

About What are Lab-Grown Diamonds

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About Lab-Grown Diamonds:

- Lab-grown diamonds are diamonds that are **produced using specific technology which mimics the geological processes that grow natural diamonds.**
- The **diamond simulants such as Moissanite, Cubic Zirconia (CZ), White Sapphire, YAG, and others** are used to make them **look like natural diamonds.**
- **How are LGDs produced?** There are **multiple ways** in which LGDs can be produced.
 - **High pressure, high temperature” (HPHT) method:**
 - It is the most common and **cheapest method.**
 - In this method, extremely heavy presses that can **produce up to 730,000 psi of pressure under extremely high temperatures of at least 1500 celsius** are applied.
 - Usually, **graphite is used as the “diamond seed”** and when subjected to these extreme conditions, the relatively inexpensive form of carbon turns into one of the most expensive carbon forms.

- **Chemical Vapor Deposition (CVD)** and **explosive formation** create what is known as **detonation nanodiamonds**.
 - **Application of Lab-grown diamonds:**
 - Used for industrial purposes, **in machines and tools** and their hardness and extra strength make them ideal for use as cutters.
 - Pure synthetic diamonds are **used in electronics as a heat spreader for high-power laser diodes**, laser arrays and high-power transistors.
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Q1) What is a Diamond?

Diamond is a rare, naturally occurring mineral composed entirely of carbon. Each carbon atom in a diamond is surrounded by four other carbon atoms and connected to each of them by strong covalent bonds – the strongest type of chemical bond. This simple, uniform, tightly-bonded arrangement yields one of the most durable and versatile substances known.

Source: [PM Modi gifts eco-friendly lab-grown diamond to US First Lady Jill Biden](#)

Source: <https://vajiramandravi.com/current-affairs/about-what-are-lab-grown-diamonds/>

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