

January 01, 2026



Cut 8X

Growth Method	CVD
Chemical Vapor Deposition (CVD)	Highly controlled environment, allowing precise control over film thickness and composition.
Sputtering	Allows deposition of various materials onto different substrates.
Molecular Beam Epitaxy (MBE)	Enables atomic-level precision in layer growth.
Pulsed Laser Deposition (PLD)	Facilitates the growth of complex oxides and nitrides.
Electrochemical Deposition	Offers a cost-effective method for large-scale production.
Atomic Layer Deposition (ALD)	Provides exceptional uniformity and conformal coverage on intricate structures.
Hydrothermal Synthesis	Enables the growth of nanoscale structures like nanotubes or nanowires.
Sol-gel Process	Commonly used for depositing thin films of oxides and hydroxides.
Langmuir-Blodgett	Used for creating ultra-thin monolayers of organic molecules.
Spin Coating	A simple technique for depositing uniform thin films from liquid precursors.
Dip Coating	Simple and scalable method for coating substrates with polymer or oxide layers.
Evaporation	Traditional method for depositing metals and some semiconductors.
Physical Vapor Deposition (PVD)	Includes sputtering and evaporation techniques for depositing thin films.
Chemical Bath Deposition (CBD)	Simple and low-cost method for depositing various materials.
Electroless Plating	Used for depositing metal coatings without the need for an external current.
Layer-by-Layer Assembly	Enables the construction of multilayered structures at the molecular level.
Self-Assembly	Natural process where components spontaneously organize into ordered structures.
Bio-inspired Growth	Inspired by biological processes, leading to novel nanostructures.
Microfluidic Synthesis	Enables precise control over reaction conditions for nanomaterial synthesis.
3D Printing	Emerging technology for fabricating complex microstructures.
Photolithography	Essential for patterning thin films into specific device geometries.
Etching	Used to remove unwanted material, defining the final device structure.
Annealing	Crucial step for improving the crystalline quality and properties of grown films.
Transfer Printing	Enables the integration of pre-synthesized materials onto flexible substrates.
Heteroepitaxy	Growing one material on top of another lattice-matched substrate.
Epitaxial Growth	Controlled growth of a single crystal layer on a substrate.
Polycrystalline Growth	Growing films composed of many small crystals.
Amorphous Growth	Growing non-crystalline films.
Nanoparticle Synthesis	Creating discrete particles for applications in catalysis or electronics.
Nanowire Synthesis	Growing one-dimensional structures for nanoelectronics.
Nanoribbon Synthesis	Growing two-dimensional ribbon-like structures.
Nanosheet Synthesis	Growing atomically thin two-dimensional materials.
Graphene Synthesis	Producing the world's thinnest material for various applications.
Carbon Nanotube Synthesis	Growing cylindrical carbon structures with unique mechanical and electrical properties.
Quantum Dot Synthesis	Creating semiconductor nanoparticles with tunable optical properties.
Perovskite Synthesis	Growing materials for next-generation solar cells and LEDs.
Topological Material Synthesis	Growing materials with exotic electronic states.
Superconductor Synthesis	Growing materials capable of zero resistance at low temperatures.
Thermoelectric Material Synthesis	Growing materials for converting heat directly into electricity.
Optoelectronic Material Synthesis	Growing materials for light-emitting diodes (LEDs) and photovoltaics.
Spintronics Material Synthesis	Growing materials that utilize electron spin for information storage and processing.
Memristive Material Synthesis	Growing materials for resistive random access memory (RRAM).
Neuromorphic Material Synthesis	Growing materials that mimic the structure and function of the human brain.
Biocompatible Material Synthesis	Growing materials for medical implants and drug delivery systems.
Energy Storage Material Synthesis	Growing materials for advanced batteries and supercapacitors.
Catalytic Material Synthesis	Growing materials to accelerate chemical reactions.
Sensor Material Synthesis	Growing materials for detecting specific analytes.
Actuator Material Synthesis	Growing materials that can convert energy into mechanical motion.
Smart Material Synthesis	Growing materials whose properties change in response to stimuli.
Metamaterial Synthesis	Growing artificially structured materials with tailored electromagnetic properties.
Photonic Crystal Synthesis	Growing materials with periodic dielectric structures for controlling light propagation.
Plasmonic Material Synthesis	Growing materials that interact strongly with light via surface plasmons.
Quantum Device Material Synthesis	Growing materials for quantum computing and communication.
Artificial Intelligence Material Synthesis	Using machine learning algorithms to predict optimal synthesis conditions.
High-Throughput Screening	Rapidly testing thousands of different synthesis conditions.
Automated Synthesis	Robotic platforms performing repetitive synthesis tasks.
Continuous Flow Synthesis	Streamlined process for producing materials continuously.
Microfluidic Synthesis	Combining reagents in tiny channels for precise control.
3D Printing	Additive manufacturing for creating complex microstructures.
Lithography	Patterning techniques for defining device features.
Etching	Removal of material to define the final structure.
Annealing	Heat treatment to improve material properties.
Transfer Printing	Moving pre-made structures onto new substrates.
Heteroepitaxy	Growing one crystal on another lattice-matched substrate.
Epitaxial Growth	Growing a single crystal layer on a substrate.
Polycrystalline Growth	Growing films made of many small crystals.
Amorphous Growth	Growing non-crystalline films.
Nanoparticle Synthesis	Creating discrete particles for various uses.
Nanowire Synthesis	Growing one-dimensional structures.
Nanoribbon Synthesis	Growing two-dimensional ribbon-like structures.
Nanosheet Synthesis	Growing atomically thin two-dimensional materials.
Graphene Synthesis	Producing the world's thinnest material.
Carbon Nanotube Synthesis	Growing cylindrical carbon structures.
Quantum Dot Synthesis	Creating semiconductor nanoparticles.
Perovskite Synthesis	Growing materials for solar cells and LEDs.
Topological Material Synthesis	Growing materials with exotic electronic states.
Superconductor Synthesis	Growing materials for zero resistance.
Thermoelectric Material Synthesis	Growing materials for energy conversion.
Optoelectronic Material Synthesis	Growing materials for light devices.
Spintronics Material Synthesis	Growing materials for magnetic memory.
Memristive Material Synthesis	Growing materials for resistive memory.
Neuromorphic Material Synthesis	Growing materials mimicking the brain.
Biocompatible Material Synthesis	Growing materials for medical use.
Energy Storage Material Synthesis	Growing materials for batteries.
Catalytic Material Synthesis	Growing materials to speed up reactions.
Sensor Material Synthesis	Growing materials for detection.
Actuator Material Synthesis	Growing materials for movement.
Smart Material Synthesis	Growing materials that respond to changes.
Metamaterial Synthesis	Growing artificially designed materials.
Photonic Crystal Synthesis	Growing materials for controlling light.
Plasmonic Material Synthesis	Growing materials interacting with light.
Quantum Device Material Synthesis	Growing materials for quantum tech.
Artificial Intelligence Material Synthesis	Using computers to optimize synthesis.
High-Throughput Screening	Testing many conditions quickly.
Automated Synthesis	Robotics doing the synthesis work.
Continuous Flow Synthesis	Non-stop production of materials.
Microfluidic Synthesis	Mixing reagents in tiny tubes.
3D Printing	Building structures layer by layer.
Lithography	Patterning surfaces with light.
Etching	Removing material to shape the device.
Annealing	Heating to improve material quality.
Transfer Printing	Moving pre-made parts.
Heteroepitaxy	Growing one crystal on another.
Epitaxial Growth	Growing a single crystal layer.
Polycrystalline Growth	Growing films of many crystals.
Amorphous Growth	Growing non-crystalline films.
Nanoparticle Synthesis	Creating tiny particles.
Nanowire Synthesis	Growing thin wire-like structures.
Nanoribbon Synthesis	Growing thin ribbon-like structures.
Nanosheet Synthesis	Growing extremely thin sheets.
Graphene Synthesis	Producing single-layer carbon.
Carbon Nanotube Synthesis	Growing hollow carbon tubes.
Quantum Dot Synthesis	Creating tiny semiconductor dots.
Perovskite Synthesis	Growing materials for solar cells.
Topological Material Synthesis	Growing materials with special electronic properties.
Superconductor Synthesis	Growing materials with zero resistance.
Thermoelectric Material Synthesis	Growing materials for energy conversion.
Optoelectronic Material Synthesis	Growing materials for light devices.
Spintronics Material Synthesis	Growing materials for magnetic memory.
Memristive Material Synthesis	Growing materials for resistive memory.
Neuromorphic Material Synthesis	Growing materials mimicking the brain.
Biocompatible Material Synthesis	Growing materials safe for medical use.
Energy Storage Material Synthesis	Growing materials for batteries.
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Epitaxial Growth	Growing a single crystal layer.
Polycrystalline Growth	Growing films of many crystals.

The logo is a circular seal. At the top, it says 'GCAI' in a large, serif font, with 'BY SAGRE' in a smaller font below it. In the center is a detailed line drawing of a diamond with its facets clearly marked. At the bottom, the words 'CONSUMER 4CS GRADING GUARANTEE' are written in a circular path around the diamond.

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Ultimate Diamond Cut Grade



P Poor **F** Fair **G** Good **VG** Very Good **EX** Excellent

Technical drawing of a diamond showing its proportions and measurements:

- Table width: 5.55mm
- Table length: 3.27mm 59%
- Table depth: 0.25mm 4.4%
- Table angle: 35.0°
- Table thickness: 0.78mm 14.0%
- Table height: 3.44mm 61.9%
- Table depth angle: 40.2°
- Table width angle: 0.03mm 0.5%
- Table height angle: 2.41mm 43.5%

DIAMOND SHAPES



CARAT WEIGHT SIZES

Carat Weight	2.50	2.00	1.50	1.00	0.75	0.50
Approx. Size						
Diameter	8.60mm	8.00mm	7.30mm	6.40mm	5.80mm	5.10mm

DIAMOND CLARITY GRADING SCALE

FL	IF	VVS1	VVS2	VS1	VS2	SI1	SI2	I1	I2	I3
FLAWLESS - INTERNALLY FL.		VERY VERY SLIGHTLY		INCLUDED/VERY SLIGHTLY INCLUDED		SLIGHTLY INCLUDED				INCLUDED/PIQUE

DIAMOND COLOR GRADING SCALE



D - Z DIAMOND COLOR GRADING SCALE

DIAMOND FLUORESCENCE GRADING SCALE



DIAMOND POLISH & SYMMETRY GRADING SCALE

EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
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BRILLIANT CUT DIAGRAM



BUY WITH
CONFIDENCE

GCAL BY SARINE™
4Cs GRADING GUARANTEE

The GCAL by Sarine™ philosophy is simple: we believe consumers should feel confident about their lab grown diamond purchase, in the same way we believe experts should be accountable and stand behind their work.

This is why your lab grown diamond is protected by a zero tolerance, money-backed grading guarantee. You should know that the GCAL by Sarine™ 4Cs Grading Certificate is the only 4Cs grading certificate in the world that comes with a guarantee that ensures the accuracy of the certified lab grown diamonds' weight and quality grades. If the carat weight or any of the cut, color, or clarity grades provided in this GCAL by Sarine™ 4Cs Grading Certificate is lower than the weight or quality grade of your certified lab grown diamond, GCAL by Sarine™ will reimburse you the difference between what you paid for the lab grown diamond and the current fair value of an equivalent lab grown diamond in the market in which it was purchased, pursuant to the newly established grades. Kindly see additional details, including the limitations of the guarantee, at GCALUSA.com.

MISSION STATEMENT

To provide the most accurate and consistent gemological grading, with uncompromising integrity and unparalleled customer service.

GEMPRINT®

Having a traceable, unique “fingerprint” of your lab grown diamond adds future protection to your investment, as well as peace of mind. GCAL by Sarine™ records the distinctive Gemprint of every diamond we certify. This patented technology for positive identification is recognized worldwide as forensic evidence and identification. Register your lab grown diamond at GEMPRINT.com

CERTIFICATE VERIFICATION

You can verify the authenticity of this certificate by entering your GCAL by Sarine™ Certificate Number at GCALUSA.com. You can also download a complimentary digital copy of this document to send to your insurance company.



GUARANTEED
CERTIFICATE



LAB GROWN



8X® is the highest achievement in precision diamond cutting. The GCAL 8X Ultimate Diamond Cut Grading System encompasses all aspects of diamond CUT quality assessment. Your lab Grown diamond has achieved grades of Excellent in all eight aspects of CUT quality assessment. As a result, this lab grown diamond is recognized for its extraordinary brilliance and beauty.

PHYSICAL EXCELLENCE

The first three of the 8X grading factors analyze the exactness of the physical surface, the facet shapes, as well as the angles. This includes the Polish, External Symmetry and Proportions.

Decades of the meticulous mathematical calculations have determined the narrow proportions ranges required to produce superior cut diamonds. Each shape has been studies individually to find the most aesthetically pleasing parameters. Some of the factors considered are listed below.

To view the proportions specifications for each shape, please visit our website GCALUSA.COM

Table %	Lower Girdle facet Length
Depth %	Star Length
Crown Angle/Height	Girdle Thickness
Pavilion Angle/Height	Culet Size

LIGHT PERFORMANCE EXCELLENCE

The next three of the 8X grading factors are Brilliance, Fire and Scintillation, which analyze the light handling ability of your lab grown diamond. The combination of these factors is the essence of what makes any diamond visibly shine, dance and sparkle from across a room. Fire and Scintillation are graded while the diamond is in motion and interacting with the light. View the Fire and Scintillation videos of this lab grown diamond at the GCALUSA.com or by scanning the QR code on this certificate.

OPTICAL EXCELLENCE

The last two 8X grading factors consider optical excellence. These factors scrutinize the craftsmanship, the precise alignment of the crown and the pavilion facets, the shape outline, and the length to width ratio, ensuring the lab grown diamond achieves aesthetic perfection.

Grading scales for each of the 8X grading factors can be viewed at GCALUSA.com

Independently Graded and Guaranteed by GCAL by Sarine™