Natural Versus Laboratory-Grown Diamonds: Fact Sheet for Members of the American Gem Society

The Difference Between Natural and Laboratory-Grown Diamonds
Diamonds are a crystalline form of carbon. Natural diamonds were formed in the Earth’s upper mantle, when high temperatures and pressures caused carbon intrusions to crystallize into diamonds. These diamonds were then brought towards the Earth’s surface via pipes or “diatremes” that were created through upward volcanic activity. The “youngest” diamonds appear to be 900 million years old and the oldest may be more than three billion years old.

Laboratory-grown diamonds are produced in a facility, either using high pressure and high temperature (HPHT) to synthesize carbon into a diamond by mimicking the Earth’s natural processes, or produced layer by layer using hydrocarbon gas in a process known as chemical vapor deposition (CVD). While a laboratory-grown diamond is essentially the same as a natural diamond in its composition, physical, and optical properties, there are differences that a skilled gemologist can readily detect with special equipment and sometimes even under a microscope.

Diamond Terminology Guidelines
The United States Federal Trade Commission’s (FTC) guidelines regarding diamond terminology are as follows:

Laboratory-grown diamonds must be disclosed to avoid consumer confusion about the product with natural diamonds. Use of one of the following qualifiers when referring to laboratory-grown diamonds: “laboratory-grown” or “laboratory-created” is required. “Cultured diamonds,” or “cultivated diamonds,” are confusing terms and refer exclusively to natural diamonds and natural gemstones, and are not permitted in reference to laboratory-grown diamonds.

Avoid: Abbreviations such as “lab-grown diamonds” and “lab-created diamonds,” or terms such as “gemstones.”

The FTC Guides for the Jewelry, Precious Metals, and Pewter Industries, states that the only product that may be described as “diamond,” without qualification, is the natural variety. Diamonds are gemstones, which by definition, are minerals of natural origin used in jewelry for reasons of beauty, rareness, and intrinsic value.

Detecting the Difference Between a Natural and a Laboratory-Grown Diamond
Often, there's no difference to the naked eye between natural and laboratory-grown diamonds. You need special equipment and advanced gemological knowledge that can be found through a qualified gemological laboratory such as AGS Laboratories. AGS Laboratories offers a Natural Diamond Verification Service in order to serve this need. Through this service, AGS Laboratories can determine if your diamond is a natural or laboratory-grown diamond. The resulting report is a card-sized document verifying the results, which is helpful when you sell, or resell, diamonds. To learn more, visit americangemsociety.org/naturalornot.
Process for Appraising or Grading Laboratory-Grown Diamonds
Laboratory-grown diamonds must be graded before they are appraised—just like natural diamonds. Diamond grading means the quality of the diamond has been assigned to it after careful analysis of its cut, color, clarity, and carat weight (the 4Cs). Appraising is assigning a value to the diamond, based on its quality.

When in doubt, send your diamonds to AGS Laboratories for grading.

Environmental Sustainability
The production of laboratory-grown diamonds requires the operation of sophisticated machinery. The machinery runs on electricity, which is produced most often by the consumption of fossil fuels.

International Development and Human Rights
According to the Diamond Producers Association, the natural diamond industry supports jobs for more than ten million people across the globe and contributes billions of dollars each year to local economies, investing in public healthcare, education, roads, electricity, sanitation and other public goods.

Sample Messaging to Tell Your Customers About the Rarity and Romance of Natural Diamonds
Buying a diamond is a joyous occasion. Connect to the rarity and emotion of the moment. For example: “When you love someone, you have a rare and real connection with them. The Earth produces diamonds, and each crystal is unique. Like us. Like love. For centuries, they’ve been the symbol of love, because they are real and rare. Because human beings figured out how to reproduce them in a lab doesn’t diminish the fact that diamonds formed in the earth are any less rare. In fact, it makes real diamonds all that more different and special.”

The American Gem Society wishes to thank the Diamond Producers Association, who contributed to this Fact Sheet, and to the Jewelers Vigilance Committee. These organizations are helping educate consumers and jewelers alike on the difference between natural and laboratory-grown diamonds.