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The Lab-Grown Diamond Buyer's Bible

Written by Our Founder

20 years in the diamond industry · SEEPZ Mumbai

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CHAPTER 1

How a Lab-Grown Diamond Is Actually Made

I've visited CVD facilities in Surat and HPHT labs in Pune. Most buyers have never seen either. Here's what actually happens.

CVD: Chemical Vapor Deposition

A thin diamond seed plate — a wafer of natural or previously grown diamond — is placed in a vacuum chamber. The chamber is filled with a carbon-rich gas mixture (typically methane and hydrogen). Microwave energy or radio frequencies ionize the gas into a plasma. Carbon atoms rain down onto the seed and crystallize, layer by atomic layer, into diamond.

The process takes 2–4 weeks for a gem-quality stone. CVD diamonds tend to grow with a Type IIa signature — the same classification as some of the most valuable natural diamonds on Earth. The crystal is then cut, polished, and graded exactly like a mined stone.

HPHT: High Pressure High Temperature

HPHT mimics the conditions under which natural diamonds form. A diamond seed is placed in a press with a carbon source (graphite) and a metallic catalyst. The press applies pressures of 5–6 GPa — roughly 1.5 million pounds per square inch — at temperatures of 1,300–1,600°C. Carbon dissolves into the metal catalyst and precipitates onto the seed as diamond crystal.

HPHT produces slightly different crystallographic characteristics than CVD. Some buyers and gemologists prefer one over the other aesthetically, though both are genuine diamond. Both methods are disclosed on IGI and GIA certificates.

Why This Matters for Your Purchase

Understanding the process demystifies the "is it real" question completely. The carbon lattice that makes diamond the hardest naturally occurring substance — and what gives it that specific refractive index that produces diamond fire — is identical whether grown in the earth over a billion years or in a lab over three weeks. The IGI grades both the same way because they are the same material.

When someone tells you a lab-grown diamond is "fake," they're using the wrong word. It's synthetic — meaning human-made — but it is genuinely diamond. The Federal Trade Commission revised its jewelry guidelines in 2018 to remove "natural" as a requirement from the definition of diamond for exactly this reason.

CHAPTER 2

The 4 Cs That Actually Matter at This Price Point

The 4 Cs are real — but their relative importance shifts dramatically when you're buying lab-grown at direct-manufacturer prices. Here's how I weight them.

Cut: Non-Negotiable

Cut is the only C that's entirely in the hands of the craftsperson. Natural diamonds are cut conservatively to preserve carat weight because the rough is expensive. Lab-grown rough is cheap. This means there's no economic reason to cut a lab-grown diamond poorly — and the best lab-grown stones are cut aggressively for brilliance.

Always buy Excellent or Ideal cut grades. A 1.5ct G VS2 Excellent cut will outsparkle a 2ct H SI1 Very Good cut every single time. Do not compromise here.

Color: The Savings Opportunity

For lab-grown, I tell most buyers to target F–H color for white gold or platinum settings, I–J for yellow gold. The difference between D and H is invisible to the naked eye in a set stone. The price difference — even in lab-grown — can be significant. Use the savings to upgrade cut or carat.

I don't usually recommend D–E color for lab-grown unless it's within budget. The premium doesn't translate to visible quality in a mounted stone.

Clarity: VS2 Is the Sweet Spot

VVS clarity means very very slightly included — inclusions invisible under 10x magnification. VS2 means inclusions visible under magnification but not to the naked eye. For earrings and pendants, VS2–SI1 is genuinely indistinguishable from VVS in normal wear.

For engagement rings — which get close scrutiny — VS1–VS2 is where I'd land. The VVS premium in lab-grown is lower than in natural, so the calculus differs. But if you're asking me what matters: cut matters. Clarity grades at VS2 and above are largely academic for wear.

Carat: The Number People Lead With (Don't)

Carat is weight, not size. Two 1ct diamonds from different cutters can look dramatically different in size based on how they're proportioned. A well-cut 0.9ct round will face-up larger than a poorly-cut 1.1ct. Stop leading with carat. Lead with cut, then let budget determine the largest carat you can hit within the other grades.

At lab-grown prices, most buyers can achieve 1.5–2ct with excellent cut and VS2+ clarity for what they'd spend on a 0.7ct natural diamond. Use that budget space wisely.

CHAPTER 3

VVS Clarity Explained — Why StudsDirect Won't Ship Lower

Our standard for studs and pendants is VVS2 or better. For rings, VS1 or better. Here's why, and how to read clarity grades on an IGI certificate.

The IGI Clarity Scale

FL (Flawless): No inclusions or blemishes under 10x magnification. Extremely rare in natural diamonds; achievable in lab-grown without the rarity premium. Visually identical to VVS to any human eye.

IF (Internally Flawless): No internal inclusions; minor surface blemishes only. Also rare. Visually indistinguishable from FL.

VVS1/VVS2 (Very Very Slightly Included): Inclusions present but extremely difficult for even a trained gemologist to find under 10x magnification. Zero visual impact in normal wear.

VS1/VS2 (Very Slightly Included): Inclusions visible under magnification but not to the naked eye. Excellent real-world clarity for all jewelry types.

SI1/SI2 (Slightly Included): SI1 inclusions are typically invisible to the naked eye; SI2 sometimes visible. Solid value grade for casual wear, not recommended for rings that get close attention.

I1/I2/I3 (Included): Inclusions visible to the naked eye. We won't source these.

Why VVS Is Our Floor for Studs

Stud earrings are worn at face level, in motion, in varying light. In a sparkling stone with good cut, VS2 inclusions are invisible. But here's the reality of lab-grown pricing: the VVS premium over VS2 in a 0.5ct stone is small — often $40–80 retail. At that cost difference, there's no reason to source VS2 for studs when I can source VVS2 at a price that still substantially undercuts competitors.

It's not about the grade being perceptible. It's about setting a standard I'm willing to put my name behind. If I ship you a stone and you have it examined by an independent appraiser, I want the clarity report to reflect the quality you paid for — without needing to explain why I sourced at the lower end of the value range.

How to Read Clarity on Your IGI Certificate

On the certificate, look for the Clarity Grade field (will read VVS2, VS1, etc.) and the Clarity Characteristics section, which lists the specific inclusion types and their locations on a diagram

of the stone. Common inclusion types: pinpoint (tiny carbon crystal), needle (elongated crystal), cloud (grouping of pinpoints), feather (small fracture). None of these are structural concerns at VS or higher grades.

CHAPTER 4

The IGI Certificate — How to Read It, What to Look For

Every diamond we ship comes with an IGI (International Gemological Institute) certificate. Here is what every field means and the red flags that should make you walk away.

What IGI Is

The International Gemological Institute is the world's largest independent gem certification and appraisal organization. Founded in 1975, it operates 20+ laboratories globally including New York, Antwerp, Mumbai, Hong Kong, and Tokyo. It grades both natural and lab-grown diamonds on the same 4C scale. The GIA (Gemological Institute of America) is also widely trusted; IGI is the standard used across the SEEPZ manufacturing ecosystem and the dominant certification for lab-grown stones.

Reading the Certificate

Report Number: This is the certificate's unique ID. You can verify it independently at igi.org/verify — enter the number and the full grade report appears. If the number doesn't verify, do not buy the stone.

Shape and Cutting Style: Round Brilliant is the most common. Princess, Cushion, Oval, Emerald are also common. The cutting style affects brilliance; Round Brilliant is the most mathematically optimized for light return.

Measurements: Listed in mm (diameter x depth for rounds, L x W x D for fancies). This tells you the actual physical dimensions of the stone.

Carat Weight: Weight to two decimal places. Note that a 0.97ct and a 1.00ct stone look identical face-up; the 0.97ct is typically 10–15% cheaper.

Color Grade: D–Z scale. D is colorless; Z is light yellow. For most buyers, F–H is the practical target.

Clarity Grade: FL through I3. All of our stones are VVS2 or better for studs.

Cut Grade: Excellent, Very Good, Good, Fair, Poor. Excellent only.

Polish and Symmetry: Both should be Excellent or Very Good. Polish affects surface finish; symmetry affects light patterning.

Fluorescence: How the stone responds under UV light. Most say None or Faint. Strong fluorescence in a D–F color stone can reduce price (some buyers perceive it negatively); in G–

H color, it's often an advantage.

Lab Grown notation: IGI explicitly states "Laboratory Grown" on the certificate. This is not a downgrade — it's accurate disclosure.

Red Flags

No certificate, or a certificate from an unknown lab. No-name labs have no accountability standards.

A certificate that doesn't verify online at the issuing lab's website.

A seller who can't provide the report number before purchase.

Cut grade below Very Good.

CHAPTER 5

Setting & Metal — Why 14K Solid Gold Beats Vermeil Every Time

The diamond gets all the attention. But a good diamond in a poor setting is like a good speaker in a bad room. The metal matters — both for appearance and for whether your jewelry survives daily wear.

14K Solid Gold vs. Gold Vermeil vs. Gold Plating

14K solid gold is 58.3% pure gold alloyed with silver, copper, or zinc. It's durable, hypoallergenic for most people, won't flake or rub off, and holds its appearance indefinitely. It can be sized, repaired, and resized. This is what we use.

Gold vermeil is a sterling silver base coated with at least 2.5 microns of gold (US standard). It looks identical initially. With daily wear, the plating wears through — typically within 1–3 years depending on pH, contact, and care. Once through, you're wearing silver-colored metal.

Gold plating is even thinner — a flash of gold over base metal (often brass or copper). It looks great in the display case and in photos. It starts losing finish within months of daily wear. We won't ship this.

14K vs 18K vs Platinum

14K gold: 58.3% gold. Most durable option for daily wear — the higher the alloy content, the softer and more scratch-prone. Most of our studs and rings are set in 14K.

18K gold: 75% gold. Richer color, more prestige. Softer and slightly more prone to scratching for daily-wear rings. We offer this for customers who want it; the price premium is moderate.

Platinum: 95% pure platinum. Naturally white (no rhodium plating needed), denser and heavier than gold. Develops a patina over time rather than scratching — metal displaces rather than removing. More expensive; worth it for buyers with metal sensitivities or who prefer the weight.

White Gold and Rhodium

White gold gets its white color from the alloy (palladium or nickel) and from rhodium plating applied after manufacture. Rhodium is a platinum-group metal — brighter white than platinum, very hard. It wears off over time (typically 1–3 years with daily wear) and requires re-plating. This is normal maintenance, not a defect.

Prong vs. Bezel Setting

Prong (4 or 6 prong): Maximum light exposure to the stone, maximum sparkle. The trade-off is

that prongs can catch on fabrics and bend over time. Inspect prongs annually and have a jeweler tighten any that move.

Bezel: Metal rim completely surrounds the stone. More secure, modern aesthetic, better for active lifestyles. Slightly reduces light entry but negligible impact on sparkle in a round brilliant. Our martini setting is a 3-prong open bezel hybrid — the right balance.

CHAPTER 6

Pricing Transparency — What a $1k vs $10k Stone Actually Costs

This is the chapter most jewelers would prefer you not read.

The Supply Chain: Where Money Goes

In the traditional diamond supply chain: mining company !’ rough diamond broker !’ cutting center !’ polished diamond wholesaler !’ jewelry manufacturer !’ national distributor !’ regional retailer !’ you. Each step takes margin. By the time a diamond reaches a Fifth Avenue showcase, it has passed through 4–7 hands, each adding 20–50%.

For lab-grown: growth facility !’ cutting center !’ you. StudsDirect removes 4–5 layers. That's not marketing language. It's arithmetic.

What a $1,000–$1,500 Lab-Grown Stud Set Actually Looks Like

Total weight: 1.0ct (0.5ct each). Shape: Round Brilliant. Color: F–G. Clarity: VVS2. Cut: Excellent. Setting: 14K white gold, martini prong. Certificate: IGI.

This is genuinely exceptional jewelry by any objective standard. The same grade and weight at Tiffany (in natural diamonds) would be $14,000+. At Blue Nile in lab-grown: ~$949. At StudsDirect, direct from SEEPZ: $963 — comparable to Blue Nile but with E-color VVS+ specs and independent IGI certification. Verified May 2026.

What a $8,000–$12,000 Stone Includes That Ours Doesn't

Real estate: A Tiffany flagship on Fifth Avenue or Michigan Avenue carries per-square-foot costs that get incorporated into every product. When you buy a Tiffany ring, a portion of every dollar goes toward that store's lease.

Brand equity: The blue box is worth money — to Tiffany. The experience of receiving it. The social signaling. These are real values to some buyers. But they're not diamond quality. A Tiffany F VS1 Excellent is the same grade as a StudsDirect F VS1 Excellent. The IGI certificate for both reads the same.

Intermediary margins: Every layer of the supply chain needs to eat. Distributors, showroom buyers, sales staff commissions, returns buffer — all priced in.

The Honest Number

Our 1ct E VVS+ Excellent lab-grown stud set at $963 includes a higher spec diamond (E color, VVS+ clarity) with independent IGI certification. My markup is real and I'm not ashamed of it —

I run a business. But it's a business model with 3 parties: me, the cutter, you. Not 7 parties each extracting margin and blaming the "price of diamonds."

CHAPTER 7

The 7 Questions to Ask Any Jeweler Before You Buy

These are the questions that reveal whether you're dealing with a legitimate jeweler or a sales operation. Good jewelers welcome them. Bad jewelers deflect.

1. Can you provide the IGI or GIA certificate number for this specific stone?

Not "I have a certificate." The actual report number, before you buy. Verify it yourself at igi.org/verify or gia.edu. If they say it's "certified" but can't provide a verifiable report number, walk away.

2. What is the cut grade on the certificate?

Acceptable answers: Excellent, Ideal, Very Good. Anything below Very Good means the stone was cut for weight preservation, not brilliance. This is a quality decision they made, not a trade-off you need to accept.

3. Is this natural or lab-grown, and how is that disclosed on the certificate?

Either answer is fine. But they need to answer it clearly, and it needs to match the certificate. Ambiguity here is a red flag.

4. What metal is the setting — solid gold, gold-filled, vermeil, or plated?

Acceptable: solid gold (14K, 18K), platinum, solid sterling silver (for lower price points). Not acceptable: "gold vermeil" or "gold plated" for fine jewelry prices. If a "$3,000 ring" has a gold-plated setting, you're paying diamond prices for base metal.

5. What is your return policy and what does it cover?

Minimum acceptable: 30-day returns for any reason, full refund. Legitimate jewelers stand behind their product. "All sales final" or "store credit only" are not acceptable for a diamond purchase.

6. Do you offer resizing, and is there a fee?

Standard service for solid gold settings. One free resize is reasonable. They should be able to tell you the limits (typically ±2 sizes).

7. Where was this diamond cut and polished?

The answer tells you a lot about the supply chain. SEEPZ (Mumbai), Surat, Antwerp, and Ramat Gan (Israel) are legitimate cutting centers with strong reputations. "I don't know" isn't necessarily disqualifying for a retailer, but it's information.

CHAPTER 8

How StudsDirect Actually Works

Most DTC jewelry brands say "direct from the manufacturer." Here's what that actually means for us — and what it means for you.

SEEPZ: The Sourcing Hub

The Santacruz Electronics Export Processing Zone (SEEPZ) in Mumbai is one of the world's largest free-trade diamond and gem manufacturing zones. It handles approximately 65% of India's gem and jewelry exports — around $7B annually. Every major global jewelry brand sources from this ecosystem.

I spent 20 years working in this ecosystem — grading, certifying, sourcing, and eventually establishing direct relationships with multiple cutting facilities. Those relationships are the business. When you buy from StudsDirect, you are buying from someone who has personally walked the cutting floor where your stone was made.

What "Personal QC" Actually Means

Every stone is graded against its IGI certificate before it ships. This is not a formality. I verify: stone matches the certificate report number (laser inscription on the girdle for all IGI-graded stones), measurements match within tolerance, cut quality is consistent with the grade, no transport damage or setting defects.

If a stone fails QC against its certificate — which does happen — it goes back. I ship a replacement, not a justification.

The Direct-to-Customer Model

No retail showroom. No commissioned sales staff. No regional distributors. Orders are processed, QC'd, and shipped from our fulfillment point directly to your door. Free shipping. 30-day returns. If anything is wrong with your order, you have my direct email in the box.

This model only works if the product is right — because there's no relationship in the showroom to smooth over a bad experience. We keep it right by sourcing carefully and not racing to the bottom on quality to hit a price point.

What We Don't Do

We don't customize stones or settings beyond our existing collection (yet). We don't do appraisals (use an independent GIA-trained appraiser for that). We don't sell natural diamonds — lab-grown only, because that's where the value proposition is clearest.

If you have a question about a specific stone or application, email us. I read every message

from the first-time buyer asking what 1ct looks like on a 5'4" frame to the repeat customer deciding between two settings. That's not marketing language. It's just how I prefer to run this.

YOU'VE READ THE BIBLE.

Now buy with confidence.

Every stone IGI-certified. VVS2 or better. Excellent cut.
14K solid gold. Free shipping. 30-day returns.

BIBLE READER DISCOUNT

BIBLE25

$25 off your first order — apply at checkout on studsdirect.com

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Questions? Reply to this email or visit studsdirect.com

— Founder, StudsDirect

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