dead batteries in the battery compartment as they may corrode and cause damage to the instrument. Batteries should be removed when the instrument is to be stored for an extended period of time.
- 5.4 It is advisable to have the instrument serviced and calibrated once a year.