



DIAMONDS AND SYNTHETIC DIAMONDS



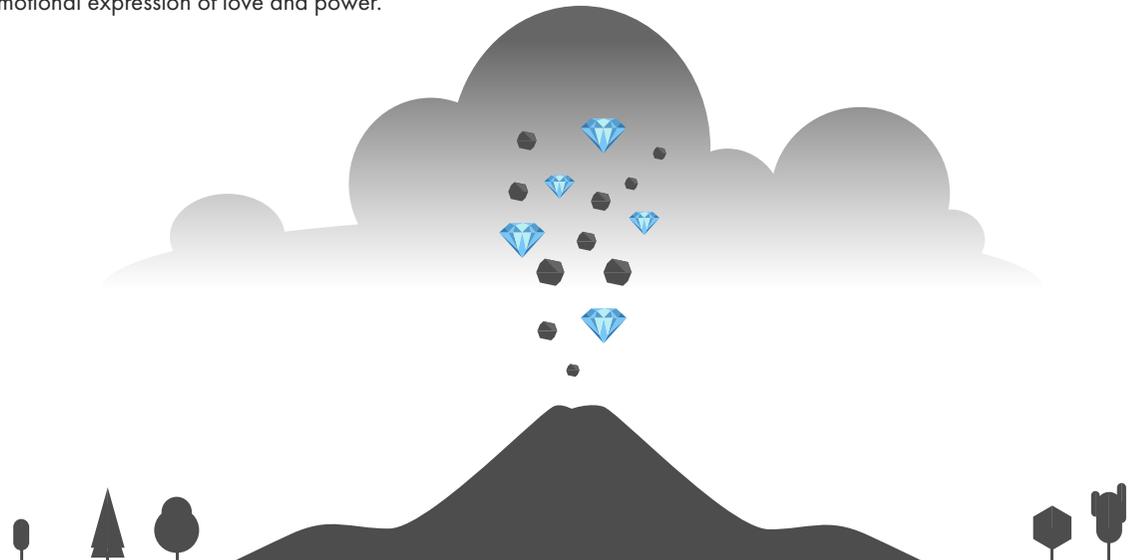
Natural diamonds and synthetic diamonds are two different products catering to different markets with different value propositions. When used on its own, the term *diamond* refers to natural diamonds.

DIAMONDS

Natural diamonds were formed one to three billion years ago under enormous pressure and high temperature deep below the surface of the Earth. Each diamond was formed in a unique way; no two diamonds are alike. Diamonds were brought to the surface of Earth through intense volcanic eruptions hundreds of millions of years ago. Some of the diamonds still remain in the volcanic pipes whilst others journeyed with tectonic plate movements and along rivers.

Since their discovery around 6,000 years ago, diamonds have been valued for their beauty, rarity and hardness, and have become closely intertwined with emotional expression of love and power.

Today diamonds are recovered from the ancient volcanic pipes by international mining companies applying best practises across every aspect of their operations to ensure that the environmental impact of mining is minimised and that benefits to local communities are maximised. Natural diamonds contribute, directly and indirectly, to the livelihood of more than 10 million people.



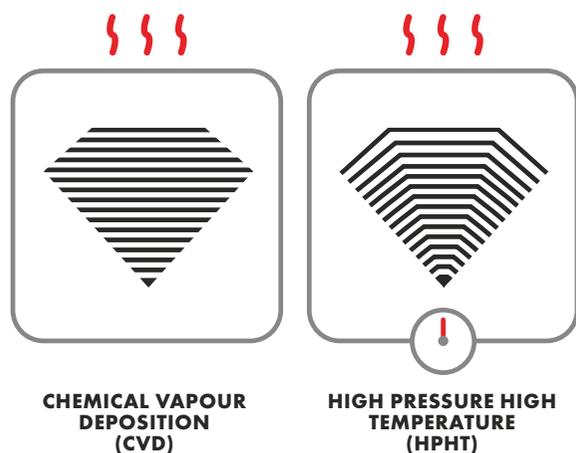


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SYNTHETIC DIAMONDS

A synthetic diamond, also referred to as a laboratory-grown or laboratory-created diamond, is an artificial product that has essentially the same chemical and physical characteristics as a natural diamond. A synthetic diamond is a crystalline form of the chemical element carbon created in a manufacturing facility.

Two different methods are used to produce synthetic diamonds: Chemical Vapour Deposition (CVD) and High Pressure High Temperature (HPHT). CVD synthetic diamonds are created through layering of vapourised carbon whilst HPHT synthetic diamonds typically grow out of carbon containing metallic solutions. Both manufacturing methods involve synthesis processes where chemical reactions take place in converting carbon into the diamond crystalline form.



Synthetic diamonds have been produced for industrial purposes since the 1950s. They are used in a wide array of industries, from telecommunications to laser optics. Fancy colour synthetic diamonds were introduced into the jewellery industry in the mid 1990s when the manufacturing process had matured to produce larger stones at commercial prices. Colourless synthetic diamonds were introduced into the jewellery market in the mid-2000s.

HOW TO DISTINGUISH SYNTHETIC DIAMONDS FROM NATURAL DIAMONDS

Trade participants have a legal obligation to disclose clearly and accurately the nature of the product they are selling, as natural diamonds and synthetic diamonds have very different value. One of the key tools to ensure the protection of both the diamond trade and diamond buyer is effective verification of diamonds.

Distinguishing synthetic diamonds from natural diamonds requires specialised equipment. The natural formation of diamonds deep in the earth over millions of years is a very long process, very different from the week-long industrial production of synthetic diamonds. The different growth conditions lead to differences in the type and distribution of impurity atoms. Diamond Verification Instruments look at these differences to separate natural diamonds from synthetic diamonds.

All Diamond Verification Instruments operate on the same basic principles; they separate natural diamonds from synthetic diamonds. The instruments perform this task with different technologies, and they range in complexity and capability.

