

The History of Selling Platinum

How an Indigenous prestige metal, a colonial mining nuisance, a scientific curiosity, and an industrial catalyst became a globally priced commodity

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Editorial note. This paper draws on archaeometallurgy, economic and mining history, official market rules, government publications, and peer-reviewed work on platinum-group-metal production and recycling. It distinguishes the history of platinum itself from the narrower history of *selling* it. A metal may be mined, worn, gifted, taxed, stolen, deposited, or used by a state without passing through an open sale. The difference matters especially before surviving contracts, price lists, and commercial accounts.

Platinum did not enter world commerce by following the familiar path of gold or silver. It was worked in northwestern South America long before Europeans understood it, yet its exceptionally high melting point prevented ordinary furnace treatment. In Spanish colonial gold districts, dense grains of *platina* were often treated as an obstruction, contaminant, or fraud risk rather than as valuable merchandise. European laboratories could describe the material before merchants could offer a dependable, malleable product. Platinum became widely saleable only when refiners learned to separate it from a difficult mineral mixture, fabricators learned to shape it, assayers learned to certify it, and institutions created recognizable units of price and delivery.

That process never produced one universal platinum sale. A South African mine sells a basket of metals contained in concentrate or matte. A refiner may deliver sponge or a 99.95 percent plate. A chemical plant may return used platinum-rhodium gauze through a closed-loop refining account. An autocatalyst collector may sell by estimated unit value, sampled assay, or final recovered ounces. A jeweler sells workmanship and brand as well as metal, while a scrap buyer usually values only recoverable fine platinum. An investor may buy a coin, an allocated bar, an unallocated account claim, a futures contract, or an exchange-traded security.

The central finding: the history of selling platinum is the history of making an obstinate, heterogeneous, and exceptionally valuable material credible enough to transfer. Every successful platinum market rests on agreed identity, fine weight, assay, title, delivery, and settlement rules.

Key takeaways

- Indigenous metalworkers in the La Tolita-Tumaco cultural region fabricated platinum-gold objects centuries before the Spanish conquest by using techniques adapted to native grains that could not be melted in ordinary furnaces.
- Colonial Spanish authorities initially treated *platina* as a nuisance in gold recovery and a potential means of falsifying gold, sometimes requiring it to be discarded under supervision.
- Eighteenth-century science established platinum as a distinct metal, but reliable commerce required practical refining and fabrication methods, not merely scientific recognition.
- William Hyde Wollaston's early nineteenth-century business joined secret chemical refining, product development, customer cultivation, and the commercial separation of platinum-group by-products.
- Russia's platinum roubles, issued from 1828 to 1845, were an early state attempt to absorb and monetize new Ural production, but they did not create a durable monetary market.
- Discovery of the Merensky Reef in 1924 shifted the center of platinum supply toward South Africa and eventually made platinum part of a multi-metal mining and refining system.
- Vehicle-emissions regulation transformed demand after catalytic converters became standard on many 1975-model-year vehicles in the United States.
- Modern benchmark prices are reference points, not guaranteed payouts. Assay, product form, location, quotation period, payability, processing, financing, taxes, and buyer margin determine the seller's net return.
- Recycling is central to the platinum market because the metal's value justifies recovery from autocatalysts, jewelry, chemical equipment, petroleum catalysts, electronics, medical devices, and manufacturing residues.

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Reading guide. Sections 1-10 reconstruct the commercial history. Sections 11-16 explain the institutions, products, pricing mechanics, recycling systems, and sourcing controls that define the present market. Section 17 converts those findings into a practical framework for sellers. The FAQ and glossary provide direct answers for readers who do not need the full chronology.

Platinum-selling history at a glance

Period	Material or claim transferred	How value was judged	Commercial development
Before the sixteenth century	Platinum-rich grains incorporated into gold-platinum ornaments in northwestern South America	Color, workmanship, social meaning, object form, and the maker's skill	Indigenous metalworkers developed powder-based and diffusion techniques suited to unmeltable native grains
Sixteenth-seventeenth centuries	<i>Platina</i> recovered with alluvial gold in the Spanish American Pacific lowlands	Mostly treated as contamination or a risk to gold purity	Authorities restricted possession and sometimes ordered disposal rather than encouraging an open market
1740s-1790s	Mineral specimens, experimental metal, fabricated laboratory pieces, and prestige objects	Scientific testimony, chemical behavior, malleability, and the reputation of a refiner	European investigators recognized a distinct metal and developed chemical and high-temperature routes to workable platinum
1800-1820	Malleable platinum sheet, wire, vessels, instrument parts, gun components, and refined by-products	Refiner identity, workmanship, fine weight, and application performance	Wollaston built a documented private refining and marketing business around Colombian crude platinum
1828-1845	Russian three-, six-, and twelve-rouble platinum coins	State weight and face value, recognizable design, official mint authority	Coinage attempted to turn Ural output into money and create a state-supported outlet for the metal
Mid-late nineteenth century	Crucibles, acid-processing equipment, scientific instruments, meter and kilogram standards, jewelry	Purity, dimensional precision, corrosion resistance, fabrication quality	Industrial refiners and fabricators created repeatable products and durable customer relationships
1920s-1960s	South African PGM concentrate, matte, refined sponge, industrial products, dealer metal	Multi-metal assay, refiner reputation, bilateral quotation, long-term contracts	The Bushveld Complex shifted supply toward integrated mining, smelting, and precious-metal refining
1956-present	New York platinum futures and related options	Standard contract unit, approved deliverable metal, clearing and margin rules	Futures created a public venue for price discovery and risk transfer without requiring every contract to end in delivery
1970s-present	Autocatalyst-grade platinum and recycled catalytic material	Emissions performance, loading, serial data, sampling, assay, and recovery	Environmental regulation created a mass industrial use and a large secondary market in spent catalysts
1973-present	London spot quotations and benchmark prices	Defined auction or quotation process, time, currency, and loco London basis	Public references made bilateral physical contracts easier to price while leaving premiums and charges negotiable
1980s-present	Bullion coins, bars, allocated accounts, unallocated claims, exchange-traded products	Fine weight, mint or refiner brand, custody, liquidity, spread, and fees	Retail and institutional investors gained forms of platinum exposure outside industrial procurement
Present	Concentrate, matte, sponge, bars, industrial products, jewelry, scrap, accounts, futures, options, and ETPs	Assay, specification, documentation, provenance, benchmark, quotation period, and net settlement	Several linked markets trade different products rather than one physically uniform commodity

Five questions every platinum sale must answer

The market has changed repeatedly, but the same five questions govern almost every platinum transaction:

- 1. What exactly is being sold?** Native grains, concentrate, converter matte, sponge, bar, alloy, fabricated equipment, jewelry, autocatalyst material, bullion, an allocated claim, and a futures contract are not interchangeable.

2. **How much fine platinum is present or promised?** Gross weight is not fine weight. Moisture, base metals, ceramic substrate, other PGMs, alloying elements, stones, attachments, and sampling uncertainty may dominate the calculation.
3. **Who proves the result?** The answer may be an assay office, mine laboratory, independent umpire, approved refiner, mint, warehouse, exchange, or contractual sampling procedure.
4. **Where and when is value fixed and delivery completed?** A morning or afternoon London benchmark, a monthly average, a shipment quotation period, a mine gate, a refinery account, a vault, and a futures delivery month produce different exposures.
5. **How does the public price become the net settlement?** Payability, treatment and refining charges, recovery, penalties, by-product credits, fabrication premium, taxes, freight, finance, hedging, and buyer margin bridge the gap between a headline price and cash received.

A note on evidence: what counts as a platinum sale?

Archaeometallurgy can show that platinum-bearing objects existed, how they were made, and where their raw material probably originated. It cannot always identify the transaction that placed an object in a grave, workshop, household, or ceremonial setting. The object may have been commissioned, gifted, inherited, exchanged, taxed, looted, or made for the producer's own use. Accordingly, the first chapter describes production and circulation without claiming a modern market where no price records survive.

The evidentiary position improves in the colonial period because officials discussed *platina* as a controlled mining material. It improves again in the eighteenth and nineteenth centuries through scientific publications, mint records, business notebooks, bank accounts, dealer correspondence, and industrial histories. Wollaston's notebooks are unusually valuable because they disclose not just chemistry but purchases, output, customers, and revenue. Russian coins preserve a different kind of archive: state policy is embodied in standardized pieces whose composition and internal structure can now be analyzed (Usselman 1978; Rehren 2006).

For the modern market, the strongest evidence comes from exchange rules, benchmark administrators, government regulations, official mint records, industry standards, public statistics, and peer-reviewed supply-chain research. Commercial contracts themselves are often confidential. This paper therefore explains common pricing architecture without pretending that one formula governs every mine, refinery, recycler, dealer, or jurisdiction.

1. Before European recognition: platinum working in pre-Hispanic South America

Long before platinum appeared in European scientific literature, metalworkers in the Pacific lowlands of present-day Colombia and Ecuador incorporated it into ornaments. The best-known evidence is associated with the La Tolita-Tumaco cultural region. Native alluvial platinum occurred as small, dense grains mixed with gold and other heavy minerals. Its melting point was far beyond the temperatures available in ordinary pre-Hispanic furnaces, so the metal could not simply be melted, poured, and cast like gold.

That physical obstacle makes the surviving workmanship more significant. Metallographic studies show that craftspeople used finely divided gold and platinum-bearing particles, heating and mechanically working them so that gold softened or melted around the platinum. Repeated heating, hammering, and diffusion produced coherent material even though the platinum grains themselves did not undergo complete melting. Some objects reveal platinum-rich surfaces over gold-rich interiors, demonstrating control of color and surface effect rather than accidental contamination (Scott and Bray 1980; Meeks, La Niece, and Estévez 2002).

The technology is sometimes summarized as "sintering," but that single word can conceal a sequence of operations. Raw concentrate had to be collected, selected, crushed or sorted, blended with gold, heated, consolidated, hammered, annealed, and finished. The resulting object embodied scarce material and specialized labor. Its commercial value, where exchange occurred, therefore could not have been reduced to fine platinum weight. The buyer or patron was acquiring an object whose appearance depended on knowledge unavailable to most people.

Modern accounts once framed this history as though platinum became meaningful only when Europeans "discovered" it. The archaeological record reverses that perspective. Indigenous metalworkers had already solved a practical fabrication problem. What Europeans later contributed was a different system: chemical separation, bulk refining, written assay, repeatable industrial forms, and eventually public price references. The two histories should not be collapsed into one story of linear technical progress (Scott 1992).

There is no surviving pre-Hispanic platinum price list. Nor can every long-distance object be called a traded commodity. Yet the material establishes the earliest essential fact in the history of selling platinum: value can precede standardized purity. A buyer may recognize rarity, color, prestige, and workmanship even when neither party can isolate the metal or express it as a quoted fine ounce.

The first platinum product was an artifact, not a bar

Modern bullion culture encourages people to imagine a precious metal's "natural" commercial form as a pure bar. Historically, purity is an institutional achievement. Pre-Hispanic platinum-rich objects were composites whose value rested on controlled fabrication. Their platinum content could vary, and the native grains contained other platinum-group elements and inclusions. That did not make the objects defective. It made them products of a technological tradition with a different objective.

This distinction remains useful today. A platinum ring, catalytic gauze, turbine component, laboratory crucible, and investment plate can contain the same element yet belong to markets with different quality criteria. The first asks about design and hallmark; the second about catalytic surface and service history; the third about alloy performance; the fourth about contamination and remaining life; the fifth about fine weight and recognized brand. Platinum has never had one economically complete definition.

2. Colonial platina: from gold-mining obstruction to controlled material

Spanish colonial miners encountered platinum in alluvial gold districts of the Chocó and neighboring Pacific regions. The diminutive *platina*, often translated as "little silver," reflected its pale appearance, but the commercial problem was not simply that the material lacked a name. The dense grains accompanied gold, resisted ordinary melting, and complicated recovery and purification. A substance that could not be worked by familiar methods imposed time and loss on gold production.

Platina also presented a fraud problem. Its density and color made it possible to mix with gold or use in adulterated objects after suitable treatment. Authorities therefore had reasons to restrict possession even before they had a profitable use for the material. Historical and mineralogical work records episodes in which accumulated platina was thrown back into rivers or inaccessible places under official and notarial supervision. Disposal was a market policy: the colonial administration attempted to prevent an unwanted by-product from becoming an unauthorized instrument of falsification (Gervilla, García-Guinea, and Capitán-Vallvey 2020).

This is one of the sharpest reversals in commodity history. The same material that would later command a high price could initially have a negative value at the mine. It occupied labor, contaminated a gold stream, and created legal exposure. A miner might be required to surrender or destroy it rather than sell it. Value changed only when refiners and customers emerged elsewhere.

Antonio de Ulloa's published account following the French-Spanish geodesic expedition brought *platina* to wider European attention in 1748. Samples had also reached Britain through Charles Wood and were examined by William Brownrigg. Henrik Teofil Scheffer argued in 1751 that platinum was a distinct noble metal. These episodes mattered, but scientific recognition did not automatically produce a commodity. A merchant still needed a source, a legal route out of Spanish America, a method of purification, a way to fabricate the metal, and customers willing to pay for a product they could use (McDonald and Hunt 1982).

Smuggling, monopoly, and the gap between mine and laboratory

Spain tried at different times to control the movement of platinum and to capture the value that scientific interest was beginning to create. Yet crude platina reached foreign investigators through official, semi-official, and clandestine channels. The distance between Chocó mining districts and European laboratories introduced

familiar commodity problems: uncertain provenance, variable mineralogy, transport risk, imperial restriction, and information asymmetry.

A sack of crude platina was not a sack of pure platinum. It contained platinum-iron alloys, gold, osmium- and iridium-bearing minerals, and other constituents that behaved differently during chemical treatment. Recent analysis of an eighteenth-century Spanish sample, probably connected to François Chabaneau's refining work, confirms how complex the starting material could be (Gervilla, García-Guinea, and Capitán-Vallvey 2020). The buyer was purchasing an ore concentrate and a research problem at the same time.

This gap explains why the early European platinum market centered on experts rather than open exchanges. The value of a lot depended on who could process it. A competent refiner saw potential metal and by-products; an ordinary goldsmith saw grains that would not melt. Technical secrecy was commercially rational because a refining method could turn a low-valued nuisance into a scarce product while competitors remained unable to do so.

3. Science creates a new metal, but not yet a simple commodity

Eighteenth-century investigators subjected platinum to acids, fluxes, alloys, furnaces, burning mirrors, and oxygen-assisted heat. They sought to answer two different questions: what kind of substance was this, and how could it be made useful? Chemistry supplied identity; metallurgy supplied saleability.

Pierre-Joseph Macquer and other French researchers studied platinum's resistance to corrosion and its behavior in alloys. Marc-Étienne Janety produced platinum objects and later metric standards. Antoine Lavoisier achieved small-scale fusion with oxygen in 1782, demonstrating that platinum could indeed be melted if enough heat was concentrated. In Spain, François Chabaneau developed a method for producing malleable platinum under royal patronage. Each success expanded the possible market, yet each method had limits of scale, consistency, cost, or secrecy (Hunt 1982; McDonald and Hunt 1982).

Platinum's refractory character created an unusual order of commercialization. Gold and silver could be melted and coined long before chemistry explained them. Platinum could be scientifically discussed while remaining difficult to fabricate. A specimen might be authentic platinum but commercially poor because it was brittle, porous, contaminated, or impossible to shape into the buyer's required form.

Refining changed what the seller could promise

A reliable platinum sale required the seller to promise more than the presence of a newly recognized element. The seller had to offer malleability, homogeneity, dimensions, and freedom from troublesome inclusions. Those qualities depended on refining and working history. Two pieces of similar apparent color and weight might perform very differently under hammer, drawplate, flame, or chemical service.

The market therefore rewarded reputation. Royal laboratories, scientific societies, instrument makers, assayers, and established refiners acted as validators. Their names reduced the buyer's risk. This is an early version of what approved brands, good-delivery lists, mint guarantees, and assay-office marks do today.

Platinum and the metric system

The French metric project gave platinum a prestigious institutional use. The original metric standard of mass adopted in 1799 was made from platinum. Later international prototypes used a platinum-iridium alloy, chosen for stability and resistance to corrosion. These artifacts were not ordinary merchandise, but their fabrication demonstrated that platinum could support an exact public promise: a mass standard against which other weights would be compared (Smith 1973).

The connection between metrology and trade is deeper than symbolism. Markets require units that parties trust. Platinum helped embody the kilogram while platinum commerce itself increasingly depended on accurate fine-weight measurement. The metal became both an object of measurement and part of the infrastructure by which measurement was made credible.

4. Wollaston, Tennant, and the making of a platinum business

William Hyde Wollaston and Smithson Tennant transformed platinum refining from an intermittent scientific achievement into a sustained private enterprise. Beginning around 1800, they purchased crude platinum, separated it chemically, and investigated the residues and solutions that contained other metals. Tennant identified iridium and osmium in insoluble residue; Wollaston identified palladium and rhodium in solution. The business therefore helped define the platinum group while creating products from what earlier refiners might have treated as waste (Usselman 1978, 2015).

Wollaston's method dissolved crude platinum in aqua regia, precipitated ammonium chloroplatinate, heated the precipitate to platinum sponge, compressed the powder, and worked it through careful heating and hammering. He concealed key details for years. Secrecy protected more than scientific priority. It preserved the margin between crude platinum purchase price and the price of reliable malleable metal.

His notebooks and financial records make this one of the earliest platinum businesses that can be reconstructed from both technical and commercial evidence. They record raw-material acquisition, yields, production, sales, customers, and uses. Wollaston did not wait for an abstract market to appear. He cultivated applications and routed much of his output through the scientific instrument maker William Cary. Laboratory ware and sulfuric-acid equipment mattered, while gunmakers became the largest customer group during part of the 1808-1820 period (Usselman 1978).

The refiner sold confidence, not merely ounces

A customer buying Wollaston's metal relied on several things at once: the chemical method, the refiner's personal reputation, the product's demonstrated malleability, and the possibility of obtaining a fabricated form suited to a particular purpose. There was no continuous public spot screen. Price discovery occurred through private purchase and sale, customer relationships, scarcity, and the economics of a secret process.

That structure resembles a specialized modern industrial market more than a bullion counter. Chemical plants still buy platinum products for function, often through fabricators and refiners that provide engineering, metal-accounting, recovery, and replacement services. The quoted metal value is only one component of a transaction involving technical performance and custody.

By-products broadened the commercial logic

The separation of palladium, rhodium, iridium, and osmium changed the economics of crude platinum. A raw lot could yield several valuable products with distinct uses and markets. The refiner's return depended on total recoverable value, not platinum alone. That principle remains fundamental in South African and Russian PGM production. A mine may be described as a platinum operation, but its revenue and cut-off decisions respond to a basket that can include palladium, rhodium, ruthenium, iridium, gold, nickel, and copper.

Wollaston's business also revealed supply risk. His operation slowed and effectively ended when crude Colombian platinum became unavailable. Technical mastery could not compensate for the loss of feedstock. The episode anticipates a recurring feature of platinum commerce: high geographic concentration can give disruptions an influence far beyond the metal's modest physical tonnage.

5. The Ural deposits and Russia's platinum rouble experiment

Large alluvial platinum discoveries in the Ural region during the early nineteenth century altered supply. Russia faced a problem familiar to new mineral producers: how could it create a stable outlet for a metal that was costly to refine, unfamiliar to consumers, and too abundant for the small existing industrial market? The state chose coinage.

Beginning in 1828, the Russian Empire issued platinum coins denominated at three, six, and twelve roubles. The pieces were remarkable because they made platinum legal money at a scale unmatched elsewhere. They also represented an early industrial use of powder metallurgy. Refined platinum powder was consolidated and

worked into coin stock without the simple melt-and-cast route used for gold and silver (Bachmann and Renner 1984).

Coinage joined three kinds of trust. The mint certified weight and identity; the state assigned face value; and the familiar form of a coin made the metal portable. In theory, these features converted Ural output into a liquid public product. In practice, platinum remained less familiar than gold or silver, the relationship between metal value and denomination could change, refining was difficult, and the state bore the risk of maintaining the monetary arrangement.

The coinage ended in 1845. Surviving roubles show why the experiment should not be dismissed as a curiosity. Modern analysis reveals porosity, inclusions, compositional variation, and evidence of the technical difficulty involved in producing bulk platinum. Genuine coins, later restrikes, and forgeries also demonstrate how official form can create a secondary collector market long after the original monetary purpose has disappeared (Rehren 2006).

Coin value separated from metal value

A Russian platinum rouble can now have at least three values: contained metal, numismatic rarity, and historical significance. These values do not move together. Melting a scarce coin to recover platinum would destroy collector value. Conversely, a damaged or common piece may trade closer to its fine-metal content.

The distinction matters for every seller of platinum objects. A watch case, signed jewel, antique laboratory instrument, commemorative coin, or documented industrial artifact may be worth more intact than as refinery feed. The correct buyer for an artifact is not necessarily the buyer offering the highest percentage of melt.

The state could create a product but not permanent demand

Russia's coinage gave platinum a standardized form and compulsory monetary recognition. It did not create a broad industrial use capable of absorbing output indefinitely. A durable commodity market requires customers who need the material for its properties or investors who choose to hold it. Administrative designation can accelerate acceptance, but it cannot erase refining cost, substitution, supply response, or public preference.

6. From laboratory vessels to metric standards and fine jewelry

After the first refining breakthroughs, nineteenth-century platinum commerce expanded through specialized applications. The metal resisted many acids, tolerated high temperatures, and could be fabricated into crucibles, dishes, wire, foil, and chemical equipment. These were small markets by the standards of later automotive demand, but they established enduring commercial practices: metal leasing, repair, return of scrap, controlled fabrication, and close relationships between refiner and user.

Sulfuric-acid concentration equipment was an important early use. Laboratory ware allowed chemists to heat and contain aggressive materials without the contamination or rapid corrosion associated with ordinary metals. Platinum wire and foil entered analytical chemistry, electrical experiments, and high-temperature measurement. Platinum-rhodium thermocouples eventually converted temperature into a reproducible electrical signal, further tying the metal to industrial control (McDonald and Hunt 1982).

Precious-metal fabricators become market makers

Firms such as Johnson Matthey combined assaying, refining, fabrication, and metal dealing. This integration reduced transaction friction. A customer could send residues, receive a credited fine-metal balance, purchase fabricated replacement material, and pay fabrication or refining charges without repeatedly buying and selling the same ounces in open market transactions.

The metal account became as important as the physical piece. Ownership could remain with a customer while a refiner processed, pooled, and reissued metal under agreed accounting rules. That model still appears in catalyst and chemical-industry supply chains. It economizes on working capital and preserves a clear distinction between the value of platinum and the fee for transforming it.

Platinum enters elite jewelry

Jewelry demand grew when fabricators could melt and work platinum more reliably. The metal's naturally white appearance, strength in fine settings, density, and resistance to tarnish made it attractive for diamond jewelry. Around the late nineteenth and early twentieth centuries, improved high-temperature torches and workshop practice allowed designers to create delicate platinum structures that would have been difficult in softer alloys. Edwardian and Art Deco jewelry made the metal culturally visible.

A jewelry sale, however, never consisted only of platinum. Design, gemstones, labor, maker, condition, provenance, retail service, and fashion could outweigh melt value. Hallmarking and fineness marks helped answer one question - how much platinum the alloy contained - while leaving aesthetic and collector value to the market.

The emergence of common standards such as 950 platinum made consumer comparison easier. A mark of 950 indicates 950 parts platinum per thousand, not pure metal. Alloying elements influence hardness, casting, color, and repair behavior. The United States permits several qualified descriptions under the Federal Trade Commission's Jewelry Guides, while UK hallmarking independently tests legal fineness and applies recognized marks (Federal Trade Commission 2010; Electronic Code of Federal Regulations 2026; Birmingham Assay Office 2026).

7. The Bushveld Complex and the rise of South African supply

The twentieth-century platinum market was remade by geology. The Bushveld Complex in South Africa contains extraordinary concentrations of platinum-group elements. Scientific reports identified platinum in the complex in the early twentieth century, but Hans Merensky's 1924 discovery of the reef that bears his name established the basis for large-scale mining. The deposit was not an alluvial concentration like Chocó or the Urals. It was a laterally extensive mineralized horizon that could support systematic underground development (Cawthorn 1999, 2006).

Commercialization was not immediate. Mines had to determine continuity and grade, raise capital, build shafts and concentrators, solve smelting and refining problems, and find customers. Platinum demand was still narrow, and a flood of new output could depress price. Development therefore depended on both geological confidence and the pace at which industrial uses expanded.

Over time, South Africa became the center of primary platinum supply. Merensky Reef ores, UG2 chromitite, and the Platreef have different mineralogy, mining methods, and metal ratios. Their economics cannot be described by platinum grade alone. Nickel, copper, palladium, rhodium, and other metals contribute revenue, while depth, labor, power, water, smelting constraints, and capital intensity shape cost (Jones 1999; Mudd, Jowitt, and Werner 2018).

A platinum mine sells a basket

Ore is crushed and ground; valuable minerals are concentrated by flotation; concentrate is smelted; matte is converted; base metals are separated; and the precious-metal fraction undergoes further refining. At each stage, mass shrinks while value becomes more concentrated. The final refined metals may be sold separately even though they shared the same ore and much of the processing route.

This multi-metal structure complicates price response. A high rhodium or palladium price can sustain output even if platinum is weak. A platinum rally may not quickly increase supply because mine plans, shafts, concentrators, furnaces, and refining circuits take years to change. Conversely, a mine may continue producing platinum because it is economically inseparable from other valuable metals.

The seller at the mine stage therefore does not ordinarily multiply "platinum spot" by ore tonnage. Contracts may refer to dry metric tonnes, assays in grams per tonne, payable percentages for several metals, treatment charges, refining charges, penalties, quotation periods, and provisional payments. An umpire assay may resolve the difference between buyer and seller laboratories. The public platinum price enters the calculation, but it does not define the entire deal.

Concentrated geography creates concentrated risk

Modern resource assessments emphasize the geographic concentration of platinum resources and production in southern Africa, with Russia and a small number of other regions also important. Concentration makes power outages, labor disputes, flooding, sanctions, logistical failures, and processing bottlenecks globally relevant. It also encourages manufacturers and governments to treat platinum as a critical material rather than merely a precious metal (Mudd, Jowitt, and Werner 2018; Li et al. 2023).

The market's response has included long-term contracts, strategic inventories, recycling, metal substitution, diversification of mines and refiners, and financial hedging. None fully eliminates geological concentration, but each changes who bears the risk and when it appears in price.

8. Industrial demand before the autocatalyst

Platinum's industrial market broadened during the first half of the twentieth century. Petroleum refiners used platinum catalysts to improve fuel quality and produce high-octane components. Chemical producers used platinum and platinum-rhodium gauzes in nitric-acid manufacture. Glassmakers employed platinum alloys where molten glass required exceptional corrosion resistance and purity. Electronics, medical devices, spark plugs, thermocouples, and specialized alloys added smaller but technically demanding uses (USGS 2014; Hughes et al. 2021).

These applications changed the seller-customer relationship. Industrial buyers did not seek a generic precious metal. They specified surface area, alloy, mesh, dimensions, contamination limits, mechanical behavior, or catalytic performance. A refiner or fabricator might supply metal, engineer the component, monitor its service, recover residues, and settle a metal account when the product returned.

Leasing and pool accounts

High value made outright ownership expensive for users whose real need was temporary access to a catalyst or fabricated component. Leasing allowed a customer to pay for the use of metal without buying all of it permanently. Pool accounts allowed fungible ounces to be credited and debited while physical pieces moved through production and refining.

These arrangements separated three prices: the market value of platinum, the lease or financing rate, and the fabrication or service charge. A low spot price did not necessarily make an industrial component cheap if fabrication was difficult, delivery urgent, or lease rates elevated. Conversely, a customer that already owned metal might pay only conversion and loss charges.

Industrial scrap becomes an asset class

The same economics encouraged systematic recovery. Floor sweeps, filters, spent catalysts, gauze, crucibles, polishing dust, and solutions could contain enough platinum to justify controlled collection. "Waste" became an accounting category rather than a physical description. A refinery lot could have substantial value even when no visible metallic pieces remained.

Industrial users therefore developed chain-of-custody and sampling practices earlier than many retail scrap markets. The owner needed to know what left the plant, what the refiner received, how samples were taken, what recovery process was used, and when fine metal would be credited. Those controls later became central to autocatalyst recycling.

9. Catalytic converters remake the platinum market

The mass-market use that changed platinum most decisively came from air-pollution control. Catalytic converters use platinum-group metals to promote reactions that convert harmful exhaust components into less harmful gases. In the United States, converters became standard on most new passenger cars and light trucks beginning with the 1975 model year. Early oxidation catalysts commonly used platinum and palladium; later three-way systems added rhodium to control nitrogen oxides (National Research Council 1974; U.S. Environmental Protection Agency 2000).

The scale was unprecedented. Platinum demand was no longer tied only to laboratories, elite jewelry, and specialized chemical plants. It became linked to vehicle production, emissions standards, engine technology, fuel quality, and replacement rules across millions of units.

USGS identifies the automotive industry as the principal consumer of platinum-group metals since 1979. That statement concerns the PGM group, not platinum alone, because loadings shift among platinum, palladium, and rhodium. Still, the autocatalyst created the largest recurring physical system through which platinum could be sold, used, dispersed among owners, collected, and sold again (USGS 2026a).

Regulation creates demand, engineering allocates it

An emissions rule does not prescribe a fixed platinum quantity for every vehicle. Automakers and catalyst suppliers choose metal combinations that meet performance, durability, cost, and supply requirements. Gasoline, diesel, hybrid, heavy-duty, and off-road systems differ. Engineers can substitute partly among platinum, palladium, and rhodium, but not freely or instantly; each metal has different catalytic behavior, and redesign and certification take time.

This creates a feedback loop. A large price difference can encourage substitution, but substitution itself changes future demand and price. A buyer hedging platinum must therefore watch palladium and rhodium, vehicle mix, emissions regulation, and catalyst technology. Platinum's market cannot be read in isolation from the other PGMs.

The converter creates two sales

The first sale occurs when refined metal or catalyst product enters vehicle manufacture. The second occurs years later when the spent converter is removed and sold into recycling. These transactions use different information. The original manufacturer knows the catalyst formulation; the recycler may see only a shell, serial number, substrate, age, and condition.

Converter databases estimate content from known vehicle applications, but physical history matters. A unit may be aftermarket, damaged, emptied, contaminated, or misidentified. Large processors therefore decan, crush, mill, blend, sample, and assay material. The seller's final value can depend more on whether the sample represents the lot than on the benchmark price used afterward.

Theft and provenance become market problems

A converter's compact size and recoverable PGM value made it attractive to thieves. Buyers and refiners consequently face legal and reputational risk as well as assay risk. Identification records, seller information, vehicle documentation, holding periods, payment restrictions, and reporting rules vary by jurisdiction. The commercial lesson is universal: title is part of platinum quality. Material with uncertain provenance may be unsaleable to a reputable buyer even if its assay is excellent.

10. Platinum jewelry becomes a global demand sector

Platinum jewelry had an elite history, but the modern global sector was deliberately developed. Platinum Guild International was created in 1975 to expand jewelry demand. Its campaigns, technical support, design promotion, and retail education helped establish platinum bridal jewelry in markets including Japan, China, India, and the United States (Platinum Guild International 2026).

This date is commercially significant. The same decade that tied platinum to vehicle emissions also created an institution dedicated to consumer demand. One market sold platinum because regulation required catalytic performance; the other sold it through symbolism, design, durability, and social preference.

Hallmarks translate alloy into a consumer claim

A consumer cannot reliably infer fineness from color. Platinum jewelry is normally alloyed, and white gold or palladium can look similar. Hallmarks and truthful descriptions therefore protect both buyer and legitimate seller. In the United Kingdom, a hallmark signifies independent testing and legal fineness. Common platinum standards include 850, 900, 950, and 999, with 950 widely used in jewelry. In the United States, the FTC Jewelry

Guides govern how platinum content may be marked and described (London Assay Office 2026; Birmingham Assay Office 2026; Electronic Code of Federal Regulations 2026).

The mark does not guarantee retail value. A 950 platinum ring may command a high price because of maker, stones, design, condition, or provenance, while another ring of identical fine weight sells near scrap. It does guarantee a defined compositional claim when properly applied.

Retail price and scrap price answer different questions

Retail jewelry pricing includes metal, alloying, fabrication loss, labor, design, setting, stones, distribution, inventory finance, warranty, marketing, and tax. Scrap pricing asks how much fine platinum a refiner can recover after removing nonmetallic material and processing the lot. Confusing the two produces unrealistic expectations.

A secondhand dealer may pay more than melt for a desirable signed piece because it can be resold intact. A refinery buyer may ignore brand and craftsmanship because the item will be melted. The seller should therefore identify whether the highest-value market is collector, wearable resale, wholesale estate jewelry, or refining.

11. From private dealer quotations to benchmarks, futures, and ETPs

For much of platinum's commercial history, prices were bilateral dealer quotations. The small number of producers, refiners, fabricators, and industrial customers encouraged relationship trading. Public references emerged gradually as volume and participation grew.

New York futures begin in 1956

Platinum futures first traded in New York on December 3, 1956, according to CME Group's historical contract record. The current standard contract represents 50 troy ounces and is quoted in U.S. dollars and cents per troy ounce. Futures allow producers, users, dealers, investors, and speculators to transfer price risk through standardized contracts and central clearing (CME Group 2026a, 2026b).

A futures price is not a universal cash offer. It refers to a contract month and exchange rules. Physical delivery, where it occurs, requires approved metal and locations. Most commercial users hedge a physical exposure rather than replace their entire supply contract with exchange delivery. The physical invoice still contains fabrication, freight, location, financing, tax, and quality terms.

London builds a spot benchmark

The London Platinum Quotation began in 1973 as a twice-daily indication from principal dealers. In 1979, leading London and Zurich dealers agreed on good-delivery specifications and provenance. The London Platinum and Palladium Market was formally established in 1987, and full fixings followed in 1989. Benchmark administration moved to the London Metal Exchange in 2014 and to ICE Benchmark Administration on July 1, 2026 (London Platinum and Palladium Market 2026a, 2026d).

The LBMA Platinum Price is now set twice daily through auctions commencing at 9:45 and 14:00 London time. It is a benchmark for unallocated platinum delivered in London. That definition matters. A dealer cannot lawfully present the benchmark as though it were the guaranteed price for a ring, converter, mine concentrate, or small retail bar (London Bullion Market Association 2026).

Good delivery defines acceptable wholesale metal

LPPM good-delivery rules specify a platinum plate or ingot between 1 and 6 kilograms, with minimum fineness of 99.95 percent and required identifying marks including serial number, refiner assay stamp, fineness, metal designation, manufacture date, and weight. The list of acceptable refiners allows participants to transfer standard metal without reopening every question of origin and quality at each trade (London Platinum and Palladium Market 2026b).

Good delivery does not mean "best" for every purpose. A one-ounce retail coin is not a London good-delivery plate, yet it may be ideal for an individual investor. Platinum sponge may be more useful to a catalyst manufacturer. The standard solves a wholesale settlement problem, not every platinum problem.

Bullion coins and exchange-traded products widen access

Official mints expanded retail investment. The Royal Canadian Mint introduced the one-ounce Platinum Maple Leaf in 1988. The U.S. Mint released Platinum American Eagle coins in 1997. The Austrian Mint added a platinum Vienna Philharmonic in 2016, and the Royal Mint introduced a platinum Britannia bullion coin in 2018. These products combine stated fine weight, recognizable design, government minting authority, and dealer distribution (Royal Canadian Mint 2023; United States Mint 1997; Austrian Mint 2026; Royal Mint 2018).

Exchange-traded products created another layer. WisdomTree Physical Platinum dates to April 20, 2007 and is backed by allocated good-delivery metal under its published structure. Aberdeen's U.S.-listed physical platinum shares began trading in January 2010. These products allow securities-market exposure while introducing management fees, custody arrangements, share-market spreads, and legal structures that differ from owning a coin or bar (WisdomTree 2026; U.S. Securities and Exchange Commission 2025).

Price access and price licensing

A price visible on a news site may be delayed, indicative, or subject to licensing restrictions. The 2026 transfer of the LBMA platinum and palladium benchmarks to ICE Benchmark Administration included explicit licensing requirements for real-time and historical use in transactions, valuation, and redistribution. A website publishing platinum prices must therefore disclose source, timestamp, unit, delay, and legal basis rather than copying a benchmark feed without permission (London Platinum and Palladium Market 2026d).

12. What is actually sold in the platinum market today

The phrase "platinum market" joins products that differ radically in chemistry, lot size, customer, liquidity, and contract structure.

Saleable form	Typical seller and buyer	Main value evidence	Common pricing basis
PGM ore or flotation concentrate	Mine to integrated smelter or third-party processor	Dry weight, multi-element assay, mineralogy, moisture, sampling protocol	Payable metal basket minus treatment, refining, penalties, finance, and logistics
Converter matte or other intermediate	Smelter to base-metal or precious-metal refinery	Assay of Pt, Pd, Rh, other PGMs, nickel, copper, and impurities	Contractual payabilities and charges against quotation-period prices
Platinum sponge or powder	Refiner to catalyst, chemical, or fabrication customer	Purity, particle characteristics, accredited refiner, lot certificate	Benchmark plus conversion, handling, location, and service terms
Good-delivery plate or ingot	Approved refiner, bank, dealer, or vault participant	99.95% minimum fineness, marks, serial, weight, approved refiner	Loco London benchmark plus or minus market differential
Small bars and official bullion coins	Mint or fabricator through dealer to investor	Fine weight, recognized brand, packaging, authenticity	Spot reference plus fabrication and distribution premium; resale at dealer bid
Industrial fabricated product	Fabricator to chemical, glass, petroleum, electronics, medical, or laboratory user	Alloy, dimensions, performance, traceability, metal account	Metal value or lease plus fabrication, engineering, loss, and service charges
New jewelry	Manufacturer or retailer to consumer	Hallmark, fineness, stones, design, maker, condition	Retail merchandise price, not a simple spot multiple
Secondhand jewelry and objects	Owner to estate dealer, collector, jeweler, or refiner	Hallmark, assay, weight, maker, provenance, resale demand	Intact resale value or recoverable fine metal less deductions
Spent autocatalysts	Dismantler, collector, aggregator, or processor to smelter/refiner	Serial estimate, count, condition, homogenized sample, assay	Per-unit bid, assay-based purchase, or toll-refining settlement for Pt/Pd/Rh

Saleable form	Typical seller and buyer	Main value evidence	Common pricing basis
Industrial and manufacturing scrap	User or collector to refiner	Chain of custody, representative sample, contamination, recovery history	Fine-metal return or purchase value less assay, refining, loss, and finance
Allocated platinum	Investor or institution through custodian	Specific identified bars or plates and custody records	Metal price plus custody, transaction, fabrication, and withdrawal costs
Unallocated platinum	Client claim against bullion dealer or bank	Account statement and counterparty credit	Loco-market price plus spread; no specific bar assigned until allocation
Futures and options	Exchange participants	Contract rules, clearing, margin, settlement, approved delivery system	Exchange price for specified month and contract unit
Exchange-traded product shares	Securities investor	Prospectus, custody reports, metal entitlement, market price	Share price reflecting metal exposure less fees and market frictions

Primary metal begins as a joint product

Most mined platinum is not isolated at the mine. It travels through a PGM-rich stream containing several payable metals. A contract that focuses only on platinum can miss the economic center of the lot. Rhodium, palladium, nickel, copper, and gold credits may materially alter value; arsenic, chrome, moisture, or other processing issues may reduce it.

The seller must also understand where title and risk pass. A provisional payment may be made before final assay. The final settlement may use an average price over a future quotation period. If the seller has already spent the provisional cash, a later downward adjustment can create a liquidity problem.

Refined metal can still be location-specific

One fine ounce in a recognized London vault is not automatically equivalent in immediate value to one ounce in a small unrecognized bar in a distant city. Moving, verifying, melting, re-forming, financing, insuring, and licensing the second ounce costs money. This is why local premiums and discounts coexist with global benchmarks.

Industrial platinum may never be "sold" on each cycle

A chemical company can own metal that remains on its account while a fabricator turns it into gauze, the plant uses it, and a refiner recovers it. The commercial events are fabrication, lease, loss, and refining services rather than repeated outright sales of the full metal value. Contract language must distinguish metal ownership from possession and processing.

13. How platinum sale prices are calculated

No single formula covers all forms, but four models explain most transactions.

Refined bar, plate, sponge, or bullion

A simplified refined-metal calculation is:

Fine troy ounces x reference price + product or location premium - fees, taxes, and deductions = net settlement

Fine ounces equal gross troy ounces multiplied by fineness. A one-kilogram plate at 99.95 percent contains slightly less fine platinum than its gross weight. In a good-delivery wholesale trade, the quoted basis may be loco London unallocated metal. In a retail coin sale, the dealer adds minting, wholesale, shipping, inventory, and retail margin. On resale, the same dealer quotes a bid rather than refunding the original premium.

The phrase "spot price" is incomplete unless the quote identifies source, timestamp, bid or ask, currency, unit, and location. A customer comparing a live dealer ask with a delayed benchmark or futures settlement is comparing different numbers.

Mine concentrate or intermediate product

A simplified multi-metal settlement begins with dry weight and assay:

$$\text{Dry tonnes} \times \text{grams per tonne} \times \text{payable percentage} / 31.1034768 = \text{payable troy ounces}$$

The payable ounces for platinum and other metals are then valued using the contractual quotation period. Treatment and refining charges, penalties, sampling costs, freight, insurance, interest, and other adjustments are deducted; credits are added. Contracts may include minimum deductions, price participation, or different payabilities by metal.

For example, a 100-dry-tonne lot assaying 80 grams of platinum per tonne contains about 257.2 gross troy ounces of platinum before any payability or recovery adjustment. If the contract pays 90 percent after a minimum deduction, the payable quantity is lower. The same lot may contain more economic value in palladium, rhodium, nickel, copper, or gold. A useful settlement model therefore needs one line for every payable element and every charge.

Sampling is often the largest hidden risk. A mathematically perfect formula applied to a biased sample produces a false settlement. Contracts specify lot preparation, increment collection, moisture determination, sample division, laboratory methods, retention, and umpire procedure because the commercial result depends on those steps.

Platinum jewelry and objects

A melt-oriented estimate is:

$$\text{Net metal weight} \times \text{verified fineness} \times \text{expected recovery} \times \text{buyer reference price} - \text{refining and transaction deductions} = \text{estimated scrap value}$$

Net metal weight excludes stones, springs, non-platinum findings, dirt, and other attachments. A 950 hallmark suggests 95 percent platinum but should be authenticated, particularly for an unfamiliar or high-value lot. Surface X-ray fluorescence can be useful for screening, yet plating, solder, mixed construction, and limited penetration can mislead. Destructive sampling or melt assay may be required for final settlement.

This formula should not be used automatically on collectible pieces. A signed jewel, antique watch case, Russian rouble, or documented object may have a higher intact-market value. Obtain a specialist appraisal before permitting destructive testing.

Spent autocatalysts

Autocatalyst transactions commonly use one of three structures:

1. **Per-unit purchase.** The buyer identifies each converter and offers a fixed price based on database estimates, current metal values, expected recovery, and risk.
2. **Assay-based outright purchase.** A prepared lot is sampled and assayed; the buyer pays for agreed percentages of contained Pt, Pd, and Rh less charges.
3. **Toll refining.** The seller retains metal ownership and receives refined metal or a metal-account credit after processing, paying fees and bearing agreed losses and timing risk.

A simplified assay settlement is:

$$\text{Assayed payable ounces of Pt, Pd, and Rh} \times \text{their respective reference prices} - \text{processing, assay, finance, and commercial deductions} = \text{net lot value}$$

The decisive words are *assayed* and *payable*. Ceramic substrate is mostly not precious metal. Converter shells, mat, dust loss, moisture, and nonrepresentative sampling affect the result. Rhodium's high value can make a small assay difference commercially large. Sellers should compare not only the quoted percentage payable but

also the sampling process, quotation dates, minimum deductions, settlement delay, and whether refining charges are fixed or variable.

A quotation-comparison checklist

Term	Question to put in writing
Product identity	What form, alloy, model, grade, brand, or processing lot is the buyer accepting?
Gross and net weight	Which scale, tare, moisture, stones, shells, attachments, and packaging are excluded?
Assay	Who samples, how is the lot homogenized, which laboratory method is used, and is an umpire available?
Payability or recovery	What percentage of each assayed metal is credited, and are minimum deductions applied?
Price reference	Which benchmark, dealer quote, or futures settlement is used? Is it bid, ask, AM, PM, average, or closing price?
Quotation period	Which dates fix the metal value, and may the seller elect or hedge them?
Charges	What treatment, refining, fabrication, assay, lot, finance, storage, transport, tax, and account fees apply?
By-products and penalties	Which other metals receive credit, and which impurities create deductions?
Provisional and final payment	How much is advanced, when is final settlement due, and how are corrections handled?
Title and risk	When do ownership, insurance responsibility, and loss risk pass?
Return form	Is payment cash, bar, sponge, allocated ounces, unallocated credit, or fabricated replacement metal?
Dispute procedure	Which law, laboratory, tolerance, documentation, and arbitration terms govern a disagreement?

14. Recycling: autocatalysts, industrial scrap, and closed-loop metal

Platinum's durability does not mean it is always easy to recover. In some uses the metal remains in a discrete piece; in others it is dispersed as a thin coating, fine powder, dissolved residue, or contaminated dust. Economic recycling depends on concentration, collection, sampling, process scale, and metal price.

Christian Hagelüken's work on PGM recycling emphasizes that high theoretical value does not guarantee high actual recovery. Products must be collected, identified, aggregated, and routed to capable processors. Loss can occur at each handoff. A converter left on an abandoned vehicle, an electronic component sent to a low-grade shred stream, or polishing dust discarded as ordinary waste contains technically recyclable metal that never reaches a refiner (Hagelüken 2012).

Autocatalyst recycling

Spent converters are removed, checked, decanned, and separated into ceramic or metallic substrate streams. Ceramic material is crushed and milled until a representative sample can be taken. The sample is assayed for platinum, palladium, and rhodium. The bulk lot then enters pyrometallurgical or hydrometallurgical processing, often through large integrated smelters and refineries (Hughes et al. 2021).

Scale matters. A single converter cannot be sampled destructively and still sold as the same unit. Small collectors therefore depend on serial-number pricing or aggregate sales. Large processors can blend thousands of units and settle against assay. The farther the seller is from final refining, the more estimates, margins, and counterparty layers may stand between the original unit and recovered metal.

Industrial catalysts and fabricated scrap

Chemical and petroleum catalysts may be regenerated, reclaimed, or returned under prearranged contracts. Platinum-rhodium gauze from nitric-acid plants can lose metal during service, and recovery systems capture some of that loss. Glass-industry equipment, laboratory ware, thermocouple wire, and medical components may be recycled as identifiable alloy scrap.

These streams often use toll refining because the owner wants fine metal back rather than cash at one day's price. The refiner receives the lot, processes it, and credits recoverable metal after agreed deductions. The customer can then fabricate replacement equipment. The arrangement turns recycling into inventory management.

Jewelry and retail scrap

Jewelry scrap is more visible but not always simpler. Platinum can be alloyed with ruthenium, cobalt, iridium, palladium, or other metals. Pieces may include solder, white-gold components, springs, stones, and nonmetallic fillers. Hallmarks guide sorting, but a refiner must still manage mixed lots and verify composition.

Retail sellers should photograph the item, record marks and weights, remove stones only when authorized and competent, and obtain separate quotes for intact resale and melt. A buyer offering a high "percentage of spot" can still produce a low net payment if weight, fineness, assay fee, minimum lot charge, or settlement price is unfavorable.

Common platinum-bearing secondary streams

Stream	Main valuation problem	Typical market route
Original-equipment catalytic converters	Correct identification, condition, Pt/Pd/Rh variability, theft controls	Unit buyer, aggregator, processor, smelter/refiner
Aftermarket converters	Lower or uncertain loading; visual similarity to high-value originals	Separate identification and conservative unit or assay pricing
Milled catalyst substrate	Representative sampling and moisture	Assay-based purchase or toll refining
Nitric-acid gauze and catchment material	Alloy balance, service loss, contamination, metal ownership	Closed-loop refiner and fabricator account
Petroleum and chemical catalysts	Dispersed metal, hazardous residues, regeneration potential	Specialized catalyst reclaimers/refiner
Glass-industry equipment	Alloy, adherent glass, fabrication history	Return to specialist fabricator/refiner
Jewelry and bench sweeps	Fineness, stones, mixed metals, dust representativeness	Estate resale, scrap buyer, or precious-metal refiner
Thermocouples and laboratory ware	Alloy identification and contamination	Industrial scrap dealer or refiner
Electronics and medical devices	Low concentration, dismantling cost, regulatory controls	Integrated e-scrap or specialist recovery system
Bullion and recognized bars	Authenticity, brand, condition, local liquidity	Bullion dealer, vault, or refiner if damaged/unrecognized

Recycling prices are process offers

A scrap bid is an offer for a recovery process, not merely a view on platinum. The buyer estimates or measures contained metal, funds inventory during processing, accepts price and assay risk, pays downstream fees, and needs a margin. Two reputable buyers can quote different numbers because one has better identification data, lower processing cost, faster settlement, a different hedge, or direct refinery access.

The seller's objective should be to compare transparent net terms, not to force every buyer to quote the same percentage. A lower headline percentage with accurate weight, no hidden fee, and rapid payment can exceed a higher percentage applied to a weaker assay basis.

15. Why historical platinum prices are difficult to compare

A long platinum-price series can conceal changes in product, institution, and market depth. Before modern benchmarks, a quoted price may refer to crude platina, malleable sheet, Russian state purchases, dealer metal, fabricated product, or a thin bilateral market. Even in the modern period, London spot, New York futures, producer quotations, coin dealer asks, and scrap bids are not the same series.

Unit and purity

Platinum is commonly quoted per troy ounce, equal to 31.1034768 grams. Historical records may use ordinary ounces, pounds, kilograms, roubles, francs, sterling, or dollars. A price per gross ounce of impure material cannot be compared directly with a price per fine troy ounce of 99.95 percent metal.

Nominal and real price

A nominal price records the currency amount at the time. A real price adjusts for changes in purchasing power using a chosen index. The choice of consumer prices, producer prices, or another deflator affects the result. A chart should label both the currency basis and inflation method.

Bid, ask, fixing, and settlement

A dealer's bid is what the dealer offers to pay; the ask is what the dealer charges. A benchmark auction price is a specific institutional result. A futures settlement refers to a contract month. A retail coin price includes premium. A scrap price includes deductions. Selecting the highest of these numbers for every date creates a fictional series.

Platinum versus gold

The platinum-gold ratio is popular because both metals are quoted per troy ounce, but it is not a law of value. Gold demand is dominated by monetary, investment, and jewelry behavior, while platinum has a larger industrial component and much smaller annual physical volume. Platinum can trade above or below gold for long periods without either condition proving that one metal is "mispriced."

Supply shocks and thin markets

Platinum prices can move sharply because supply is geographically concentrated and above-ground liquid stocks are limited relative to larger precious-metal markets. Labor disruptions, power constraints, autocatalyst substitution, vehicle cycles, investor flows, currency movements, and changes in Russian or South African availability can all matter. A historical explanation should identify the mechanism rather than attributing every rise to "scarcity" and every fall to "manipulation" (Mudd, Jowitt, and Werner 2018; Li et al. 2023).

A defensible price-history page

A reliable platinum-price chart should state:

- the exact product and benchmark;
- bid, ask, auction, average, or settlement basis;
- currency and unit;
- time zone and frequency;
- source and licensing status;
- treatment of missing days and market holidays;
- nominal or inflation-adjusted status;
- any splice between historical series;
- whether taxes, premiums, or fabrication are excluded.

Without that metadata, a visually impressive chart may be commercially useless.

16. Responsible sourcing, provenance, and market trust

Trust in platinum once depended heavily on a refiner's name. It now also depends on documented supply-chain controls. High value, concentrated production, complex recycling routes, sanctions exposure, labor and community impacts, money-laundering risk, and converter theft all create reasons to ask where material came from and whether it was legally obtained.

The LPPM requires refiners seeking or maintaining good-delivery and sponge accreditation to conform to its Responsible Sourcing Guidance. The program is designed to support conflict- and theft-free supply through due-diligence and assurance processes. Version 5.1 was released in July 2026, with further reporting requirements scheduled under the program (London Platinum and Palladium Market 2026c, 2026e).

Provenance can change liquidity

Two lots with identical assay may not have identical market access. A reputable refiner may reject material with incomplete ownership records, suspicious converter origins, sanctions concerns, or inconsistent transport documents. A seller who treats documentation as an afterthought can discover that technically valuable metal has become commercially impaired.

For mined material, responsible sourcing extends beyond conflict financing. Human rights, labor conditions, environmental compliance, community relations, tailings, water, energy, and closure obligations influence investor and customer decisions. For recycled material, proof of lawful collection and anti-theft controls are especially important.

Accreditation is not a substitute for due diligence

A good-delivery list reduces repeated testing and establishes recognized standards. It does not guarantee that every transaction, intermediary, or downstream product is risk-free. Buyers still assess counterparty, title, sanctions, transport, insurance, and local law. Sellers should understand which records must travel with the lot and how long they must be retained.

17. What the history means for someone selling platinum now

The practical lesson from five centuries of commercial development is that price follows proof. The seller who can define the product, demonstrate title, produce a representative assay, and compare net settlement terms is in a stronger position than the seller who knows only the day's headline price.

Step 1: Identify the highest-value market before testing destructively

Determine whether the object is bullion, jewelry, collectible coin, watch component, laboratory ware, industrial alloy, catalyst, or mixed scrap. Photograph marks, serials, packaging, and condition. Research maker and provenance. A rare coin or signed jewel should not be drilled, cut, or melted before a specialist evaluates it.

Step 2: Separate unlike materials

Do not combine 950 platinum jewelry, white gold, palladium, stainless steel, converters, thermocouple wire, and industrial residues into one undifferentiated lot. Segregation improves assay, reduces conservative deductions, and lets each stream reach the correct buyer.

Step 3: Establish weight and composition

Use a calibrated scale and record tare. For jewelry, distinguish gross from net metal weight. For converters, record count, serial, shell condition, and whether units are original equipment or aftermarket. For industrial lots, preserve production and service records. Use non-destructive screening appropriately, but recognize when final settlement requires melt or representative assay.

Step 4: Ask the buyer to expose the pricing bridge

A serious quote should identify reference price, quotation time or period, payable percentage, expected recovery, charges, payment timing, and assay method. "We pay 90 percent" is meaningless without stating 90 percent of what weight, fineness, and price.

Step 5: Compare net proceeds under the same assumptions

Normalize each quote to the same gross weight, assay, price date, and currency. Add every fee. Account for shipping, insurance, tax, payment delay, and the possibility of a final adjustment. A spreadsheet is more reliable than comparing verbal headline offers.

Step 6: Verify buyer and legal requirements

Check business identity, physical address, licenses where required, payment method, insurance, complaint history, and downstream refiner. For converters and industrial material, confirm provenance rules before transport. Do not ship high-value metal to an unverifiable buyer because of a slightly higher advertised rate.

Step 7: Manage price timing deliberately

Ask when the price fixes. Immediate payment may use today's bid; assay settlement may fix days or weeks later; a mine contract may average a future month. A seller who wants certainty may fix or hedge earlier, while one who leaves the quotation period open accepts market risk. Neither choice is automatically superior, but it should be conscious.

Step 8: Preserve the settlement file

Keep intake weight, photographs, seals, shipping records, sample numbers, laboratory certificates, quote terms, invoices, and final metal reconciliation. Documentation allows the seller to challenge an error and improve future lots. In a repeat industrial relationship, cumulative recovery data can reveal whether expected and actual losses align.

The best offer is the most defensible net offer

Platinum's high unit value makes small percentage differences look important. Yet opaque sampling, slow settlement, weak title, or a hidden minimum charge can overwhelm a favorable headline price. The best buyer is not necessarily the one advertising the highest percentage of spot. It is the buyer whose process, documentation, and net arithmetic survive scrutiny.

Conclusion: platinum is sold through proof

Platinum's commercial history began with skilled objects, not standardized bars. Indigenous metalworkers created coherent platinum-gold artifacts without fully melting the platinum grains. Spanish colonial miners then encountered the same material as an obstruction and fraud risk. European chemists recognized a new metal, but only refiners and fabricators made it a dependable product. Wollaston's private business showed how chemistry, secrecy, customer development, and by-product recovery could create a market. Russia's roubles showed both the power and limits of state standardization. South African mining placed platinum inside an integrated multi-metal industry, and catalytic converters connected its price to environmental regulation and mass vehicle production.

Modern markets have added futures, benchmark auctions, good-delivery rules, bullion coins, metal accounts, exchange-traded products, and responsible-sourcing programs. These institutions do not erase platinum's physical complexity. They organize it. A benchmark defines a reference claim; an assay defines content; a hallmark defines fineness; a refiner converts heterogeneous material; a warehouse or custodian defines possession; and a contract assigns timing, charges, and risk.

The history therefore leads to a practical rule. Do not ask only, "What is platinum worth today?" Ask what product is present, who verifies it, where the price is fixed, what the buyer can recover or deliver, and which

deductions convert the public quotation into cash. Platinum becomes saleable when those questions have answers.

Frequently asked questions

When did people first sell platinum?

There is no surviving date for a first platinum sale. Pre-Hispanic metalworkers in northwestern South America made platinum-gold objects before European contact, and some objects probably circulated through exchange, patronage, or tribute. Written evidence of a recognizable commercial platinum business becomes much stronger around 1800 through William Hyde Wollaston's purchases, refining records, customers, and sales (Scott and Bray 1980; Usselman 1978).

Why did Spanish miners throw platinum away?

Platina accompanied alluvial gold but could not be melted by ordinary methods. It complicated gold processing and could be used in adulteration. Colonial authorities sometimes required accumulated material to be discarded under supervision to prevent fraud and unauthorized circulation (Gervilla, García-Guinea, and Capitán-Vallvey 2020).

Who made platinum commercially workable in Europe?

No single person completed the entire transition. Eighteenth-century investigators including Scheffer, Macquer, Chabaneau, Janety, and Lavoisier established identity and fabrication methods. William Hyde Wollaston then built an unusually well-documented sustained refining and sales business in the early nineteenth century (McDonald and Hunt 1982; Usselman 2015).

Were platinum coins ever used as ordinary money?

Yes. Russia issued three-, six-, and twelve-rouble platinum coins from 1828 to 1845. They were official money and an outlet for Ural production, but the program ended and did not become a permanent international model (Bachmann and Renner 1984; Rehren 2006).

When did platinum futures trading begin?

CME Group records December 3, 1956 as the first trade date for platinum futures in New York. The current standard contract unit is 50 troy ounces, quoted in U.S. dollars and cents per troy ounce (CME Group 2026a, 2026b).

What is the London platinum benchmark?

The LBMA Platinum Price is a twice-daily auction benchmark for unallocated platinum delivered in London. Auctions commence at 9:45 and 14:00 London time. It is a wholesale reference, not a guaranteed retail or scrap payout (London Bullion Market Association 2026).

What purity is investment platinum?

Many recognized investment products and wholesale standards use 99.95 percent platinum, often written 999.5 fine. LPPM good-delivery platinum has a minimum fineness of 99.95 percent. Official bullion products such as the Platinum Maple Leaf, American Eagle, and platinum Britannia also use 999.5 fine platinum (London Platinum and Palladium Market 2026b; Royal Canadian Mint 2023; Royal Mint 2018).

What does 950 platinum mean?

It means the alloy contains 950 parts platinum per thousand, or 95 percent platinum. The remaining 5 percent consists of alloying elements. A legitimate hallmark or quality mark helps verify the claim, but the exact legal marking rules depend on jurisdiction (Birmingham Assay Office 2026; Electronic Code of Federal Regulations 2026).

Why does a platinum buyer pay less than the spot price?

Spot or benchmark prices normally refer to a defined wholesale metal basis. A buyer of jewelry, converters, or mixed scrap must account for non-platinum weight, assay uncertainty, recovery, processing, finance, transport, taxes, price risk, and margin. The relevant comparison is net payment for verified fine metal, not the headline price alone.

How are catalytic converters priced?

Small lots are often priced by unit identification and database estimate. Larger prepared lots may be crushed, homogenized, sampled, and assayed for platinum, palladium, and rhodium. Payment then applies contractual payabilities and charges to the metal values. Converter condition and provenance can materially affect acceptance and price.

Is platinum jewelry worth more intact or as scrap?

It depends. Ordinary broken jewelry may trade near recoverable metal value. Signed, antique, gemstone-set, or collectible pieces may be worth much more intact. Obtain an estate-jewelry or specialist appraisal before destructive testing or stone removal.

Can platinum be recycled indefinitely?

Platinum itself can be refined and reused repeatedly, but real recovery is never automatic. Collection failures, dispersal, contamination, processing losses, uneconomic concentrations, and illegal disposal prevent some metal from returning. Closed-loop industrial systems generally achieve better accountability than diffuse consumer waste streams (Hagelüken 2012).

Glossary of platinum trading terms

Allocated metal: Platinum assigned to a customer as specific identified bars or plates held in custody.

Assay: A test used to determine the quantity or fineness of platinum and other metals in a sample.

Autocatalyst: A vehicle exhaust catalyst containing combinations of platinum, palladium, and rhodium on a substrate.

Benchmark: A formally defined reference price used in contracts, valuation, and market reporting.

Converter matte: A concentrated intermediate produced during smelting and converting before base- and precious-metal refining.

Dry metric tonne: A tonne of material after contractual moisture is removed from the settlement weight.

Fine ounce: One troy ounce of pure metal content. Gross ounces multiplied by fineness equal fine ounces.

Fineness: The proportion of platinum in an alloy, commonly stated in parts per thousand, such as 950 or 999.5.

Good delivery: Metal that meets the specifications and approved-refiner requirements of a recognized wholesale market.

Loco London: Metal delivered or credited in the London bullion market under the location and account conventions of that market.

Metal account: An accounting record of platinum ownership or obligation, often used by refiners, fabricators, and industrial customers.

Payability: The percentage or formula by which contained metal is credited to the seller under a contract.

Platina: Historical Spanish term for the platinum-rich material encountered in alluvial gold districts, literally suggesting "little silver."

Platinum-group metals (PGMs): Platinum, palladium, rhodium, ruthenium, iridium, and osmium.

Quotation period: The date or range of dates whose reference prices are used in a physical settlement.

Recovery: The proportion of contained metal expected or demonstrated to be returned by processing.

Refining charge: A contractual deduction for converting intermediate or scrap material into refined metal.

Sponge: Porous, powder-like refined platinum produced by chemical precipitation and reduction, widely used as an industrial feed.

Toll refining: Processing in which the customer retains metal ownership and pays the refiner to recover and return or credit fine metal.

Treatment charge: A deduction for processing concentrate or another intermediate before final refining.

Troy ounce: The precious-metals unit equal to 31.1034768 grams.

Unallocated metal: A contractual claim on a bullion-market counterparty rather than ownership of a specific identified bar.

Umpire assay: An independent assay used to resolve a contractual difference between buyer and seller results.

Research and editorial methodology

This paper was built as a source-critical commercial history rather than a chronology of discoveries. Claims about pre-Hispanic metallurgy rely on archaeometallurgical examination of objects and fabrication structure. Claims about eighteenth- and nineteenth-century commerce rely on historical syntheses, scientific publications, surviving business records, mint studies, and material analysis of coins. Claims about mining and refining rely on geological, metallurgical, supply-chain, and official statistical sources.

Modern market mechanics are drawn from current official rules and public pages maintained by the LPPM, LBMA, CME Group, U.S. Geological Survey, U.S. Environmental Protection Agency, Federal Trade Commission, assay offices, sovereign mints, securities filings, and product issuers. Current institutional details were reviewed on August 24, 2026. Dynamic prices were intentionally excluded because they would make the historical paper stale and could create licensing problems. A live price page should use an authorized feed with timestamp, delay, unit, market basis, and methodology disclosures.

The paper distinguishes primary evidence, institutional rules, and interpretation. It avoids treating movement as proof of sale, a benchmark as a universal payout, a hallmark as proof of collector value, or an assay of one sample as proof of an entire heterogeneous lot. Where commercial contracts vary, formulas are presented as explanatory models rather than universal terms.

No source was used to fabricate first-hand experience, private contract language, or guaranteed buyer payouts. The bibliography favors peer-reviewed scholarship, official institutions, and primary market records. Commercial and industry sources are used where they are the authoritative record of a product launch, standard, or institutional history, and their role is made explicit.

Bibliography

- Austrian Mint. 2026. "The Vienna Philharmonic: A Success Story." Accessed August 24, 2026. <https://www.muenzeoesterreich.at/eng/info-centre/media/investment-guide/the-vienna-philharmonic-a-success-story>.
- Bachmann, Hans-Gert, and Hermann Renner. 1984. "Nineteenth Century Platinum Coins: An Early Industrial Use of Powder Metallurgy." *Platinum Metals Review* 28 (3): 126-131. <https://doi.org/10.1595/003214084X283126131>.
- Bergsøe, Paul. 1936. "Metallurgy of Gold and Platinum among the Pre-Columbian Indians." *Nature* 137: 29. <https://doi.org/10.1038/137029a0>.
- Birmingham Assay Office. 2026. "Platinum Assay and Hallmarking Explained." Accessed August 24, 2026. <https://www.theassayoffice.co.uk/our-services/hallmarking/platinum-assay-and-hallmarking/>.

- Cawthorn, R. Grant. 1999. "The Discovery of the Platiniferous Merensky Reef in 1924." *South African Journal of Geology* 102 (3): 178-183. <https://doi.org/10.10520/EJC-112518d32d>.
- Cawthorn, R. Grant. 2006. "Centenary of the Discovery of Platinum in the Bushveld Complex." *Platinum Metals Review* 50 (3): 130-133. <https://doi.org/10.1595/147106706X119746>.
- CME Group. 2026a. "Historical First Trade Dates." Accessed August 24, 2026. <https://www.cmegroup.com/media-room/historical-first-trade-dates.html>.
- CME Group. 2026b. "Platinum Futures Contract Specs." Accessed August 24, 2026. <https://www.cmegroup.com/markets/metals/precious/platinum.contractSpecs.html>.
- Electronic Code of Federal Regulations. 2026. "16 CFR Part 23: Guides for the Jewelry, Precious Metals, and Pewter Industries." Accessed August 24, 2026. <https://www.ecfr.gov/current/title-16/chapter-I/subchapter-B/part-23>.
- Federal Trade Commission. 2010. "Advertising Platinum Jewelry." December 13, 2010. <https://www.ftc.gov/business-guidance/resources/advertising-platinum-jewelry>.
- Gervilla, Fernando, Javier García-Guinea, and Luis Fermín Capitán-Vallvey. 2020. "Platina in the 18th Century: Mineralogy of the Crude Concentrate Used in the First Modern Attempts at Refining Platinum." *Mineralogical Magazine* 84 (2): 289-299. <https://doi.org/10.1180/mgm.2020.3>.
- Hagelüken, Christian. 2012. "Recycling the Platinum Group Metals: A European Perspective." *Platinum Metals Review* 56 (1): 29-35. <https://doi.org/10.1595/147106712X611733>.
- Hughes, Anthony E., Nawshad Haque, Stephen A. Northey, and Sarbjit Giddey. 2021. "Platinum Group Metals: A Review of Resources, Production and Usage with a Focus on Catalysts." *Resources* 10 (9): 93. <https://doi.org/10.3390/resources10090093>.
- Hunt, Leslie B. 1982. "The First Real Melting of Platinum." *Platinum Metals Review* 26 (2): 79-86. <https://doi.org/10.1595/003214082X2627986>.
- Jones, R. T. 1999. "Platinum Smelting in South Africa." *South African Journal of Science* 95 (11-12): 525-534. <https://www.pyrometallurgy.co.za/Mintek/Platinum/Platinum.htm>.
- Li, Pengyuan, Qunyi Liu, Ping Zhou, and Ying Li. 2023. "Mapping Global Platinum Supply Chain and Assessing Potential Supply Risks." *Frontiers in Energy Research* 11: 1033220. <https://doi.org/10.3389/fenrg.2023.1033220>.
- London Assay Office. 2026. "What Is a Hallmark?" Accessed August 24, 2026. <https://www.assayofficelondon.co.uk/hallmarking/what-is-a-hallmark>.
- London Bullion Market Association. 2026. "LBMA Precious Metal Prices." Accessed August 24, 2026. <https://www.lbma.org.uk/prices-and-data/lbma-precious-metal-prices>.
- London Platinum and Palladium Market. 2026a. "A Brief History of the LPPM." Accessed August 24, 2026. <https://www.lppm.com/a-brief-history-of-the-lppm>.
- London Platinum and Palladium Market. 2026b. "LPPM Good Delivery Rules." Accessed August 24, 2026. <https://www.lppm.com/good-delivery/good-delivery-rules>.
- London Platinum and Palladium Market. 2026c. "Responsible Sourcing." Accessed August 24, 2026. <https://www.lppm.com/responsible-sourcing>.
- London Platinum and Palladium Market. 2026d. "LBMA Platinum and Palladium Price Actions." June 24, 2026. https://www.lppm.com/news/lbma-platinum-and-palladium-price-actions_2097.html.
- London Platinum and Palladium Market. 2026e. "Newsletter: Responsible Sourcing Governance." July 14, 2026. https://www.lppm.com/news/newsletter-responsible-sourcing-governance_2115.html.
- McDonald, Donald, and Leslie B. Hunt. 1982. *A History of Platinum and Its Allied Metals*. London: Johnson Matthey.
- Meeks, Nigel, Susan La Niece, and P. Estévez. 2002. "The Technology of Early Platinum Plating: A Gold Mask of the La Tolita Culture, Ecuador." *Archaeometry* 44 (2): 273-284. <https://doi.org/10.1111/1475-4754.t01-1-00059>.
- Mudd, Gavin M., Simon M. Jowitt, and Timothy T. Werner. 2018. "Global Platinum Group Element Resources, Reserves and Mining: A Critical Assessment." *Science of the Total Environment* 622-623: 614-625. <https://doi.org/10.1016/j.scitotenv.2017.11.350>.
- National Research Council. 1974. *An Evaluation of Catalytic Converters for Control of Automobile Exhaust Pollutants*. Washington, DC: National Academy of Sciences. <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=94003ILH.TXT>.
- Platinum Guild International. 2026. "About Us." Accessed August 24, 2026. <https://platinumguild.com/about-us/>.
- Rehren, Thilo. 2006. "The Minting of Platinum Roubles, Part IV: Platinum Roubles as an Archive for the History of Platinum Production." *Platinum Metals Review* 50 (3): 120-129. <https://doi.org/10.1595/147106706X128890>.
- Royal Canadian Mint. 2023. "What Makes It Precious: Platinum." November 2023. <https://www.mint.ca/en-us/blog/2023-11-platinum-history>.

- Royal Mint. 2018. "Britannia 2018 One Ounce Platinum Bullion Coin."
<https://www.royalmint.com/collect/archive/britannia-2018-one-ounce-platinum-bullion-coin/>.
- Scott, David A. 1992. "Spanish Colonial and Indigenous Platinum: A Historical Account of Technology and Fabrication." *Studies in Conservation* 37 (Supplement 1): 148-153. <https://doi.org/10.1179/sic.1992.37.s1.032>.
- Scott, David A., and Warwick Bray. 1980. "Ancient Platinum Technology in South America: Its Use by the Indians in Pre-Hispanic Times." *Platinum Metals Review* 24 (4): 147-157. <https://doi.org/10.1595/003214080X244147157>.
- Smith, F. J. 1973. "Standard Kilogram Weights: A Story of Precision Fabrication." *Platinum Metals Review* 17 (2): 66-68. <https://doi.org/10.1595/003214073X1726668>.
- United States Environmental Protection Agency. 2000. *What You Should Know About Using, Installing, or Buying Aftermarket Catalytic Converters*. EPA-420-F-00-101. <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100TSYK.TXT>.
- United States Geological Survey. 2014. *Platinum-Group Elements: So Many Excellent Properties*. Fact Sheet 2014-3064. <https://pubs.usgs.gov/fs/2014/3064/>.
- United States Geological Survey. 2026a. "Platinum-Group Metals Statistics and Information." Accessed August 24, 2026. <https://www.usgs.gov/centers/national-minerals-information-center/platinum-group-metals-statistics-and-information>.
- United States Geological Survey. 2026b. *Mineral Commodity Summaries 2026*. Reston, VA: U.S. Geological Survey. <https://doi.org/10.3133/mcs2026>.
- United States Mint. 1997. "Mint Releases First U.S. Platinum Bullion Coins." September 23, 1997. <https://www.usmint.gov/news/press-releases/19970923-mint-releases-first-u-s-platinum-bullion-coins>.
- Usselman, Melvyn C. 1978. "The Platinum Notebooks of William Hyde Wollaston." *Platinum Metals Review* 22 (3): 100-106. <https://doi.org/10.1595/003214078X223100106>.
- Usselman, Melvyn C. 2015. *Pure Intelligence: The Life of William Hyde Wollaston*. Chicago: University of Chicago Press.
- U.S. Securities and Exchange Commission. 2025. "abrdn Physical Platinum Shares ETF, Annual Report on Form 10-K for the Year Ended December 31, 2024." https://www.sec.gov/Archives/edgar/data/1460235/000183988225012448/pplt-10k_123124.htm.
- WisdomTree. 2026. "WisdomTree Physical Platinum." Accessed August 24, 2026. <https://www.wisdomtree.eu/nl-be/products/ucits-etfs-unleveraged-etps/commodities/wisdomtree-physical-platinum>.