

Das Fachmagazin für Financial Intermediaries

# finanzwelt extra



## A Decade of Osmium

Ten Years of Crystallization and Application  
Two Centuries After its Discovery



Cover: © Sarah Völk

## Review, information, and forecast on the rarest and most valuable precious metal of our time.

A global economy centered around osmium has emerged, with various branches and companies all working with the previously niche precious metal. Jewelry manufacturers, cutting companies, designers, and manufacturers are all entering the market, while diamond dealers are switching to this unforgeable metal. Traders and investors are also showing keen interest.

Osmium is seen by many as the metal of the future, and its active fields include mining, refining, purification, crystallization, certification, cutting, quality management, transportation, trading, design, value assurance, insurance, manufacturing, and retailing. This has led to the development of an international industry with high growth rates, providing employment to over 1,500 people. In just a decade, tens of thousands of pieces have found a proud owners and osmium jewelry adorns the necks, ears, wrists, and fingers of osmium enthusiasts.

### CONTENT

<b>03</b>	<b>Osmium Economy</b>	<b>26</b>	<b>Jewelry &amp; Luxury</b>
<b>04</b>	<b>The Osmium Comparison</b>	<b>28</b>	<b>The Precious Metals Fraud Study</b>
<b>11</b>	<b>What is Osmium?</b>	<b>30</b>	<b>The Databases/the Lighthouse Projects</b>
<b>12</b>	<b>A Decade of Development</b>	<b>33</b>	<b>Goldsmiths &amp; Jewelers</b>
<b>14</b>	<b>Crystallization Since 2013</b>	<b>34</b>	<b>Symposia &amp; the Osmium World Council</b>
<b>15</b>	<b>The Institutes &amp; Their Work</b>	<b>35</b>	<b>Trade &amp; the Secondary Market</b>
<b>16</b>	<b>Ethics Concerning Osmium</b>	<b>36</b>	<b>Osmium.com</b>
<b>17</b>	<b>The Osmium Supply Chain</b>	<b>37</b>	<b>Reference Books on Osmium</b>
<b>18</b>	<b>The Laboratories</b>	<b>39</b>	<b>Imprint</b>
<b>20</b>	<b>The Three Market Segments of Osmium</b>		

# Osmium Economy

**The outsider has become mainstream. The reasons for this must be notable given that crystalline osmium is exorbitantly valuable compared to the potentially toxic raw form from which it is produced. There exist also disordered naturally grown osmium crystals suitable for element collectors, but these pieces are unsuitable for luxury design industries or as tangible investments.**

Crystalline osmium must have a flawless flat surface to be usable in any application. Even small imperfections such as out-of-plane spikes or nanoholes can disrupt its uniform sparkle. As a result, each atom of osmium undergoes multiple rounds of high purification and crystallization processes to achieve its perfect brilliance and breathtaking sparkle.

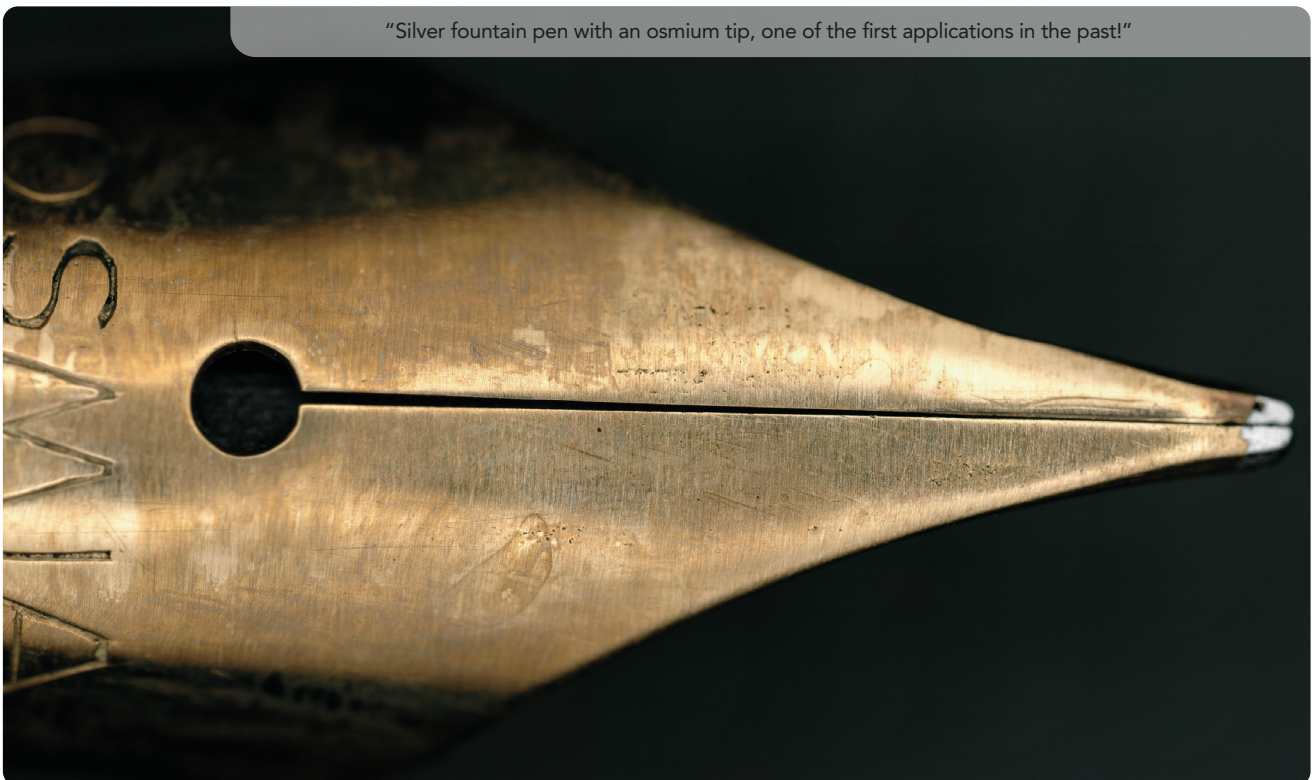
Only osmium that meets the rigorous criteria set by the Swiss watchmaking industry, which serve as the basis for the quality criteria catalog, can be sold in the market. Recently, when the quality management was improved

and the quality of crystalline osmium met the requirements, the value of the metal increased significantly by 100%.

This elaborate process of crystallizing the osmium gives the real asset investor an interesting advantage: If osmium were to be returned from the jewelry market back to a collector's or investor's market, it would have to be reprocessed again. Not only would the intrinsic proof of authenticity owed to the unique crystalline surface be lost, but the value also created by its intensive processing would vanish as well.

In principle, it is comparable to the work of cutting a gemstone – a step which makes gemstones usable and valuable the first place. One would never break a gemstone down to repurpose it, and the same could be said with crystalline osmium. Therefore, in the "Third Cycle" of the osmium business, it remains in the jewelry and thus becomes rarer and more valuable every day.

"Silver fountain pen with an osmium tip, one of the first applications in the past!"



# The Osmium Comparison

## How does osmium compare to other precious metals after a decade?

We have generated a list comparing osmium to other metals. The criteria considered are:

Price Development - Rarity - Market Size - Jewelry & Timepieces - Counterfeitability - Tradability - Investment Horizon - Manufacturing Prices - Ethics - Myth - Future

## Price development:

Metals and precious metals are captivating assets for astute tangible asset investors seeking to preserve and grow their wealth over time. Of course, they do not offer interest, nor do they pay dividends. It therefore always remains to be seen whether a metal's value changes. If one were to look at the example the gold price of the last year, they'd see a 7.5% loss leading up to February 2023.

Since then, gold has been on the rise and has almost made up for its lost value. The numbers jump with high volatility, showing that everything depends on the timing with one's entry and exit. Traditional rules have clearly lost their validity. If you had entered the market when the "guns were thundering," to borrow phrase common in Osmium Institute's homeland in southern Germany, you would have lost this 7.5% instead of earning it. Perhaps this uncertainty is precisely the reason to look at long-term real investments such as osmium. Predicting the price of gold has become an impossibility, even though many experts keep trying. This can be seen in the search queries in the new AI-supported systems. They find sufficient arguments for both rising and falling prices at the same time. This unsettles the real investor and makes many previously common investments seem like dangerous gambles. Silver also fell by 19.4% last year, despite the war in Ukraine and the subsequent humanitarian and economic crises.

In complex markets such as gold and silver, the influencing factors are manifold and are usually determined by consumption in industry or the jewelry market and by demand as a tangible asset.



Source <http://www.gold.metalle-preisvergleich.com/>



Source [http://www.silber.metalle-preisvergleich.com](http://www.silber.metalle-preisvergleich.com/)

In the case of mainstream metals and some PGMs, the speculators' market, high-speed trading, and certificate trading – which make precious metals tradable in huge over-sold quantities – are added to this. A huge bubble is looming.

» \$10 trillion paper gold: 233 notional ounces for every ounce of real gold.

04/17/2017 | Steve St. Angelo writes on Goldseiten.de:

How do you depress the physical price of gold? That's pretty easy: You just throw 10 million paper dollars at it. The global trade in paper gold not only reached a new record in 2016, it even exceeded the previous year by almost 50%. It is astounding to see the sheer unbelievable scale of the madness we are currently witnessing on the financial markets. With the economic and financial markets on the verge of crashing, it would be advisable for investors to reduce their

high stakes in the 'paper gold casino' financed by loans and buy real physical metal. «

The question is how "paper gold" will ever be delivered, since the stocks for the certificates on gold are not available. Here, for gold and osmium, physical ownership is arguably the much better way to go. One can see why more and more gold distributors are jumping on the osmium bandwagon.

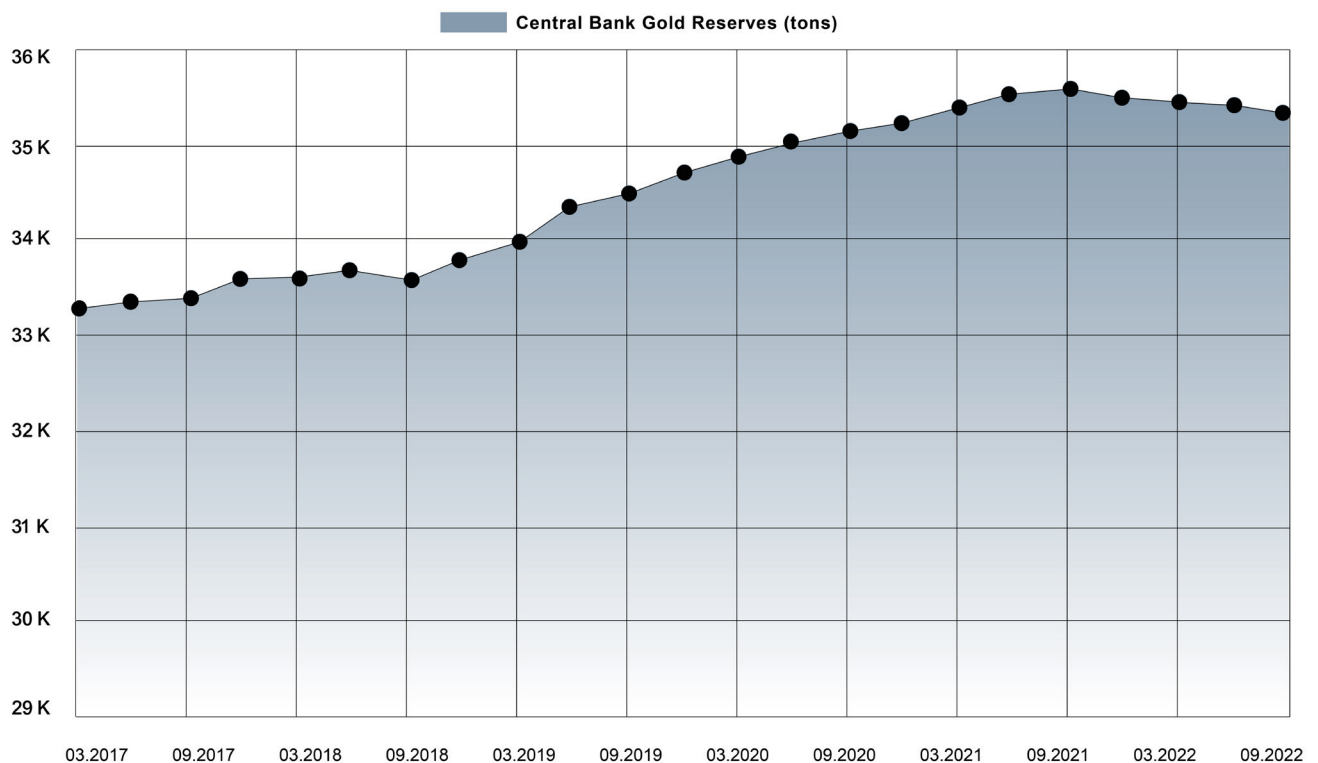
In the case of gold, it is interesting to note, even the reserves of the central banks are declining. Certainly, there is a significance to why the major institutions are selling gold instead of acquiring more. The trend seems to have been stabilizing for three years. It is interesting to note that osmium is now not only being bought by family offices, but also increasingly by banks. Osmium has not only caught on with family offices, but also with governments, perhaps in order to replace parts of their gold reserves with a

more value-dense and non-forgeable metal such as crystalline osmium.

How could one predict where prices will settle in a market? It's nearly impossible. That's why it's important to use producer prices as the benchmark. This leaves the profits of intermediaries and technical fees out of the consideration. For most metals, the lower limits of prices are usually the level of extraction prices. If the metal can no longer be mined for its current price, the mines close, supply falls, and so does the price. It continues to fall until purchases are made again. Then production starts again. For osmium, the extraction and crystallization price can be used as a direct guide. This value is derived from the price of raw osmium and takes into account the costs of refining, purification, and crystallization, as well as marketing costs and services in database operation. However, the main factor for the price is and remains the harvest rate ([www.osmium-preis.com](http://www.osmium-preis.com)).

Source <https://www.brokervergleich.de/wissen/rohstoffe/gold-kaufen/>

Central Bank Gold Reserves



Osmium can be crystallized two different ways:

1. Naturally grown 3D crystals with very low investment value.



2. Structurally flawless flat structures for use in jewelry and tangible asset investment.

Crystals that occur naturally or are found in the wild are often prized by collectors for their unique appearances, but they generally do not have practical uses beyond hobby collections. This important distinction between naturally grown crystals and

those used in the jewelry and watch industry, which are meticulously crafted into perfectly flat structures, is often misunderstood, or overlooked in the media. As a result, it is crucial for tangible asset investors to recognize that only the latter, which require starting with highly pure raw materials and undergoing extensive processing to obtain flawless surfaces, hold investment value.

The prices of these pieces have experienced a significant rise of several hundred percent in recent years, primarily due to the intricate production process involved. However, it is important to note that this increase in prices does not necessarily guarantee a corresponding increase in demand. Nevertheless, there are clear indications of the emergence of a widespread jewelry market, with growing international usage of osmium in the industry. As a result, it is anticipated that there will be a substantial surge in consumption in the coming years. If this projection holds true, it will have a significant impact. It is intriguing to

consider the possibility of raw osmium becoming unavailable in the future. The growing number of major trade fair booths featuring osmium further underscores the rapid growth of the industry. Considering the vast potential of the global market, which is just beginning to take off, the prospects are no-doubt exciting.

#### Rarity:

Rarity is always a cause for people to make a final investment decision, be it with commodities or anything else. This is not only true for collectors of, say, rare sneakers but rather it is a process seen throughout all societies. This is becoming more and more significant as new products differ only in minor characteristics. Here the consideration for precious metals is simple, because the differences between them are striking. A few figures may best illustrate this. Compare, for instance, how much of a metal is still to be found in the earth's crust and how much of it can still be mined. Current consumption is taken into account in order to estimate the dwindling resources and reserves. It must be kept in mind that forms of application of metals change, and that substitution is possible at some points in the manufacture of products, but not at others. In addition, access to metals with high recycling rates is always easier than access to metals that are not returned to the raw materials market from their applications, or only to a limited extent. Gold and silver have extremely high recycling rates, which is generally good, but on the other hand also puts the value into question. After all, recycling is a source of raw materials for every market.

#### Gold – Global mine production and reserves:

2021 – 3,090 tons  
2022 – 3,100 tons  
Reserves – 52,000 tons

#### Silver – Global mine production and reserves:

2021 – 25,000 tons  
2022 – 26,000 tons

Reserves – 550,000 tons

Source: U.S. Geological Survey, Mineral Commodity Summaries, January 2023

In contrast to the high production volumes and reserves of the classic precious metals, the proportion of osmium is particularly low.

The figures vary between 17 and 55 m<sup>3</sup> of resources in the earth's crust. Of this, less than a mere cubic meter is thought to be recoverable.

The production figures are well below one ton per year. Thus, the exorbitant difference in rarity between the precious metals is tangible.

#### Osmium

Resources – 17 m<sup>3</sup>  
Reserves – 1 m<sup>3</sup> (equal to roughly 22 tons)  
Consumption per year – < 1 ton

» Osmium is not only the rarest precious metal by nature, but it is also seldom recycled due to the fact that when it is transformed back into osmium sponge, it loses its surface structure, along with its added value and proof of authenticity as recorded in the Osmium World Database. «

#### Market Size:

How much of a precious metal is traded today and how will it be in 20 years? It can be assumed that all those metals with a high recycling rate and high reserves will continue to be traded on relatively large markets. Today, trading volumes are measured in high billions. In November 2022, the daily trading volume averaged 20 million troy ounces of gold. This is equivalent to 622 tons. For platinum, palladium and the other platinum group metals, the figures fall far short of these limits, but they too are traded in large quantities. In fact, the market for osmium is by any measure the smallest. Markets for the other precious metals have had decades or even centuries to establish themselves and build liquidity, which

also has implications for the liquidity of the metals in trading today. With the first turnovers on the secondary market in crystalline osmium, movements between private owners were still quite limited. Today, it is apparent that osmium is also being purchased with confidence from private owners because it is impossible to counterfeit. Thus, bit by bit, a market is emerging.

It is clear that every real asset investor who wants to invest in osmium should have a longer investment horizon. This is because the goal is to wait for raw osmium to become unavailable. Once crystallization ends and most of the osmium will already be incorporated into jewelry, things will get exciting. No matter how long it will eventually take, this is the moment when interesting price movements for osmium will be seen.

#### **Jewelry & Timepieces**

Osmium jewelry has yet to fully establish itself. However, its growth is striking. Anyone who works innovatively in the jewelry sector cannot avoid the new metal.

Hardly known to the public are the number of goldsmiths already working

on new designs highlighting crystalline osmium. For every metal there is a reason for its use in jewelry production. For gold, this is certainly its myth, history, and easily recognizable color. Silver is one's budget precious metal option. The uses for platinum center on its physical properties. Rings made of platinum are fantastic because they do not require a classic setting for diamonds. The bending stiffness of platinum is so high that the gemstone is simply gripped from two sides.

Osmium has a very special role to play here, because its crystalline surface not only reflects more strongly than a diamond, but also sparkles extraordinarily beautifully in sunlight. This makes the "sunshine element" osmium the Diamond Pavé of the future. It retains its intrinsic value, even when incorporated into jewelry, if the shapes of the semi-finished products are not altered. If special shapes for inlays are cut by wire EDM, they are not expected to revert to tangible assets. They will remain forever in the very special jewelry.

Goldsmiths are advised to request the processing guidelines for crystalline osmium from the osmium institutes free of charge. They are also welcome

to submit design ideas. This is because with the year 2023, it will be possible for goldsmiths to obtain osmium for the production of first pieces, which the institutes will pre-finance until the jewelry is sold, so that the broadest possible designer audience will be reached. In addition, all jewelry is presented to the public at trade fairs worldwide which also has a great impact on distribution and awareness. For jewelers with their own retail store, consignment goods can now be offered in amounts of up to several hundred thousand euros. Thus, shop windows can be equipped expressively with the commodity.

**More information can be found by calling the Osmium Hotline at:**

**+49 (89) 7 44 88 88 88.**

#### **Precious Metals & Counterfeit**

Certificates and hallmarks have been established to prove the authenticity of precious metals and to provide information about other alloy components. These certification procedures are time-honored and born out of necessity, since a piece of cast metal cannot be clearly identified with the naked eye. Even as a simple piece of metal, it gives no indication of the origin of the raw materials, of the mining conditions, or of the ways it has traveled since its exploration in the marketplace until it reaches the market as a ring or chain. Of course, this also extends to the recycling market, because at the latest when gold from jewelry is melted down again, genuine ethical sourcing without greenwashing can no longer be represented, no matter how much one tries to achieve this with certificates or blockchains.

In general, not only certificates are forged, or hallmarks are changed for gold and silver, but there are also alloys that are not immediately perceived as forgeries because of a difference in density. Coating a worthless metal with a precious metal to be counterfeited, is also widespread.



***Emerald Osmium Ring produced by OSLUX***



In this regard, crystalline osmium has a special position, which makes it appear to be the most sensible variant of the long-term storage system. This is because of its security. Of course, there are also certificates for crystalline osmium that can be retrieved online, but the crystalline structure itself is the key to recognition. It cannot be replicated by any means. In this way, producing counterfeit osmium is impossible. Theft can still happen, but resale is prevented. This means that theft can be easily detected, and the fraudsters can be prosecuted. The new follow-up of osmium cuts in the osmium database is also exciting. This is because the pieces are stored in the Osmium World Database with their scans.

As soon as osmium is cut from one piece – for example, from one ingot into several shapes for inlays of jewelry – the new pieces are recertified and in the history of the pieces the ingot can be found including its origin. As a result, the ethical sourcing of crystalli-

ne can be traced even in the case of recycled or repurposed osmium.

Similarly, the system works for jewelry. Because when several inlays are processed into a single piece of jewelry, an “X-code” is created to document the merging of the pieces.

#### **Investment Horizon:**

The horizons of tangible assets, that is, the time a good should be kept in one’s possession until it is sold again, can vary wildly depending on what type of good it is and how one sells it.

From high-speed trading in share certificates and options to buying and holding a physical metal for decades, tangible investors rely on their own strategy. In most cases, precious metals are a tangible asset diversification item in portfolios. Together with real estate, they represent the foundation of retirement security. For this reason, metals tend to be purchased for longer periods of time. Reasons for a

quick sale can be liquidity difficulties, or that it is a favorable time to realize potential gains. For each metal, therefore, the pros and cons must always be weighed before deciding to sell. In the case of crystalline osmium, the decision is comparatively simple, as there is no frantic price action here, but rather the common strategy of all real investors is to hold on to the osmium as long as they can, or even bequeath it before selling it. The thought of the great opportunity that unites all osmium investors is the prospect of the precious metal’s stocks in the Earth running out. After all, unavailability would inevitably lead to a change in price.

#### **Manufacturing Prices:**

To extract an ounce of silver requires about \$9 to \$15 per ounce, depending on the mine, geology, operating efficiency of the company, training of employees, environmental sustainability in mining, and the regulatory environment. For gold, the value is over \$1,200. These mining costs determine





the minimum price at the mine gate. When all costs are added together, the "All-In Sustaining Cash" (AISC) cost is obtained. This is the minimum price an ounce of gold should fetch on the market for producers to sell without loss. AISC costs vary depending on the grade of the ore and the nature of the mine. In terms of prices, the delivery form is of little importance with respect to the easily formable metals silver and gold. An ingot can be further processed just as easily as a wire or sheet of the metal. With platinum group metals, the world is more complex. Here, it depends more on the use. While platinum has been used heavily for catalytic converters over the past two decades, this form of application will disappear in the future with electromobility. Rhodium will be used for coatings. As a result, the metal is gaining in importance and higher mining costs have been accepted.

For no precious metal is the difference between the pricing of the raw

material and the usable semi-finished product as great as for osmium. More factors go into the osmium AISC than is usual for classic metals sold directly from the mine or refinery. Here, crystallization and certification make up the lion's share of the costs from which the price is calculated. Therefore, crystalline osmium is the most valuable of the precious metals.

#### **Ethics Around Osmium:**

In any kind of mining, unethical behavior can occur if the conditions for it are favored by the government of a country, by direct fraud, or by the hardship of the population. If there is money to be made in the shadow market, someone will be found to go that route. This is why it is so difficult to consider one's desires in terms of ethical extraction when mining diamonds, silver, gold, or some critical metals. As already explained, the house of cards of sourcing collapses at the latest in the recycling market. And it should be made clear that this does not happen because producers

do not want to adhere to the guidelines, it is often very difficult despite all efforts.

However, to present a truly ethical metal, it was necessary to make the source traceable. From the jewelry to the refinery, the Osmium World Database tracks the path of any osmium piece. If we want to achieve an ethical world, we must use all the ways to enable the conditions for its construction.

#### **Myth:**

Gold is, of course, surrounded by an estimable mythos. And of course, hundreds of films have been made in which the classic precious metals play a role. But what is the myth of osmium all about? There are some exciting stories about the metal. For example, it is still not clear whether the discoverer Tennant may have died a violent death under the influence of others when he fell on his horse while crossing a bridge. In addition, there is the

fantastic spy story between the U.S. and Russia that took place during the Cold War over the osmium isotope OS 187 from the rhenium decay series. These topics will all be found in detail in the soon-to-be-published three-volume Osmium Compendium.

However, the epithets that osmium has received over the years from various cultures are also interesting.

In the USA, for example, it is called "Sunshine Metal" or "Next Generation Metal." The two names go back to the sparkle in the sunlight and to the investment behavior of the investors who acquire osmium so that their next generation may profit from its increase of value. In Europe, it is simply and unspectacularly called "The Eternal Metal". Less known are the effects attributed to osmium from the esoteric corner and from homeopathy. Of all things, hazardous osmium sponge is advertised as a medicine for respiratory diseases. One should urgently

refrain from such a treatment. On the other hand, there are also forms of application that are simply still in their infancy and have therefore not yet found their way into the public domain. These include the low-temperature applications of the superconductor osmium or the perhaps still many undiscovered applications of the osmium molecules in organic chemistry. In any case, speculations on osmium's future remain exciting.

### Future:

The future of precious metals is obvious in some respects. For example, all eight will not lose popularity, because they are resistant to external influences. And this makes them storable. In addition, they are easy to identify in most cases. This property makes them a kind of escape currency and, at the same time, a long-lasting store of value.

However, the fact that all precious metals are doomed to run out in the long run must be kept in mind. Because,

of course, the resources are not arbitrarily large. And no matter how much effort is put into mining, prices will rise. It remains clear that at some point, even with as much economic will as possible, the mining of precious metals will end at some point in the future.

We are the generation that can already see this in price volatility. But the next generation will probably already feel it in their wallets. Therefore, investment in precious metals is generally recommended; a key reason for which being that metals are used in industry. Furthermore, not every gram comes back by recycling. The quantities are thinning out, and in addition to private individuals, states are also hoarding the strategically important metals.

Osmium again has a special role among the eight metals. The last of the precious metals to be introduced to the market, it may very likely be the first of the precious metals whose resources will run out entirely.





# What is Osmium?

Osmium was introduced to the market in its crystalline form in 2014. Osmium (chemical symbol Os) is a blue-silver precious metal and belongs to the group of the six platinum metals and the eight precious metals. In its crystallized form it has a distinctive sparkle. It is listed in the periodic table with the atomic number 76 and is characterized by many unique features:

- Highest density of any element
- Highest value density of all non-radioactive elements
- Highest abrasion resistance
- Highest compression modulus
- Rarest non-radioactive element
- Shielding against gamma radiation
- Extremely high melting and boiling points
- Extreme reflectivity

The combination of these properties along with its unique surface, crystalline osmium is considered to be impervious to counterfeit attempts and absolutely non-toxic. This property makes it an outstanding tangible asset metal. Against the background of this combination with its rarity and its use in the field of high-value jewels, an emerging secondary market is currently emerging. Gemstone dealers in markets such as Brazil and America are particular drivers.

According to the latest estimates of the Osmium World Council, the quantities to be mined are just over 20,000 kg. This means that this quantity of the osmium available worldwide can be accommodated in a volume of just one cubic meter. At today's prices, it still corresponds to a current sales price of over 35 billion euros.



# A Decade of Development

With the discovery of crystallization, the last of the precious metals introduced into the market became tradable. Initially exhibited at trade fairs, the metal's first interested parties were those with a penchant for innovation within the investment industry. In the first year of osmium's availability, several newcomers took osmium into their portfolios as a preventive measure. It was not yet known exactly what would come of it and whether it would become established at all.

This must have been the feeling of people who saw the first electric light from Thomas Edison or drove one of the first Ford automobiles. New things must be explained, understood, used, and tested. After all, the other precious metals have a head start of several hundred, if not several thousand years.

A new field always must be mapped first. This has also been the case in research on osmium. The findings were

presented to the public in many publications. Partnerships within the osmium business were formed, technology expanded, the customs database developed, and the crystalline osmium certification method was perfected. It is always complicated in the introduction of a new precious metal, when the information, the launch, and the secondary market must arise at the same time. Otherwise, you run into a chicken-and-egg problem. Everyone who buys wants to be able to sell again on a liquid market. For this reason, the application options must be pushed and expanded. In addition, the liquidity in the market and the option to trade from private to private must be expanded.

For osmium, all these processes have worked well and at the same time. Nevertheless, good things take time, which is why it will certainly take a few more years for the foreign markets to grow and for the jewelry industry to convert part of its production to osmium.

What is clear is that with the status, production, distribution, and the secondary market are all well on track to support brisk trading in the future. It will be exciting when the reserves become significantly scarcer.

### **The Unforgeable Precious Metal**

In its crystalline form, osmium is absolutely dimensionally stable and cannot be reversibly changed mechanically or chemically. This distinguishes it from easily malleable gold. A decisive advantage thanks to this property is that osmium cannot possibly be counterfeited.

The crystalline surface has a similar structure to a fingerprint and is therefore extremely recognizable. In the case of fingerprints, lines and branching points are taken as the standard. In the case of osmium, it is the edges of the

crystal which are inclined in three-dimensional space. At the entrance to the crystal an angle occupies the metal ground plane, which has a clearly recognizable surface. In addition, each crystal emerges from the material with a distinct length. Even in an osmium diamond measuring only three millimeters there are 1,000 such macroscopic features. In the microscopic range there are millions. With larger pieces of osmium, this value increases accordingly.

Even on a square millimeter, the security is estimated to be 10,000 times higher than that of a fingerprint. In fact, it is many times higher. Exactly how high is difficult to quantify, since smaller and smaller structures can be viewed within the structure of the osmium. It is therefore a question of an economic estimate of the cost of nanometer scans compared to the reliable recognition that is required.

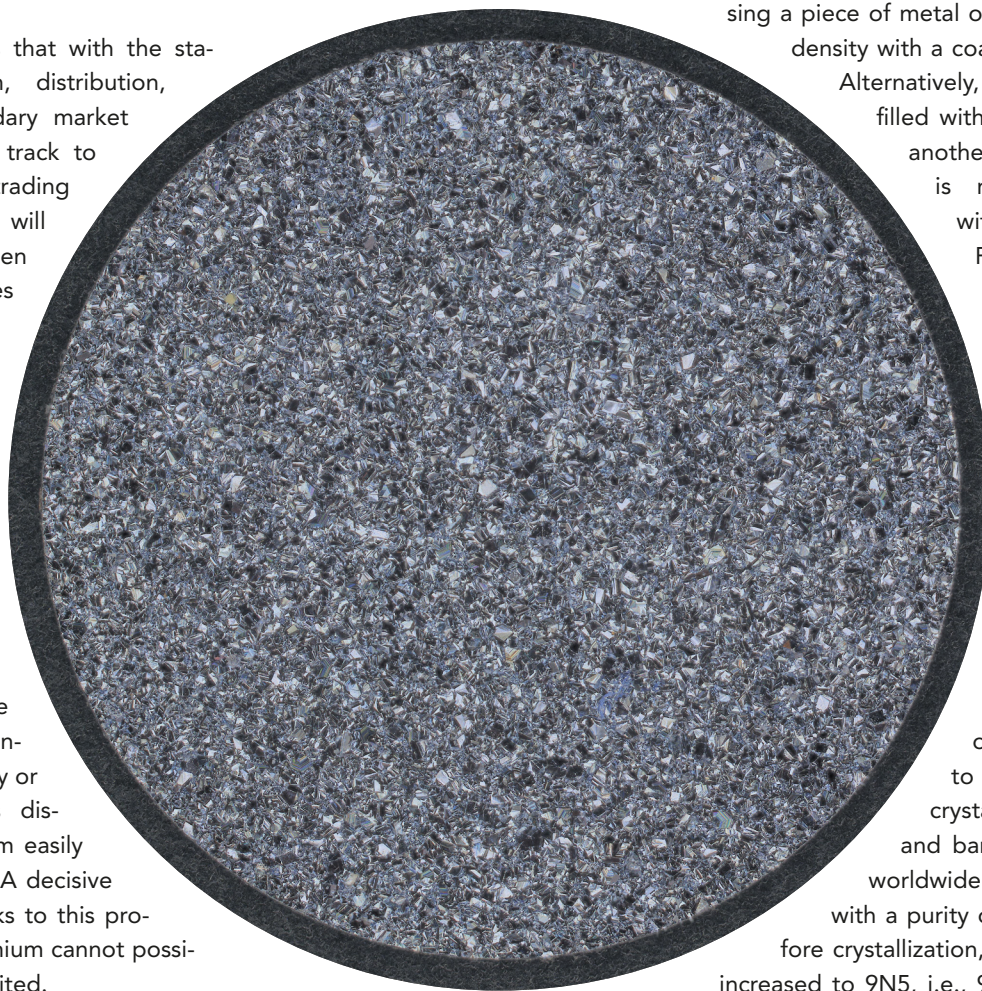
Gold, for example, is counterfeited by enclosing a piece of metal of comparable density with a coating of gold.

Alternatively, a gold bar is filled with a casting of another metal. This is not possible with osmium.

For one thing, there is no metal of the same density, and for another, the structures are so thin that they have no real "interior". The raw osmium used to create the crystalline disks and bars distributed worldwide is delivered with a purity of 99.9%.

Before crystallization, this purity is increased to 9N5, i.e., 99.999995 %.

Many analytical companies cannot even measure the low impurities. For this reason, crystalline osmium is used to create calibration curves by instrument manufacturers. Osmium is also insensitive to corrosion, radiation, and discoloration.



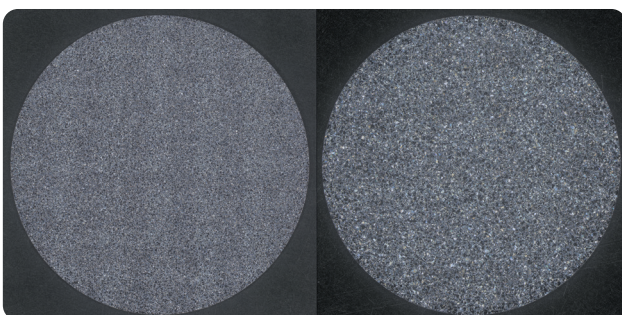


# Crystallization Since 2013

It has only been possible to crystallize raw osmium since 2013. The process is similar to the transition of carbon to diamonds. The process is similar to the transition of carbon to diamonds: **Complex and security-intensive in the laboratory, with the secret to its exact method kept strictly under lock and key.**

Difficult-to-control pressures, extreme purity, complex chemistry, delicate control, and enormous temperatures make the process unique. At the end of the work of high purification in several runs and multiple crystallization, flat crystalline osmium of the required quality is produced. All usable areas are cut into disks, ingots and shapes and prepared for market introduction. All offcuts are returned to the process.

The unique appearance is characterized by the slightly bluish sparkle in five levels. Crystalline osmium is there-



Comparison of osmium pieces with sparkle grades 2 and 4. High sparkle grades can be seen from a greater distance with the naked eye.

fore sought after in the jewelry market and is integrated into the design of watches, for example.

In addition to the impressive visual properties, crystalline osmium also offers the highest security as a tangible asset. Each crystalline surface is absolutely unique and cannot be reproduced. Similar to a fingerprint, osmium can be identified and traced.

Crystalline osmium has the highest value density of all non-radioactive elements. Today, a single cubic centimeter is equivalent to about 30,000 euros. This sets osmium far apart in value from all other precious metals. Investors in kind prefer disks, bars, coins, and easily marketable forms. In resale, the Osmium Marketplace can be used.

Post-certification and analysis are also offered by the osmium institutes as a service in this case. However, with the Osmium World Database, anyone can check the authenticity quickly and easily. Certificates are available online in the Osmium World Database under query by the Osmium Identification Code.

The natural supply of osmium is extremely scarce, and production is declining. In the foreseeable future, it will probably no longer be possible to extract osmium. The resulting rarity, in combination with other factors, makes osmium an optimal long-term investment.



# The Institutes & Their Work

The German *“Osmium-Institut zur Inverkehrbringung und Zertifizierung von Osmium GmbH”* ensures the uniform international trade as well as the processing of crystalline osmium. One focus is the establishment of institutes worldwide. Currently, these are already represented on four continents.

Under the leadership of the Osmium World Council e.V., the guidelines for processing, safety, trade, and training are developed at annual symposia. The existing customs agreements with the USA, Canada, the UAE, and Australia are the result of this work. Further customs agreements are being negotiated and ratified for smooth international trade.

The German Osmium Institute was created with the merger of existing companies who already had a long tradition in metal trading, exploration field operations and metal analysis. The institute could therefore rely on a team of in-house experts from the get-go. However, the new os-

mium market held challenges. Combating fake news, researching the osmium history and documentation for customers and partners were necessary.

At the same time, a trade and training network had to be established. Instruments and tools had to be procedurally adapted for smooth operation on a technical scale.

On this broad institute basis, certification and marketing of osmium are guaranteed internationally. Distributors are trained, processors are educated, and end customers are properly informed via hotlines, the Internet, TV, brochures, and personal conversations. Every customer should have a direct contact person in his or her native language to receive well-founded information and to be able to physically experience osmium.

Osmium institutes are present at many trade fairs every year. Here, crystalline osmium can be taken in hand and physically experienced around the globe.



# Ethics Around Osmium

Every beginning requires a crucial decision. In 2014, when the Osmium business was established in conjunction with the Osmium Institute, the team quickly realized, even in the initial stages, that they would uphold two paramount values in their approach towards the market and people throughout their collaboration:

- Transparency
- Responsibility

The institute stands for transparency and openness to the world in conjunction with technical innovation. In our globalized world, it is easy to lose sight of the big picture.

This gives rise to a wide range of issues of interest to the trading partner, the customer, and the authorities:

- Where do the required raw materials come from?
- Which trade routes are used?
- What position do employees have in the company?
- Is there gender equality?
- Are the actions sustainable and in accordance with nature conservation?

- How are cultural differences dealt with?
- How are partners trained?

The end consumer also faces the challenge of wanting to act ethically, but instead often having to act in ignorance.

Transparency is a core principle at the Osmium Institute, and it is a conscious responsibility that every employee, without exception, embraces. This commitment to transparency is crucial, as it is the foundation upon which individual and collective accountability rests. Without transparency, accountability cannot be upheld, as third parties cannot be held responsible for events that occur without clear visibility. Therefore, transparency is not only essential, but it also adds value to the responsibility that each individual bears for their actions.

The Osmium Institute has set itself the task of bringing a transparent and ethically acceptable product onto the market in the form of crystalline osmium. As a company in the raw materials trade, the Institute feels it has a duty to do everything possible to ensure clarity in precisely this controversial area.



# The Osmium Supply Chain

Before all applications, however, comes the osmium supply chain. With the following series of pictures, we would like to give a small explanation of how osmium is brought to the market.



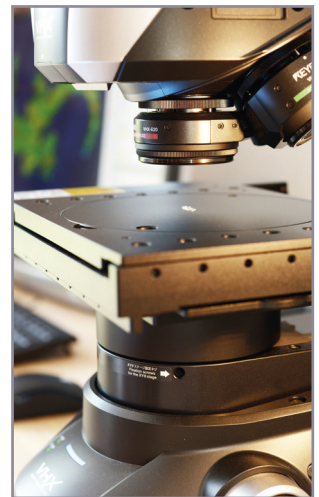
Imported raw osmium, material control, chemical testing.



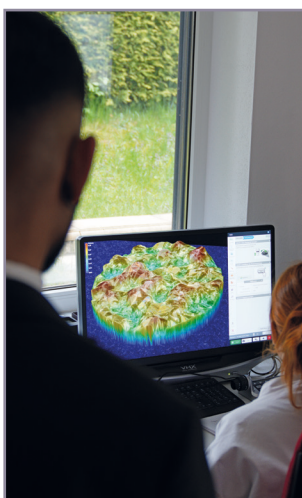
Multi-stage high purification, multi-stage crystallization, cutting, offcut recycling.



Sorting of uncertified goods, quality control, return of unusable parts.



Certification, Osmium Identification Code allocation and packaging.



High resolution 3D and 2D HDR scans, entry in Osmium World Database.



Presentation to the public, preparation for goldsmiths and jewelers, operation of retail stores.



Packing and shipping of information material.



Pickup, shipping, or hand delivery in neutral packaging for crystalline osmium.

# The Laboratories

The Osmium Institute at the headquarters in Murnau am Staffelsee has its own powerful analytical and certification department.

## Material Analysis:

Here, incoming materials are examined and scanned with EA 300 units and VHX microscopes. Although the main business is focused on osmium, the laboratory units are available to anyone and for any material. Expert opinions for jewelry are prepared, alloys of jewelry metals are examined and measured and weighed for the industry.

The laser-based material analysis unit of the Keyence EA 300 model series offers simple, accurate, fast, and prepa-

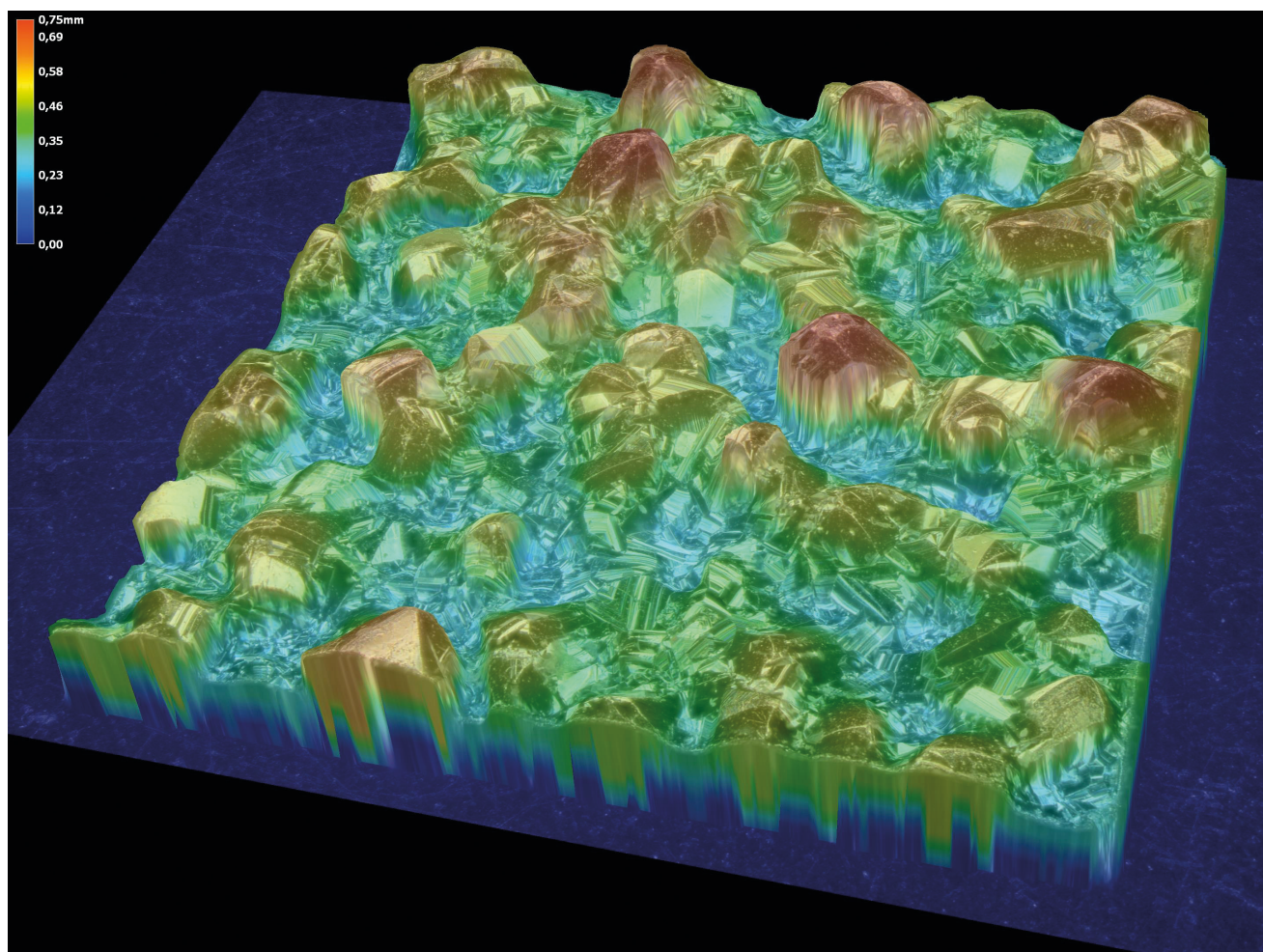
ration-free material analysis for this purpose. The device represents a seamless transition from high-resolution digital microscopy to materials analysis. Its accuracy allows the optical identification of traces, impurities, and particles on the surface of samples as well as their direct determination.

It is significant that no vacuum is required, since the generated plasma is measured in a very small radius directly as it spreads. The method is almost completely non-destructive and can also be used on sensitive surfaces. The material analysis unit has triple optics. This optics allows a central laser transmission path with a mirror reflex optics close to the object of interest for powerful focusing of the plasma emission.

Image analysis software can also be used to detect foreign particles in accordance with ISO 16232 and VDA 19, which can subsequently be analyzed directly for their composition.

## Metrology:

Keyence high-performance microscopes are utilized for studying osmium, specifically to document minute micros-



Artificially Colored Height Profile Graphic



New building in Kemmelpark in Murnau am Staffelsee. Featured: Laboratory and flagship store

structures on the surfaces of osmium crystalline structures. These microscopes allow for microscopy work with extremely high resolutions using both reflected and transmitted light, resulting in above-average accuracy in capturing detailed images of osmium microstructures.

Today, the Central Laboratory, with a department of professional certifiers, is able to process and enter more than one million euros-worth of merchandise into the Osmium World Database in a single day.

In 2023, further decentralized units will be brought together at a new headquarters. Currently, a glass laboratory is being built along the lines of VW's glass production lines. Here, the work can be observed by an interested public, and one becomes part of the osmium process. The laboratory facilities follow the principle of the highest possible transparency in the osmium business.

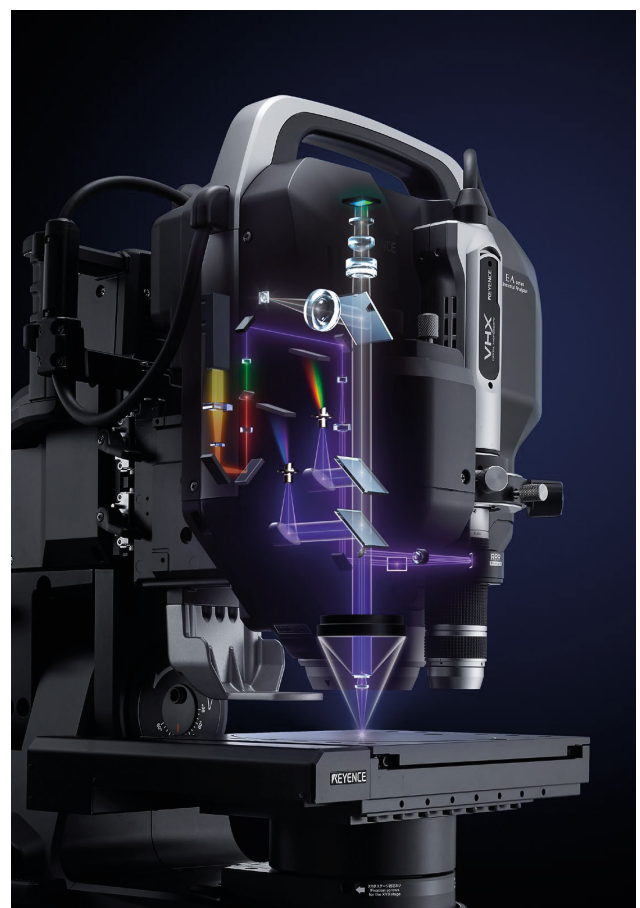
In addition, the 560 m<sup>2</sup> building in Kemmelpark in Murnau am Staffelsee houses the flagship store for Osmium as well as the merchandising area, along with the laboratory and studio. The foundation stone was laid last fall. In 2024, the Osmium Symposium will also be held here for the first time on home soil in Germany.

Visitors are therefore welcome. Students and interested parties may also visit the institute to ask questions and get an impression of the rarest precious metal in the world and hold it in their own hands in the sunshine.

Within the next few years, locations such as Walchensee and Kemmelpark are to be established in several countries in order to have safety in transport and laboratory technology as well as the presentation options in each case in the

direct vicinity and to make the performance of the institutes internationally visible.

Osmium must be accessible and interested guests must be able to have the experience of holding osmium in their own hands - this experience should thus not be limited to trade fairs.



# The Three Market Segments of Osmium

Osmium goes through three major phases on its way to becoming luxury jewelry, which are determinants of its market and, arguably, its future value.

- In phase one, osmium is extracted as raw osmium and highly purified.
- In phase two it is crystallized and cut.
- In phase three, the cut osmium is incorporated into jewelry and usually remains there.

The phases merge smoothly into one another, of course, but viewed qualitatively, one can clearly see how the osmium market will develop. The quantitative view and also the estimation of the times required by each phase are more complex to estimate. On the following pages, we would like to look at these market segments

individually and provide clarity for real asset investors.

## Section one: Raw Osmium Extraction

Raw osmium is mined in several regions of the world and separated and pre-purified from other metals in refineries. Parts of these goods are used in consumer markets, such as in small quantities in medicine. Osmium used in this way is completely and forever lost to crystallization.

Regardless of the exact quantities available, osmium is only available to a limited and very low degree in the mines where it is mined as a by-product in platinum ores.

The total amount of crystalline osmium sold for the purpose of investment in tangible assets and as semi-

finished products for use in luxury jewelry impressively represents the majority of the application market for osmium. Nevertheless, osmium is also sold in other forms, such as coarsely crystallized 3D crystals purchased by collectors. They have a low value close to the price of raw osmium. Of even lesser value are fused beads, which contain impurities from electrodes and have no industrial use. These supplies are very small and therefore insignificant, but they also draw low quantities of raw osmium from the total supply and thus reduce the reserves, which are currently estimated at around 20 tons worldwide. Quantities of between 900 and 1,200 kg per year are produced across all producers combined. Russian reserve quantities are, obviously, difficult to estimate at the time being. Any information on mining activity that may be resulting in osmium yields in Russia has been kept private since the beginning of the Russo-Ukrainian War, and Russian stockpiled quantities are unknown.

Of the total quantities extracted as raw osmium, about 30% can ultimately be crystallized and put into circulation by osmium institutes. The proportion of osmium used by crystallization has developed from zero over ten years, and it is foreseeable that it will perhaps reach the 50 percent mark in the foreseeable future. This unidirectional market also represents by far the most lucrative sales channel for osmium sponge compared to osmium compounds or osmium alloys that manufacturers can pursue with their raw material.



The moment when the availability of raw osmium falls below the quantities of crystalline osmium to be produced becomes exciting. This will result in a shortage that may lead to unavailability. If this happens, it will probably take a strong positive impact on the osmium price. This effect is commonly referred to as the "Osmium Big Bang."

## Section Two: Osmium Crystallization

Osmium is crystallized and marketed and made available to jewelers. There are no financial derivatives based on osmium; it is brought to the market in physical form. Currently, there is a small but rapidly growing second-

ary market through which investors in kind can also invest in certified crystalline osmium. The sales figures are also significant enough to attract the attention of tangible asset investors around the world, who buy into a market with the intention of bestowing their goods to next of kin or reselling them in the future. In other words, tangible asset investors are selling to individuals, family offices or directly to manufacturing companies. What is meant by "certified crystalline osmium" and why is this distinction so important? "Crystalline" means that the osmium is rearran-

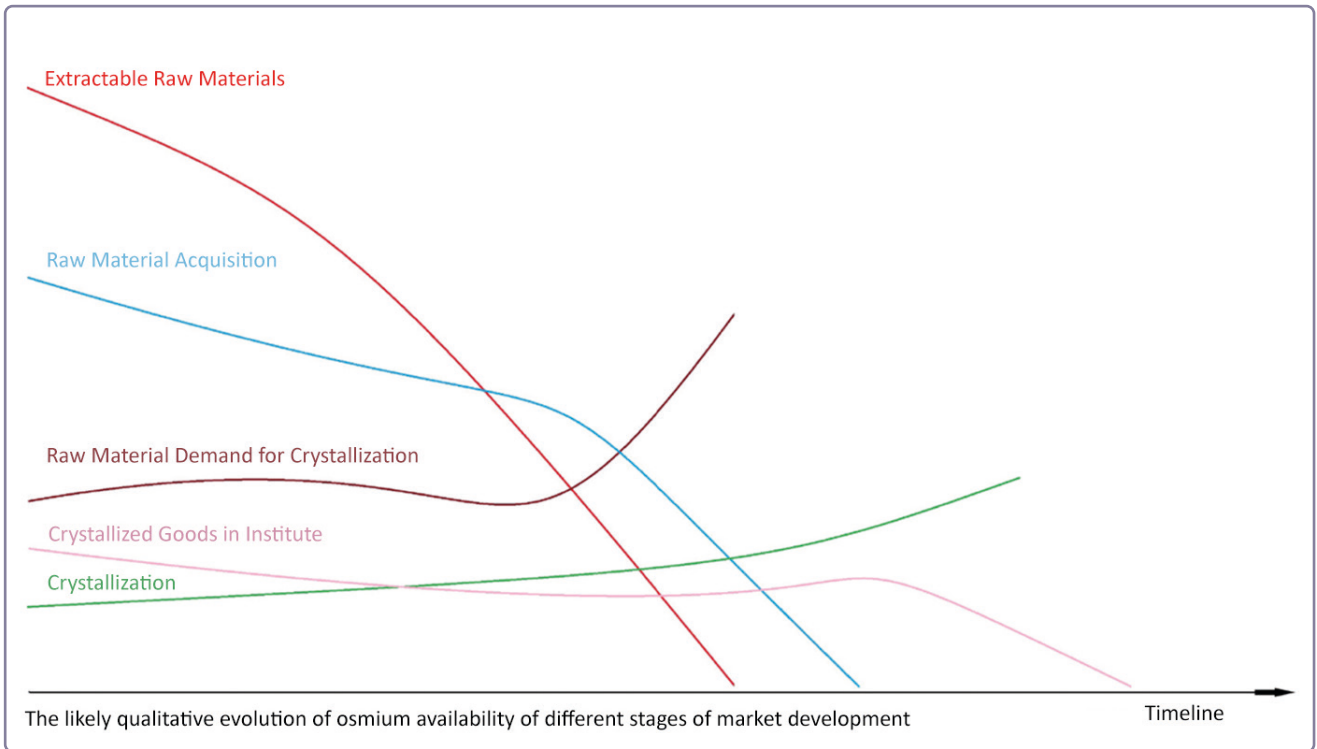
ged atom by atom into a new crystal structure. In the process, small and large crystals are formed. The art is not only to let inexpensive 3D shapes grow wildly, but to control the processes so that flat crystalline structures are created that contain no nanoholes and no spikes. After all, the watch hand should not get stuck on a crystal on the dial. The term "certified" refers to the fact that the crystal face has passed through the laboratory of the Osmium Institute. The scans, certifications, and data on every finished semi-manufactured good are all stored in the Osmium World Database, without exception. Osmium as a tangible asset will always have a certain value regardless

The growing popularity of osmium among tangible investors is being fueled by a growing secondary market. By mid-2021, there were over 700 certified dealers worldwide selling osmium to investors and collectors. By mid-2022, this number had nearly doubled. Osmium is also increasingly used in luxury jewelry, accessories, and timepieces. Sales of osmium for jewelry manufacturing, such as earrings, necklaces, and wristwatches, are steadily increasing and are expected to exceed 10% of total crystalline osmium sales in a few years. The expansion of the global secondary osmium market through dealer networks and online marketplaces will further enhance its attractiveness to tangible investors.



of its form. However, the value multiplies dramatically when it comes to flat crystallized osmium in the Osmium World Database, as this makes each of the rare pieces unique and absolutely unforgeable. The sale of crystalline osmium for in-kind investment purposes accounts for 97% of the crystalline osmium sold on the primary market. 3% of the semi-finished products go directly into jewelry and luxury goods production. The use of osmium as a tangible asset investment has gained strong popularity since the discovery of the state-of-the-art crystallization process in 2014. In mid-2022, the price of a gram of osmium on the primary market was over US\$1,850.

Let's now shift our focus to qualitative changes in the availability of osmium and examine a diagram depicting qualitative effects. The top red line represents the quantities of recoverable raw osmium, which includes osmium that is still in alloys or deposits in the ground – essentially, anything that has not yet undergone the crystallization process or been used to produce other forms of osmium that could enter the market we are discussing. The quantities that can be acquired, or potentially acquired, are shown on the light-blue line, which also converges to zero. The Y-axis indicates the quantity of available raw osmium.

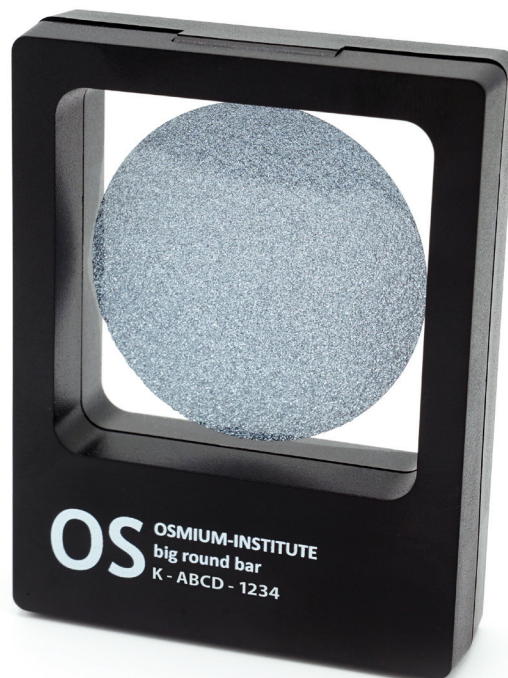


Source: Osmium-Institut

These quantities, as one can see, will naturally decline over time. Given that there is a finite and limited amount of osmium available initially, any demand, no matter how small, will impact its availability. This means that reserves could be depleted within a single lifetime. The brown line, which

sharply rises towards the end, represents the demand for raw osmium from institutes until the stocks could be depleted. On the other hand, the pink line shows the quantities of crystallized goods in the institutes. These quantities may initially decrease during crystallization if demand is high,

and in some cases, may reach very low levels, as past experience has shown. At two moments in the past, the inventory was actually zero in the short term. However, with the expansion of the new laboratory capacities, crystallization will overtake demand in the short term and new stock can be built





up until these stocks are also on the market at the end.

High stock levels are built up to ensure primarily that Switzerland does not run out of raw osmium for crystallization. And, secondarily, to ensure that there is sufficient time to purify the raw material before it enters the crystallization process. Of course, as can be seen, this curve can flatten out when the surplus of raw osmium exceeds the demand in the primary market. However, once demand approaches an “Osmium Big Bang moment,” this could drive demand for raw osmium from the Osmium Institute exponentially higher. Thanks to long-term supply contracts with current suppliers, the supply of raw osmium for crystallization is not at risk. A stock of material has been built up which, even with high demand, could be sufficient to absorb any growth in sales over the next few years. Of course, this assumes that de-

mand continues to grow as it has in the last five years since 2017. It is probably also important to consider that in a small market, with an annual market volume of less than 50 million euros, a single purchase by an institutional investor could actually mean a double-digit percentual increase in demand over the course of a year. On the other hand, there is also the fact that the newly emerging countries are only now beginning to actively enter the market.

However, if in the future these volumes end and the raw osmium price rises to a point where the purchase of new raw osmium is no longer feasible, crystallization will only be profitable until no more raw osmium is available, and no more offcut is recycled for secondary recovery. This effect can be clearly read off. Note that the collapse and zeroing of this line will occur after the theoretical point at which supplies of raw osmium are exhausted. This is because

even though osmium reserves as well as resources are declining, there will still be suppliers and laboratories with remaining stocks that will bring raw osmium to market after refining or further processing. The decline in osmium supply is a result of rising overall demand for raw osmium, which can be attributed to two main factors. Firstly, there is a growing demand for crystalline osmium from the Institute for reasons that have already been identified. Secondly, there is an increased demand from other industries that utilize osmium, such as organic chemistry and medicine, where products are produced for end consumers.

In addition, speculators will try to persuade the Osmium Institute to purchase their goods in the future by making inflated offers. The irony is that the Osmium Institutes exclude such sources for the purchase of raw osmium for ethical sourcing reasons.

The producers of sintered osmium bars will also not be able to find sales or any feasible exit in this market, because sintered bars, in order to be crystallized, must first be converted back into raw osmium and purified. Thus, they have a much lower value than even raw osmium. Once again, it is important not to buy such products. Osmium institutes do not accept them as a raw material source and do not certify them.

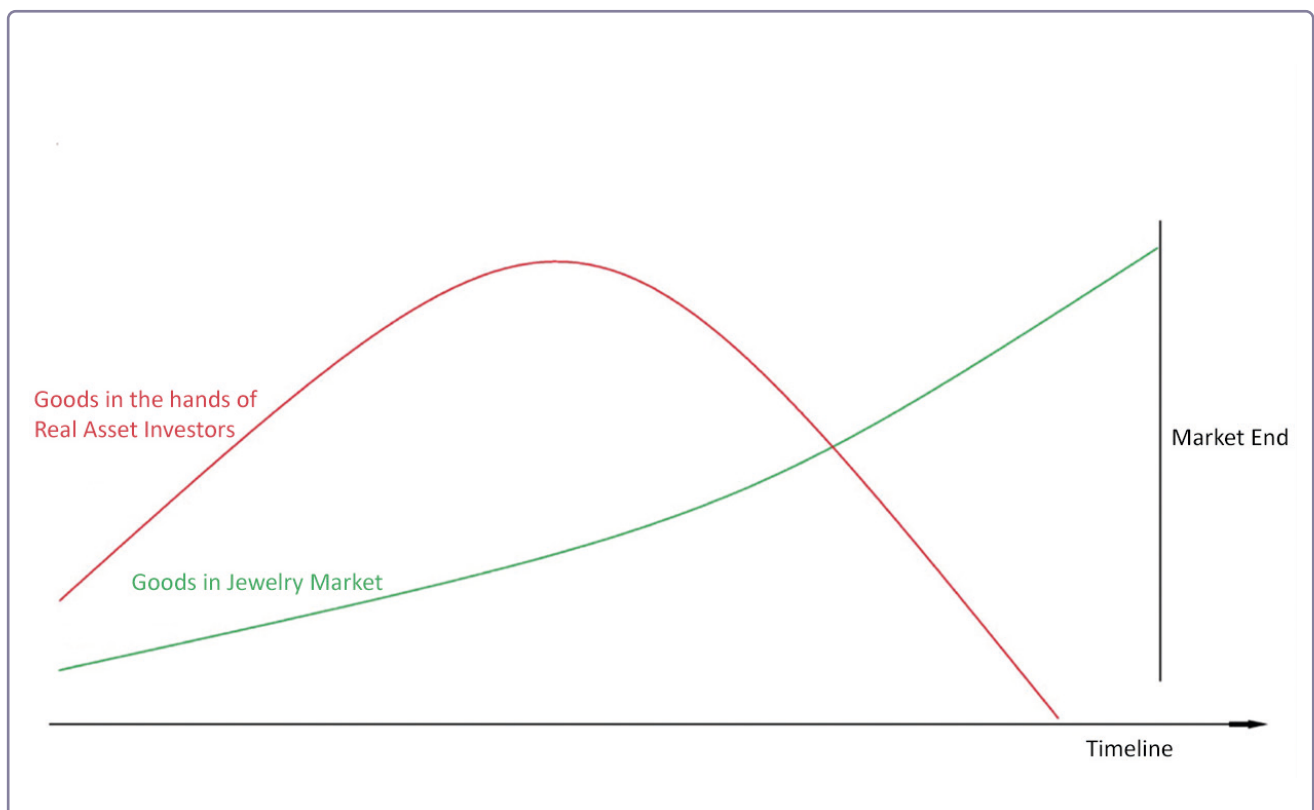
The crystallization rate remains relatively unchanged over time. It may increase with technical development, but certainly not to any great extent, as the trusted workforce instructed in the process is limited at the crystallization laboratory in Switzerland. This process, unlike the certification and distribution channels of the Osmium Institute in Germany and other subsidiary institutes around the world, cannot be scaled exponentially and will therefore always remain a natural bottleneck in the supply of crystalline osmium to the market. When the third market phase begins, the stocks of crystalline osmium worldwide will decrease.

You may have heard of this effect as the "Osmium Thin-Out". For crystalline osmium to disappear from the post-institutional circular market, it would have to be sold to an application market from which it would not re-enter the tangible physical asset market. Today, the most likely candidate for fueling this result is the jewelry market.

The red line shows the qualitative progression of quantities of crystalline osmium in the hands of tangible investors. That is, quantities that could be delivered to the jewelry market if in-kind investors are willing to sell. Ultimately, almost all osmium will end up in the jewelry market. Setting the time frame depends on price

## Conclusion

With the end of crystallization, for whatever reason, the supply of crystalline osmium would inevitably stop. At that point, secondary exchanges (e.g., the [www.Osmium-Marketplace.com](http://www.Osmium-Marketplace.com)) would be the only way to acquire new crystalline osmium for production. The theoretical market capitalization of all osmium at today's production prices for crystalline osmium is about 35 billion euros. However, this amount is only achievable if all osmium is mined at the same rate, assuming relatively unchanged prices for the raw material and for mining PGM deposits, and all of it goes into the primary market of the Osmium Institute for Crystallization. It is highly unlikely that the trend from current levels to the end of available osmium will be completely uninterrupted. However, any disruption would probably also result in a price increase, which would be quite desirable for investors in tangible assets.





developments, willingness to sell and growth of willingness to buy in the manufacturing industry. The volume of trade in the jewelry market today is still low. This is due to the fact that the number of designs grew only slowly in the early years and is only now developing by leaps and bounds.

### Section Three: Luxury Market Uses

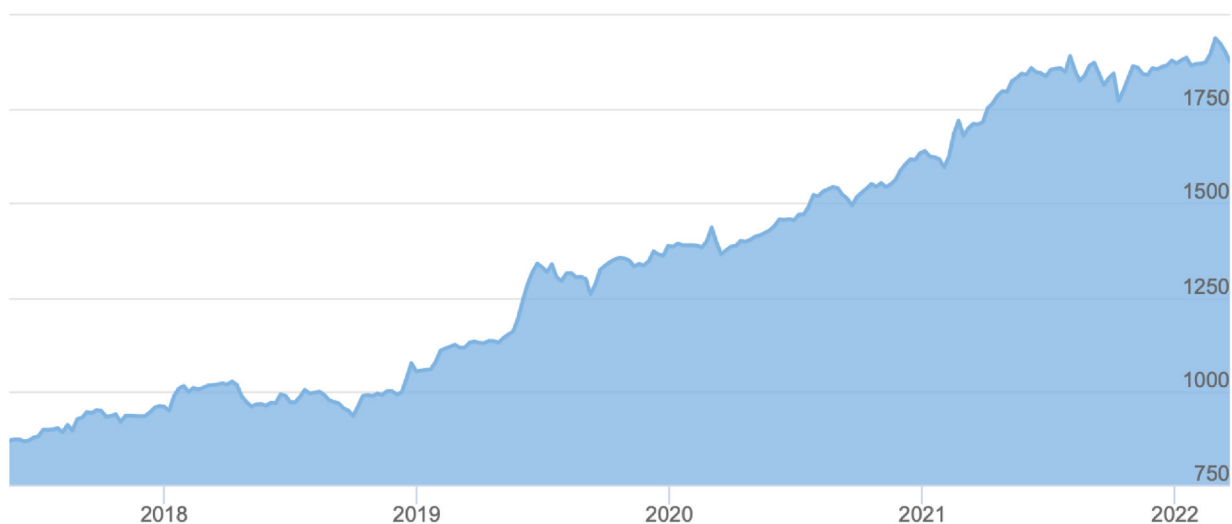
As the amount of osmium entering the jewelry market increases with global

awareness of demand, the amount of osmium available to the tangible asset investor market decreases. However, this does not happen all at once, but in a slow, fluid process. As attention to jewelry grows, tangible asset investors who need the metal only for the purpose of reselling it directly to jewelers will seek to speculate in osmium. As these investors begin to exit the market and sell their osmium at desired margins, the amount of available crystalline osmium will again decline. Presumably, this will not hap-

pen all at once and not as quickly. It may be that osmium will trend in the global jewelry market for a year and then fall back to past levels once the trend dies down. And, of course, this could happen repeatedly and in waves.

The final questions that arise are much simpler: Will it all really play out as expected? Will there always be a viable exit strategy for real investors who want to sell their own osmium at a good margin?

**Price chart of crystalline osmium over five years (in Euros)**



Source: <https://www.osmium-preis.com/>

## Conclusion

No promises can be made, of course, but empirical observations can: Every single precious metal that has come onto the market – this applies to all except osmium – has already seen a sharp rise in price as soon as the real asset investor market is fueled by international attention. The question, therefore, is not so much “if,” but rather “when” this will happen. There is no guarantee, but there is still undoubtedly a lucrative opportunity for long-term real asset investors. What is most exciting, however, is that osmium, once in the jewelry market, only in a few cases gets back into the tangible asset market. The Osmium Thin-Out will indeed be the most likely scenario and thus – and be it in the distant future – crystalline osmium will run out. Probably with extreme implications in the price, which will certainly please everyone who has held their osmium until then for themselves or their heirs.

# Jewelry & Luxury

**This is where osmium is at home. Osmium is a driver of innovation and a good opportunity for the future of the jewelry and luxury segment to implement new designs with a new material that simply did not exist in this form before.**

At the same time, osmium is also causing the use of platinum to rise again, as many of the objects are created with platinum as the base material. The combination of the two platinum group metals is the driver for durable and beautiful products that now no longer just shine in cold brilliance, but sparkle in the sun in a way that diamonds simply cannot.

But this article is not about adulation for osmium as a material, but about the financial implications that an incipient luxury market for crystalline osmium means. Against the backdrop of massive and global increases in revenues for major luxury brands, such as LVMH in 2022, it seems logical that osmium would be drawn into the industry's wake. As it so happens, it is.

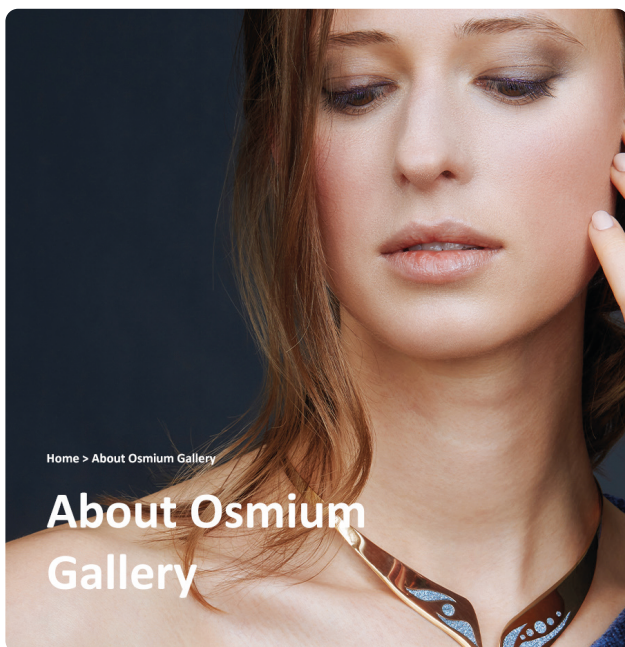
Now the only question for real investors is how quickly this secondary market will build up. For the first few years, crystalline osmium was given almost exclusively to tangible asset who stored it in dark vaults and did not expose it. As long as only a few exhibits were available, as long as the first jewelers were experimenting, as long as goldsmiths were conducting trials, and as long as the entire industry had to be prepared and trained to handle osmium country by country, it would have been clearly mistaken to believe that osmium would conquer the jewelry market as a shining champion. Luckily, times have changed. With thousands of individual investments from retail and institutional investors alike, the case was made that sufficient semi-finished products for jewelry production could be finished. Now begins the time of design, major exhibitions, and fashion shows, where osmium finds its admirers and fans.

It is significant that the brand-new metal market has found immediate access to the exhibition areas of the big players on the market. Osmium is not to be found in Hall 18 of an obscure trade show opposite the escalators. Rather, osmium and its growing industry receive a lot of attention directly on the exhibition floors of decades-old brands and traditional companies.

Of course, the planted tree that is the osmium market is still in its infancy in this world. The seedling is doing well and expanding. It is clearly noticeable that with the first exhibits, other modern companies in the industry are immediately producing new timepieces, accessories, and unique pieces. This trend now seems to be sweeping around the world. If we give Osmium some time, in three years it could reach the point where it is already mainstream in many countries.

The goal of this expansion is to produce series with crystalline osmium where the diamond carpet, with its high production costs and low intrinsic value, has had its day and is being replaced.

Of course, this happened in Germany at the beginning. Then, in a woeful tradition, other countries are overtaking the German-born innovation at a whizzing pace. There is still time to take countermeasures here. Osmium could become decisive not only in the jewelry sector of extremely



[Home > About Osmium Gallery](#)

About Osmium  
Gallery



exorbitant pieces, but also series with small and quite affordable pieces are possible. German goldsmiths and jewelers deserve to get a large share of the pie.

To this end, at the request of the participants of last year's Osmium Symposium in Croatia, the Osmium Institutes were asked to support jewelry designers and manufacturers with commission goods on a large scale. As a result, a pot was created from which osmium jewelry lines could be produced. There are quantities of goods in the order of 20 million euros available for the period until fall 2023 alone, which jewelers can now receive.

Initiatives like this, but also the increasingly clear understanding of osmium in its importance as an unfalsifiable jewelry ingredient, are allowing the expansion to proceed quickly. One thing is clear: Osmium jewelry cannot be imitated.

Because of the security of the Osmium World Database, even the smallest pieces of counterfeit osmium would be impossible to create. This protects brands around the globe from cheap imitators. And that is a pound in the hand of big brands. It is a battle against windmills with gold and other jewelry metals. But by using osmium, buyers always have instant clarity about authenticity. We can therefore look forward to seeing where the new designs will come from. Three of the markets that are clearly in focus are: Brazil, China, and South Korea. South Korea in particular has a special role to play, because unlike the rigid and predictable culture of the German country in which the osmium business began, the South Korean culture cherishes all things whimsical, colorful, bold, and novel. The people can hardly be outdone in terms of modernity and like to lead the way. From China, it is rather to be expected that nice designs are produced in large series for markets like the Indian wedding market. After all, it's not members of the upper chaste who would be interested in osmium jewelry; families of modest means also do everything they can to stand out. This is traditionally done with gold. But, if you have walked around with three kilograms of gold for the first time, then it becomes clear that self-expression becomes easier if you use a metal that attracts attention more easily with its thirty times higher value density. For tangible asset investors, this means not only trading among themselves, but being able to sell into the closing market of crystalline osmium. It will take time, but there seems to be momentum building to wait and see: Perhaps the long-term bullion metal will become a mid-term bullion metal.

For tangible asset investors, it is therefore important to observe how the "New Design" generation is developing.



Osmium-Brilliant-Ring from OS LUX

# The Precious Metals Fraud Study

**Given the unique security considerations associated with investing in crystalline osmium, it is important to examine where and how fraud or overreaching may occur in the precious metals market, and how these issues may negatively impact tangible investors. Shedding light on these matters can be critical in making informed investment decisions between different precious metals, including osmium.**

The new study generally distinguishes the two categories as fraud by counterfeiting and fraud by overreaching in sales psychology.

The Osmium Institutes are currently conducting this large-scale study in 30 countries around the world. It is designed to educate people about how fraud occurs and how to protect themselves from it. To clarify, it should be mentioned that the aim of the study is not to arrogantly look down on and discredit the other precious metals, which are also very valuable, but above all to uncover methods used by today's shadow market players to put a stop to fraud in the osmium market from the outset.

Thanks to the Osmium World Database, there is a tool that is far superior even to a blockchain, as the detection of authenticity can only be ensured on the basis of a physically measurable property of the surface.

Preventing fraud or taking precautions to avoid overreaching can generally only be done by knowing what methodology is being used and the current level of knowledge among tangible investors and intermediaries. Unfortunately, the real investment market in precious metals is a "secretive" market. It is comparable to the market of high-priced paintings. Those who have been defrauded often do not go public, overreaching is tacitly tolerated and in many cases the hands of the judiciary are tied.

In addition, the gray- and black-market share of precious metals seems to be extraordinarily high. Here, valid data can only be found through broad-based surveys, as access to statistics in investigation files proves difficult. Many tangible investors also keep silent about their own overreaching for understandable reasons, since their own precious metals may have been acquired with money from sources that cannot be fully documented. Even the theft of goods acquired through unethical means remains a theft.

Ms. Myriam Huhn, head of the study, explains: "We would be pleased if you would also take part in the study, so that we can continue to improve our work. We know that we are dealing with a sensitive topic, but we still think it is necessary to take care of the issue. Of course, we pay attention to data protection. The data you send us personally will be used in the institute in an objective way.

As a thank-you for your participation, you will receive a free electronic copy of the 240-page 'Osmium Fachbuch,' or the 'Facts & Faces' book with 104 historical references. Please tick on the Internet which of the documents you would like to receive. In addition, please tick the checkbox if you are interested in the result of the study and would also like to receive the document when it is completed. Your help in achieving our goal of further understanding this industry is invaluable.

Your mail address will not be assigned by us to the answers in the questionnaire. However, we will use the address to send you the electronic books, which we would like to send you as a small thank you. During the work on the study, you will sporadically receive the interim results that we have been able to compile. After completion of the study, you will receive the summarized result of the work on this mail address. Afterwards your address will be deleted. If you want to keep in contact with us, please call the hotline and ask to continue receiving information from the institutes. By participating in the study, you automatically agree to this procedure."

Please use the QR code to answer the questions on the Osmium Institute page that are relevant to you as a target group.

**For your information about the study:**



### Breakdown of target groups

- Private individuals of tangible investors (young individuals, retail investors, professional investors, family offices, managing directors).
- Market participants (media in advertising, distributors for precious metals, artists, and jewelers, HNWI's, influencers, scientists).
- Institutions (states, licensing bodies, distributors, brands, banks, associations).

If you have any questions about the study and how it was conducted, please feel free to call the hotline: +49 (89) 7 44 88 88.

### Sample questions for the target group "Private individuals as tangible investors"

You can take part in the survey on the Internet within a few minutes. Please complete the questionnaire there in full, as only questionnaires in which all questions have been answered will be taken into account. Using partially completed questionnaires would lead to a statistical bias.

In this type of questionnaire, for example, you are asked to assign yourself to one of the following groups: Young individuals, retail investors, professional investors, family offices, managing directors.

### Where have you purchased precious metals?

- Never, privately, received as a gift, online, bank, precious metal distributor, street dealer, retail store, jeweler, refinery, mine.

### Have you ever received advertising for precious metals as a tangible investment?

- If yes, where have you ever noticed advertising?
- Online, dealers, trade fairs, TV, print media, radio, agents, tax advisors, investment advisors, in the context of work.

### How do you make your decisions when it comes to investing money?

- I make decisions based on my gut
- I think longer about decisions
- I consult someone I consider informed before making a decision
- I gather information before making a decision

### Do you believe precious metals will increase in value?

- Yes  No

### Why did you buy precious metals?

Provision for old age, general investment, expectation of an increase in value, exit from FIAT or shares, private recommendation

(e.g., friends/family), general recommendation (website, public place), hobby, portfolio variation, perceived convincing advertising, convinced at a trade fair.

### What is important to you in your investment?

- Security, transparency, liquidity, profitability, high return, long-term asset accumulation, low costs.

### What is important to you in life?

- Family, wealth, social environment, career, health, power, fame.

### Which institutions do you trust?

- Police, state, municipality, banks, federal constitutional court, federal government, daily newspapers, noble metal associations, broadcasting, economy.

### What measures do you take to ensure the safety of your valuable goods?

- Hiding goods, placing them in bonded warehouses, safe deposit box, dividing them into several locations.

### What type of „fraud“ do you consider the most common?

- Overcharge in value, counterfeit goods, unverifiable packing, certificate fraud, purchase without subsequent delivery, savings contract with too high prices for individual batches.

### What influence do you think wars have globally on precious metal prices?

- None, little, indifferent, strong, exorbitant, they are the sole determining factor.

### Should you have succumbed to a scam once, what do you look for when investing in precious metals again?

- Examination of the supplier, examination of the commodity, check about a laboratory, inquire with a bank advisor, read on the internet on relevant sites, read in forums, consume more advertising, get the goods brought, store the goods.

In 1971, President Nixon abolished the gold standard and with it the obligation of the USA to exchange gold for dollars. Gold thus lost its function as an anchor for other currencies. Do you consider the abolition of the gold standard already to be a fraud on investors? Many states have the right to prohibit private ownership of gold and/or other precious metals and to take holdings from private gold ownership in the event of economic crisis, inflation, or monetary reform, as enforced in Roosevelt's Emergency Banking Act in 1933. Do you think that your state could make use of the gold ownership ban in the event of a crisis?

# The Databases



The osmium institutes have expanded their expertise beyond osmium and are now utilizing their acquired knowledge for other applications, such as large-scale databases with high-resolution scans.

Once set up and used in the Osmium World Databank, both the high-performance microscopes and the electronic storage and distribution technologies are available to be used in a variety of ways. The newest fields are the coin trade with the documentation of coins and philately.

Especially for coins, the smallest scratches or irregularities on the surface can be used to find a special coin from a series. This creates a new type of certification that collectors can now use to document ownership of coins and transfer certificates to new owners. In addition, LIBS technology can be used to examine coins minimally invasively not only for the alloys of their coatings or their degree of oxidation, but also in depth for their composition of alloying metals.



Equally interesting is the storage of such data in relation to stamp collections. Here, of course, it is not scratches for detection, but fraying, application of ink, type of ink, printing method or fiber structure of the paper. Interested collectors who would like to have their collection documented should contact the Analysis Department at the Osmium Institute. [www.osmium-analysis.com](http://www.osmium-analysis.com)

The services are offered very favorably and are also sponsored up to 100% for public institutions or museums.

## The Lighthouse Projects

Spectacular objects are created with osmium. From watches, to headphones, to classic and extraordinary pieces of jewelry in series or unique. We would like to take a brief look at the lighthouse projects and venture a glimpse into the future.

### **"The Osmium Violin 1.0"**

*The unique story of the most valuable new violin in the world*

An extraordinary musical instrument has entered the world stage: "The Osmium Violin 1.0". With a price tag of 3.5 million euros, the violin, set with 541 osmium inlays and nearly 300 diamonds, rubies, sapphires and tsavorites, is not only a sonic revelation, but also the most valuable new violin in the world. Not only the names of famous violin makers, but above all the special playing characteristics make many a high-quality violin almost priceless today. For example, the "Vieuxtemps" from 1741 by Giuseppe Guarneri changed hands for around 16 million dollars, making it the most expensive violin in the world to date. However, the genesis of "The Osmium Violin 1.0" is as unique as the instrument itself:

Work on this extraordinary project began when Edgar Russ was won over to the "new" material osmium. A native of Styria and based in Cremona, Russ is a master luthier recognized in the highest stratae of the music world. In 2011, he was commissioned to build what was at the time the most expensive newly fabricated violin for His Majesty, the Sultan of Oman, Qabus bin Said. At that time, the sale of this violin took place under the highest secrecy and was not allowed to be made public until the death of the Sultan in January 2020. In the meantime, this violin is in the museum in Muscat, Oman. This extraordinary and impressive reference as well as his outstanding reputation as a master violin maker made Edgar Russ the perfect partner. This is how the joint project "The Osmium Violin 1.0" was born. Further projects like the unique "OSMIUM-ART© Quartet" are in planning. The quartet will consist of the following string instruments: The Osmium Violin 1.0 -The Osmium Violin 2.0 -The Osmium Cello 1.0 -The Osmium Viola 1.0.

32 months had to pass since the starting signal in July 2020 until the completion of the violin. The instrument has a length of 59.5 cm and a weight of 550.0 g.

The ornaments with the custom-made osmium inlays were a challenge in themselves and took up a large part of the working time. Additionally, nearly 300 brilliant-cut diamonds, rubies, sapphires and tsavorites were processed and each individual inlay piece was lovingly set by hand in a specially made 18-carat gold setting. High-quality woods such as Italian hazel spruce from Val di Fiemme, Bosnian sycamore maple, and ebony from Cameroon were used for the individual components of the body. The specially developed varnish was applied by hand in seven very thin coats.



*Violin with osmium inlays, OSMIUM-ART ©*

The project was supported by the Osmium Institute Germany and Oslerly GmbH, which was commissioned by Kurt Assam to create a comprehensive X-code certification of all osmium components. Oslerly is a company that intensively supports designers and manufacturers in the acquisition, certification and processing of crystalline osmium and enables the production of unique pieces.

Scarlett Clauss, the sole founder and owner of Oslerly, says: "With its unique crystal surface recorded in the Osmium database, each of the Osmium inlays are distinctive and have Ethical Sourcing traceable in detail. Every piece involved in the project have been produced according to the brand new ESG-M guidelines.

“Seeing how these inlays also bring the violin to life visually confirms once again in our efforts to make Osmium accessible for prestigious lighthouse projects,” Ms Clauss continues. The world premiere of “The Osmium Violin 1.0” on March 30, 2023, will be the first time 150 invited guests and media will experience the extraordinary instrument in a presentation: The Osmium Violin meets Elena Denisova. The Osmium Violin 1.0” is now available for purchase at a starting price of 3.5 million euros. From April, it will be shown internationally in Liechtenstein, Slovenia, Italy, and Abu Dhabi, among other places. Further destinations are New York, Sydney, Tokyo, Berlin, and Hamburg. Press conferences are also planned, at which Lena Yokoyama will present the violin musically.

One thing is clear: THE OSMIUM VIOLIN 1.0 is a masterful symbol of innovation and craftsmanship that will undoubtedly take pride of place in the world of musical instruments and delight both music lovers and investors.

#### The Osmium World Series:

Osmium has become a global phenomenon, with Osmium institutes or national wholesale partners of the German institute established in 30 countries worldwide. These institutes have knowledgeable employees who can provide information in local languages and offer on-site demonstrations of osmium. Additionally, visitors can exchange pieces for other crystalline osmium cuts right on site, allowing them to feel, touch, and experience this unique material. Perhaps it's time to consider osmium as a representation of the world.

Similar to the world-renowned Fabergé Eggs, a new series of miniature worlds will be created in the coming years, using various artistic approaches that incorporate platinum, gemstones, and osmium. We eagerly anticipate the competition of designs that will showcase a new form of political, artistic, or otherwise expressive messages through design.

While some osmium worlds are intended purely for their beauty and artistic display, others are designed to convey political statements that are preserved through art, creating a lasting impact.

Some requirements should be met in order to be included in the series:



*First rough draft of an animated graphic of a possible embodiment of the Osmium World*

- The earth has a minimum diameter of six cm and a maximum diameter of twelve centimeters.
- The continents themselves must be made of crystalline osmium. Meridians do not have to be inserted, but they can be.
- The earths can be closed, or they can be opened.
- Besides osmium, precious metals and gemstones are to be included.
- The earth may have a function, for example as a clock or as a container.
- They may be rotatably mounted or rigid.

#### Examples already in preparation:

The Osmium World Clock with continents of osmium on a platinum sphere points to climate change. Concentric rings of a clock installed in the Arctic show by their movement how climate change is progressing, the polar regions are melting, and that the time we have left is becoming increasingly scarce.

Another globe shows in a series of rubies set along the Earth's ring of fire, on the one hand, the geological fault lines of our planet, but at the same time, through the red line, points to the split between East and West, and to the dangerous times we are all living in on the possible brink of World War III.



# Goldsmiths & Jewelers



Starting from 2023, jewelers and goldsmiths who are involved in creating new designs and promoting crystalline osmium as a jewelry metal will be provided with commission goods for their projects, in order to actively promote and advance the field of osmium jewelry design and dissemination.

At this point, we would like to publish the three general models that are now available for this target group to choose from:

1. The commission taker develops a piece of jewelry from one or more inlays. The inlay production instructions with the CAD files or drawings are handed over to the commissioning party, who has the pieces cut at his expense by wire erosion, certified and priced. The commission taker now has five years from the date of issue of the inlays to sell the jewelry at his own price. Upon sale, payments accrue to the commissioner for payment according to the predetermined pricing for the inlays. The osmium identification codes are combined into one overarching X-code for the jewelry and the invoiced amount for the pieces is paid to the commissioner.
2. The commission taker develops a piece of jewelry from one or more inlays. The inlay production instructions with the CAD files or drawings are handed over to the commissioner, who has the pieces cut, certified, and priced by wire erosion at his expense. The commission taker makes two copies of the jewelry. He keeps one of the specimens as owner in his own hand. The second is handed over to the commission provider free of charge and becomes his

property. The parties agree on a balanced ratio between the osmium used and the remaining costs of the creation of the piece of jewelry when the plans are drawn up.

3. Semi-finished products and finished jewelry for resale. The commission taker is obliged to optionally insure the goods or to adequately protect them against theft. Jewelers and goldsmiths who wish to accept such an offer can do so within a limit of up to 100,000 euros per partner and are asked to contact the Osmium Institutes via the Osmium Hotline.



Wedding Band, "L'Atelier de Camille SárI

# Symposia & the Osmium World Council

**The Osmium Symposia have been held annually for the past five years. Each year, the Osmium world meets in a different country to discuss market developments and feedback from tangible investors.**

One of the main tasks of the participants is the annual estimation of osmium reserves and resources. The results can be viewed publicly at: [www.osmium-world-council.com](http://www.osmium-world-council.com).

## **HNWI, family offices, government reserves**

Have you come across the term previously? An HNWI, which stands for "high net worth individual," refers to an individual with substantial financial assets. Frequently, families with considerable wealth are well-positioned to capitalize on emerging opportunities early on. They often act as early adopters in new markets, exhibiting unwavering dedication and commitment. This tendency tends to amplify their wealth, as if it were an inherent truth that money gravitates towards established wealth.

Of course, wealthy individuals and family offices are not the only ones to invest in precious metals. States and institutions must build up reserves and secure themselves for the future. This can no longer be achieved with gold and real estate alone; the magic word of our time is "diversification."

To achieve a level playing field in the osmium business, packages have been coordinated for these reasons, which make an investment in osmium possible even for the more limited purse, without any manufacturing effort due to small-scale cutting.

In the gold or silver market, small units are elaborately cast as bars or pressed into coins. All smaller quantities therefore carry a premium for production and packaging. However, when reselling, this markup is usually not remunerated, only the metal's intrinsic price.

For osmium, therefore, a modern system has been created in which there are bars, disks and squares that can be exchanged for each other free of charge. One can collect osmium in small quantities and exchange it for a larger unit without loss. Alternatively, one can have a large bar exchanged for small bars to initially sell only parts of the total quantity.

This exchange model is only possible because rectangular pieces of flat crystalline osmium are easier to produce and produce less wasteful offcut than their curved counterparts. As such, their manufacturing costs are lower, allowing them to be exchanged with large pieces. In addition, the recognition of certified pieces must be simple and clear.

This is where unforgeability comes into play again; it is easy to check whether a piece is genuine for exchange. This service is provided free of charge by osmium institutes and allows tangible asset investment in any denomination. The goods should be kept with oneself in direct access to increase availability. The value density of osmium exceeds that of gold by a factor of 30, so one can always find a particularly safe place for their osmium. In this way, in addition to availability, one does not have the need to pay for a secure storage facility, nor do they run the risk of having their metal during times of national crisis.

In contrast to the smaller pieces afforded by smaller collectors and budget investment portfolios, there exist premium osmium investor packages.

A state or institutional investor buys in other orders of magnitude, and for these clients, there are ready-made packages containing osmium collections whose values total between one and ten million euros.

The "International Osmium Depot" is being built at Walchensee especially for these customers. The building will be built against the rock of the Herzogstand and will have two access roads, each leading in opposite directions through a mountainous region without any junctions. The state-of-the-art and novel drop safes will be sunk deep into the ground when the owner is not present.

This makes it extremely difficult for burglars to gain access. The safe deposit boxes are designed for a storage volume of 10 to 100 million euros per safe. The institutes are already accepting advance registrations.

HNWIs can spend the days during their decision-making process directly at the lake and visit the newly created Osmium Museum.



Walchensee Region – International Osmium Depot



Osmium jewelry at a growing number of trade fairs

## Trade & the Secondary Market

Finding osmium as a bargain will probably not be possible, but there are certainly ways to obtain osmium without going through the Osmium Institute’s online store. The most common method would be to buy safely and securely from private hands. In many cases, one may even save money.

To use the marketplace, an owner must enter his OIC for an offered piece of osmium on the site [www.osmium-identification-code.com](http://www.osmium-identification-code.com). The owner’s OIC is then entered into the marketplace. Afterwards the identification with the own Owner- Change-Code takes place. As soon as the osmium changes its owner, the code is changed, and the process is noted in the Osmium World Database.

In the next step, the sale request can be selected with a positive or negative spread. The offered osmium will now be visible to traders all over the world.

By the way, this does not only apply to osmium dealers, but also to gold and silver dealers who want to enter the market. Between offers from end customers and inquiries from dealers, a match is sought by the Osmi-Safe GmbH team to initiate the sale.

Alternatively, osmium can be sold directly to jewelers, manufactures or private individuals. For this purpose, the current certificates of one’s own osmium are available on the net. In turn, those who are unsure about their purchase can order a recertification from an osmium institute for 70 euros so that the pieces can be recertified.

**OSMIUM MARKETPLACE** Login Partner Login Information FAQ Contact

You do not own any osmium, but you are interested in purchasing osmium from a private owner. In this case, please fill out the following contact form. You will thereafter be contacted by us to clarify all your questions.

In order to sell on the Marketplace, you must own osmium. Please enter the Osmium Identification Code (OIC) and the corresponding OCC of one of your Osmium pieces to log in.

OIC:  OCC:

You would like to purchase goods directly from an institute? In this case we ask you to have a look at [www.osmium.com](http://www.osmium.com).

Go to form login osmium.com

# Osmium.com

The website is the international online store for crystalline osmium. Here it can be ordered and purchased in all its forms by tangible investors.

The operation of the store is very simple, because in general the osmium business is divided into three groups:

- Finished boxes for tangible investors from 500 euros to 10 million euros per box.
- Cut collectibles with shapes of various types.
- Free amount or weight input.

Especially interesting is the free input of amount or weight, because the corresponding amount of crystalline osmium is then adjusted to the desired amount in the package sizes. This is only possible because the smallest bars of crystalline osmium each differ slightly, so that each amount can be set exactly. In addition, for the free amount input and the boxes, the pieces are arranged to match each other in sparkle or to meet the wishes of the tangible investor or jewelry producer.

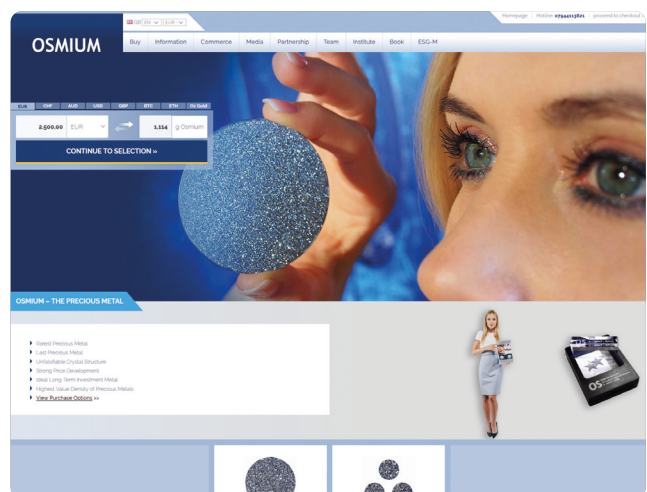
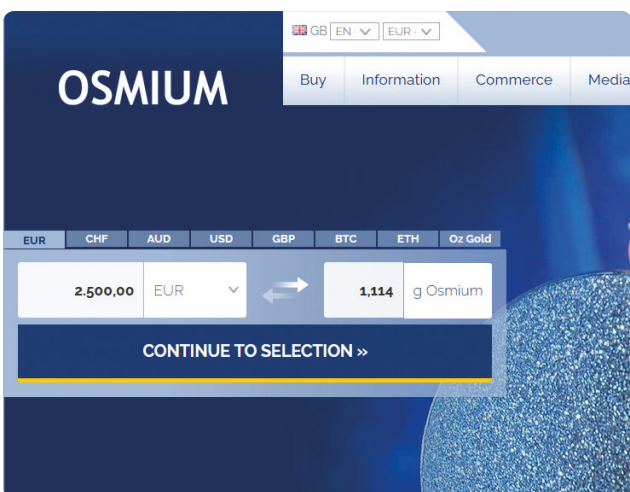
If you decide on a quantity, a box, or a certain shape, you can simply specify the number of pieces as in any store,

order, pay the advance invoice and receive the goods and the original invoice through the osmium institutes assured within a few days.

For amounts up to 20,000 euros, delivery is insured by mail order. Above this amount, the goods are brought to the door by institute drivers and handed over personally. For tangible investors abroad, air transport or storage in the new "International Osmium Depot" are the means of choice.

The website is set up in a variety of languages and is the international hub for the circulation of osmium. It also has a section with a press review and lots of useful information. More in-depth or scientific information can be found at [www.osmium-landingpage.com](http://www.osmium-landingpage.com) and in the Osmium Compendium, as well as in the free Osmium reference book available in German, English, Spanish and French.

This method can also be used for sales via intermediaries by using a recommender code. The own osmium depot is managed via an app, which can be used to view one's own holdings at any time.



# Reference Books on Osmium

**Resources to learn more about osmium can be found online:**

**Reference Book:** Order the 240-page reference book on crystalline osmium for free from the Osmium Institutes as a pdf in four languages or as a hardcopy.

**Facts and Faces:** This A6 booklet provides an overview of historical facts about osmium with 104 literature references and over 30 photos. It includes pictures of osmium models, jewelry, and semi-finished products. Available in French, English, and German.

**Osmium Cue-cards:** Learn about precious metals and osmium in a playful way with these cue-cards available in German and English.

**Osmium Compendium:** The compendium on Osmium, consisting of three parts, aims to capture the most up-to-date and comprehensive factual knowledge available.

**Volume 1: Historical:** Covers the discovery and historical use of osmium, including stories and myths about the discoverer and osmium in 187.

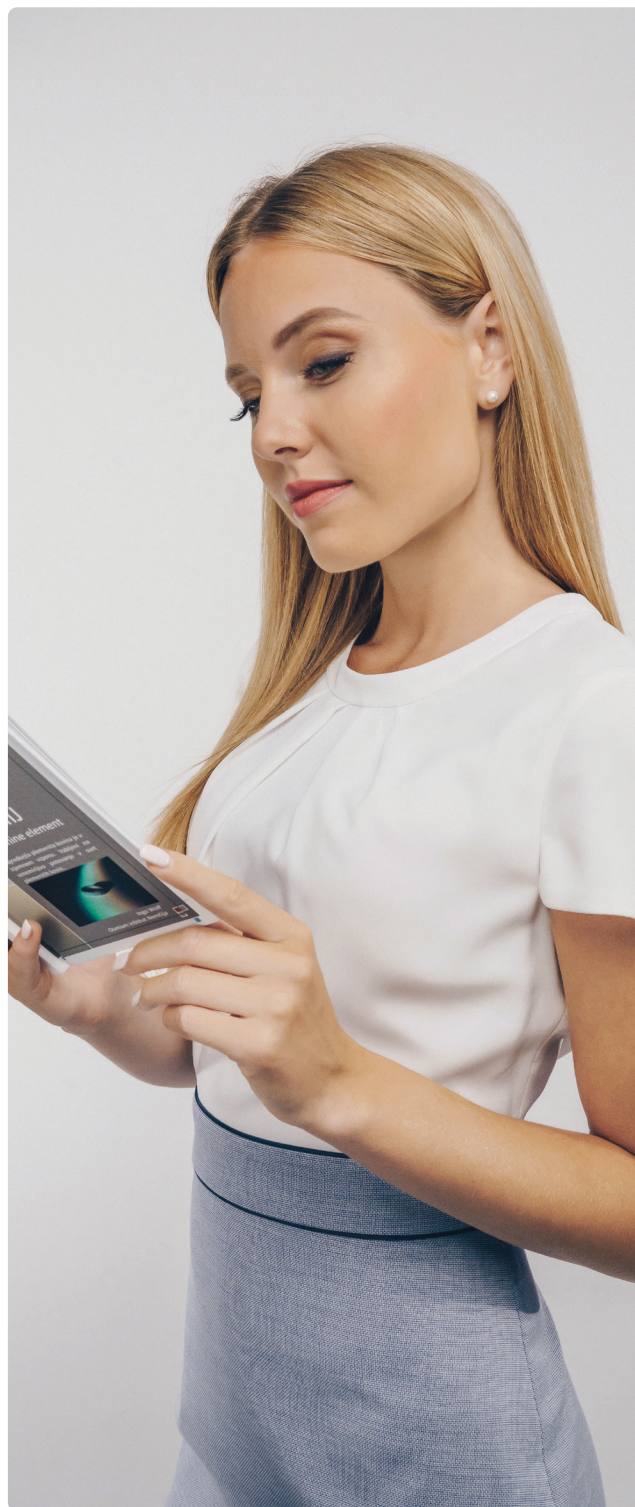
**Volume 2: Historical Chemistry:** Describes, explains, and evaluates over 500 publications with electronic access to scans of the originals.

**Volume 3: Osmium in Modern Times:** Covers the opening of osmium institutes, osmium chemistry, and applications in luxury, medical, and high-tech industries. The compendium is updated yearly with yearbooks.

**Yearbooks:** Yearly publications since 2019 that document innovations on the osmium market in the previous year, serving as updates to the Osmium Compendium which extends to 2018.

**Osmium Press Review:**

Official press review on Osmium available at [www.osmium-world-council.com](http://www.osmium-world-council.com), featuring hundreds of press articles from around the world in multiple languages.



## Official Osmium Websites

### 1. Osmium.com

International main online store for crystalline osmium. Here you can buy osmium from any country in the world online without any complications.

### 2. Osmium-academy.com

Short explanation of the virtual academy, the online learning tool. Further information about courses and training.

### 3. Osmium-institute.com

Here, the tasks of the osmium institutes and staff are described. All international institutes are listed by region.

### 4. Osmium-onboarding.com

Area for new partners to sign in. On the site, the referrer code can also be entered, and one's own code can be generated. We are continually looking for partners who want to make the Osmium market their new home and provide access to Osmium for jewelers and end customers.

### 5. Osmium-identification-code.com

Verification of the authenticity of osmium based on the comparison of the crystal structure, which is available in the scan on the page as soon as the osmium identification code is entered, which is delivered with each piece of osmium.

### 6. Osmium-TV.com

The station reports on the topic of osmium, shows new jewelry, and introduces the partners. All new information is prepared and broadcast as HD reports and 4k TV.

### 7. Osmium-Preis.com

The page carries the current daily price of crystalline osmium and the related charts. The 1g price is used to determine

the material price for all denominations. The price can be displayed in different currencies.

### 8. Osmium-Gallery.com

A constantly growing selection of samples from the jewelry and luxury market provided by manufacturers for the platform.

### 9. Osmium-World-Council.com

The Osmium World Council is the international focal point to get information about osmium and to shape the osmium market together with the osmium institutes.

### 10. Osmium.info

Basic information page at the first contact with Osmium. All relevant information to pass the exam for resellers and distributors.

## Osmium App

With the Osmium app, it will soon also be possible to use the most important functions of the website on a mobile basis. For example, osmium identification codes can be checked directly, and retrieval via QR code is also possible and speeds up the query and authenticity check process. With these functions, it is possible to make a reliable statement about the authenticity of osmium. Of course, the option to perform a post-certification in an osmium institute remains.

In several languages, the app allows users to query their own osmium deposits, monitor price charts and link directly to the osmium store. In addition, there is the possibility of a direct query in the Osmium Marketplace, in order to be able to find favorable goods from the private market immediately.



## Fact Sheet:

### Osmium-Institut zur Inverkehrbringung und Zertifizierung von Osmium GmbH

- **Headquarters:** 82418 Murnau am Staffelsee, Deutschland
- **Scientific Director and Head of Laboratory:** Ingo Wolf
- **Economic Director:** Scarlett Clauss
- **Hotline:** +49 (89) 7 44 88 88 88
- **Employees:** 18 employees in Germany,
- **Internationally affiliated dealers:** > 1.000
- **Number of institutes:** > 30 institutes on four continents (different characteristics)
- **Start of crystallization on a technical scale:** 2013
- **Market launch of crystalline osmium:** 2014

#### Brief Information on Crystalline Osmium:

Osmium, in its crystallized form, is both a tangible asset and a jewelry metal. It is the last of the eight precious metals introduced into the market. Each ingot and cut form is certified at the Osmium Institute before being placed on the market. Every piece of crystalline osmium is deposited in the Osmium World Database. Customs agreements are in place on four continents.

The data and scans are available to owners and customs authorities globally. The rarest precious metal cannot be counterfeited. Secure and uniform trade in crystalline osmium is ensured locally by osmium institutes in more than 30 countries.

#### Core Role:

Osmium institutes ensure the smooth running of production, analytics, packaging, logistics, training, and customer information on four continents.

#### Tasks:

The basic tasks of the Osmium Institutes are research, investigation, analysis, and information of all market participants as well as publication and documentation.

**finanzwelt**  
extra

### LEGAL DISCLOSURE

#### AUTOR DIESER AUSGABE

Ingo Wolf  
(V. i. S. d. P.)

#### ART DIRECTOR

wirkungswerk Werbeagentur  
Jan Risch  
Jonas Reggelin  
Yannick Reggelin  
kontakt@wirkungswerk.com

#### VERLAG

FW-Verlag GmbH  
Söhnleinstraße 17  
65201 Wiesbaden  
Tel.: (06 11) 267 66 - 0  
Fax: (06 11) 267 66 - 25  
www.finanzwelt.de  
info@finanzwelt.de  
ISSN-Nr.: 2701-7478

#### GESCHÄFTSFÜHRUNG

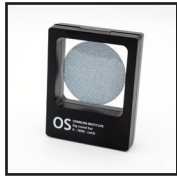
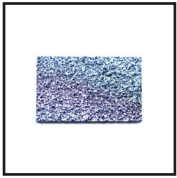
Dorothee J. Schöneich

#### DRUCK

Silber Druck oHG  
Otto-Hahn-Straße 25  
34253 Lohfelden

Namentlich gekennzeichnete Beiträge geben nicht unbedingt die Meinung der Redaktion wieder. Alle Rechte vorbehalten. Kein Teil dieses Magazins darf ohne schriftliche Genehmigung des Verlages in irgendeiner Form – durch Fotokopie, Mikrofilm, die Aufnahme in elektronische Datenbanken oder andere Verfahren – vervielfältigt oder verbreitet werden.

# OSMIUM - The Rarest Precious Metal on Earth



## Crystalline Osmium

- Rarest precious metal
- Last precious metal to be introduced to the market
- Unforgeable crystal structure
- Strong price trend
- Perfect long term bullion metal
- Highest value density of any precious metal
- Secure transfer of ownership
- Global ownership database



For more information, please visit:

[www.osmium.com](http://www.osmium.com)  
[www.osmium-institute.com](http://www.osmium-institute.com)

