

An abstract geometric design featuring a grid of colored squares. The top row consists of a large tan square with a fine diagonal line pattern, a solid red square, and a dark gray square. Below the tan square is a light blue square. Below the light blue square is a medium blue square. Below the medium blue square is a light gray square. Below the light gray square is a medium blue square. Below the medium blue square is a light gray square. The dark gray square on the right side of the top row contains the text "OSMIUM" and "Sunshine element".

# OSMIUM

Sunshine element

The rarest noble metal in the  
world of precious metals.



# OSMIUM



Crystallized osmium diamonds

## **Essential information for investors, manufacturers and jewelers**

Since 2014, crystallized osmium has become tradable as the last of the eight precious metals. It's available in the form of jewelry or as an investment metal. With its crystalline shine and properties, it has already made a triumphant and unparalleled entrance in a short time.

### **Learn more about osmium! It's worth it.**

This brochure gives you insights into the world of osmium, accounts for its unique properties, explains the extreme shortage of the element and the possible opportunities with the last of the eight precious metals.

You will also obtain a lot of useful information on the processing of osmium.

Crystallized osmium's unique security features and The Osmium Identification Code are explained as well. You will learn how to recognize crystalline osmium reliably and where to acquire it.

Enjoy reading!

- Your Osmium team.



Osmium inlaid ring

### **OSMIUM-Institute**

The "Osmium-Institut zur Inverkehrbringung und Zertifizierung von Osmium GmbH" (Osmium-Institute Germany) serves the purpose to facilitate a secure recognition of crystalline osmium.

A team of specialists perform these tasks and they inform traders, educate processing companies and are available as advisors.

For private individuals and companies, the Osmium-Institute provides experts who will confirm the authenticity of crystalized osmium and verify the Osmium Identification Code.

Osmium-Institutes are the first port of call for all osmium related press and television information. They maintain a FAQ list and answer all scientific questions around osmium.

The Osmium-Institute Germany is tasked with building up an international network of local institutes on all continents.

The primary task of the institutes is the introduction of crystallized osmium to the market, which includes all steps from importing the crystalline osmium into Germany to arranging the first delivery to wholesale partners worldwide.

Internationally, osmium is imported into the country predominantly by the respective local Osmium-Institutes to Introduce and Certify osmium. The objective is to have the highest level of security for buyers and processing companies.



Small curved Osmium bar in its raw form and osmium diamonds

Jewelers and manufacturers are increasingly using osmium in the manufacture of jewelry. Osmium can be set into jewelry similar to a diamond or a gemstone. Every jeweler and manufacturer can order virtually any shape desired.

The shapes can be very creative. There are only a few processing guidelines to adhere to when working with osmium.

## Availability of Osmium

In the entire world, osmium is only available through selected specialist traders, who supply osmium exclusively with a certificate of authenticity issued by the “Osmium-Institut zur Inverkehrbringung und Zertifizierung von Osmium GmbH” in Germany. Each piece is associated with an eight-digit letter-number code; namely the Osmium Identification Code.

Osmium is used in the jewelry market exclusively as crystals, in semi- and fully-manufactured forms. The natural occurrence of osmium is the harmful toxic osmium sponge that does not belong in private hands.

However, osmium has been available in its crystalline form since 2014, a form in which it is even less reactive than gold! It is available as jewelry and in small bars of various sizes as an investment metal.

**Osmium is the perfect addition to gold and silver in the investment market:**

... Non-replaceable and incredibly rare.

... Available in the form of divisible Osmium Splitbars™.

... Only to become more valuable with time due to its extreme rarity.

... **The New, and Last, Precious Metal.**

## Rarity

Osmium is not only the rarest precious metal but also the rarest non-radioactive element of all. The mining of osmium is performed in conjunction with platinum. 10,000 tonnes of platinum ore needs to be mined to obtain around a single ounce of Osmium. The separation of Osmium from Platinum is also complicated and expensive.

When platinum mining decreases, osmium mining decreases with it. At present, the extraction of osmium is far below one metric ton per year.

Only parts of this material are available for crystallization. The remainder is used in vanishingly small amounts in medicine or at universities. However, accurate information on this usage is not available.

To give a few examples of its rarity:

- To transport 10,000 ore of platinum requires 25 completely filled 400-ton Caterpillar 797 trucks, the largest mining truck costing ~\$5 million each.
- One ounce of osmium fits into the volume of a single sugar cube. Approximately  $9 \text{ m}^3$  of osmium is available worldwide.
- Approximately  $2 \text{ m}^3$  of this is mineable and recoverable. That's about 44,000 kg of osmium.

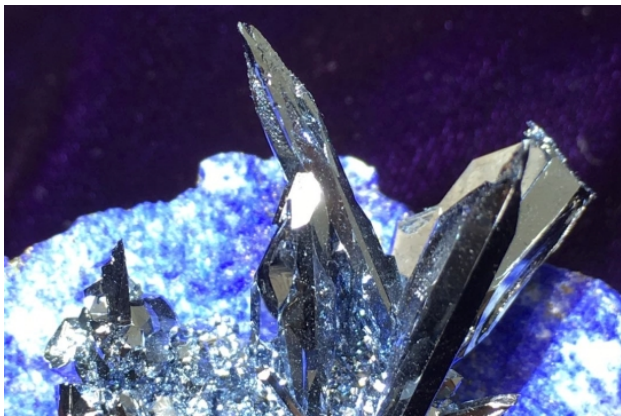


## Comparing the rarity with gold

- The globally available amount of gold fits into a cube with an edge length of 24 meters and will increase further due to currently high mining activity.
- The globally available amount of osmium fits into a cube with an edge length of only **2.1 meters!**

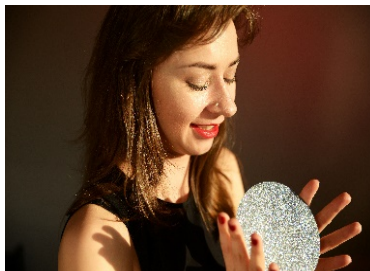
There is less than **9 m<sup>3</sup>** of osmium compared to roughly **13.800 m<sup>3</sup> of gold**. In terms of volume, gold is thus 1,500 times more prevalent in the earth's crust than osmium.

**Gold won't run out any time soon. Osmium will!**



Osmium Crystal

## **Osmium is on the fast track!**



The shortage, usage, and rarity of osmium speak for themselves.

### **Osmium is the next generation's metal**

The growing demand from jewelers and jewelry manufacturers is one of the reasons why people contemplate owning osmium.

Osmium, which is processed by jewelers and bought by customers, will eventually disappear entirely from the market and fulfill its final purpose among private customers. It is worn as jewelry or used as value storage in a secured location.

Either way, osmium is rarely returned to the open market as it cannot be melted down like gold or silver. Osmium diamonds and stars can be removed from jewelry without any issues. Otherwise, the osmium would have to be crystallized again at great expense during recycling, destroying 80% of its value. Thus, the rarity inevitably increases further and further.

In fact, we don't speak of osmium in terms of shortages or the search for new deposits, but as a non-available asset that has never occurred with any other element before.

The osmium market is supplied by a so-called natural monopoly, because there is only one company internationally which can crystallize osmium and only one entity which guarantees the international placing on the market.

The osmium price is formed by several essential factors, including supply and demand. However, there are also additional factors such as electricity demand for crystallization, above ground stocks of raw osmium, pre-order volumes, number of active ovens or simply the current reject rate.

This trend will cause a unique situation on the market when we reach the point of non-availability. This is highly likely to happen but it is difficult to time when it will. Even osmium experts who are discussing this scenario can only provide estimates due to the many influential factors involved.

This phenomenon is often discussed and therefore already has its own name. It's called:

## **The Osmium Big Bang!**

According to experts, the comparison with the Big Bang refers to a price development that could trigger a multiplication of the price for crystalline osmium.

The following factors may contribute to this development:

- A significant reduction in mining of platinum mines.
- Decreasing concentrations of osmium in extracted platinum ore
- A reduction of crystalline osmium still available.
- End of recycling due to the high costs and extreme prices.

Once the right conditions are met the shortage reaches its peak and the price will explode. It is difficult to predict how long this will take.

This is the reason why in the United States osmium is called “the generation metal”: Because osmium is bought for one’s children. One hopes for a long-term increase in value of the next generation’s metal.

Most experts expect the Osmium Big Bang to happen in five to ten years, but there is no telling when demand overwhelms supply.

Should large jewelry manufacturers jump on the opportunity early, the Osmium Big Bang will approach faster.

In this case, the continuous manufacturing of future jewelry will decimate the available crystalline osmium in a short time frame, because the osmium will not be able to be crystallized and cut at a fast enough rate.

The development for osmium pearls is particularly restrictive to supply, as the rejection rates in production increase with increased production quantities.

All of this is irrespective of developments in the overall economy such as expectations of inflation or a desire for the safety of precious metals. These developments are sure to drive demand, maybe to the point of causing The Osmium Big Bang ahead of schedule.

The result of these developments will most likely lead to less and less osmium being available.

#### **Conclusion:**

- **Extreme price developments are only a matter of time.**

## **Osmium is laden with unique characteristics**

The reason why jewelers increasingly want to work with osmium and why investors have discovered osmium as a new asset class lies in the unique characteristics of the precious metal. Besides its mythical rarity, osmium is also considered to be extraordinary in terms of its physical properties.

Osmium has the highest abrasion resistance of all materials. You could make the world's most durable nail file from it; And the most expensive. Furthermore, it has the highest density of non-radioactive all elements and compounds in chemistry. Therefore, it cannot be counterfeited by enclosing a heavy core within a bar.

It has a unique bluish-silvery to bluish-whitish luster, which unfolds particularly upon reflection of sunlight and LED artificial light.

Its high reflectivity mirrors light from the crystal structure in all directions. In this way, you can see the sparkling and stunning color spectrum in sunlight from every angle.

It even has industrial applications, as it provides special shielding against gamma radiation and is a superconductor at low temperatures. Unfortunately its rarity precludes mass production of any kind until we find a large extra-terrestrial source.

The bulk modulus, i.e., the resistance against extreme pressures, is also higher with osmium than with any other element. You could build the tallest houses or the most stable submarines out of osmium, if only there was more of it available.

## **Opportunities with osmium**

Osmium is the new silver or gold when it comes to investments. As it cannot be replaced and is incredibly rare, it will be even more valuable in times of crisis than it already is today.

In addition, when in the form of star rows, osmium can be divided into smaller units i.e. via Splitbars™ if this becomes necessary.

Shortages will quickly lead to non-availability due to its rarity. If osmium is introduced to the market as a jewelry metal the demand will only increase further.

### **This results in opportunities for osmium owners:**

- Unlimited durability and straightforward transportability.
- Constant proof of authenticity through the OIC, as explained later on.
- Highest possible value compression of all precious metals.

Before you buy osmium as an individual, inform yourself on [www.osmium-institute.com/en/](http://www.osmium-institute.com/en/) or contact your local Osmium-Institute. After purchase you can enter the Osmium Identification Code (OIC) on: <https://www.osmium-identification-code.com/en/>.

## The Discoverer of Osmium.



Smithson Tennant (1761 - 1815)

In 1804, the British chemist Smithson Tennant discovered the element osmium together with iridium.

He achieved this when investigating the insoluble residues of platinum ores, which had previously been dissolved in aqua regia.

Since osmium tetroxide has a pungent, chlorine-like odor, Tennant named it “osme” after the Greek word for smell. In 1814, Jöns Jakob Berzelius assigned the present symbol Os to Osmium.

At the beginning of the 20th century, osmium had its first important application in incandescent lamp filaments thanks to Carl Auer von Welsbach.



## Interesting facts about osmium



- Osmium is currently roughly 1,000 times rarer than diamonds, a ratio increasing yearly due to improvements in the production of artificial diamonds.
- Osmium's already used in the most spectacular jewelry pieces and most exclusive of wristwatches.
- It's already available through many jewelers and every listed retail seller or wholesaler affiliated with an Osmium-Institute.
- Most of the osmium in private hands is located in Europe. However, countries like Australia and China are pushing into the market and will increase demand over the long term.
- The enthusiasm for osmium is growing steadily and internationally!

### **Have you ever heard of “OSRAM”?**

The company name of this bulb manufacturer is a portmanteau word combining **O**smium and **Wolfram** (German for tungsten).

The first lamp filaments made from osmium emitted a wonderful, soft light. One of these early light bulbs can still be seen in the Deutsches Museum in Munich, Germany.

Unfortunately, osmium was just too rare and therefor got replaced by tungsten.

### **The precious metals and their “Emperor”**

Precious metals are metals that are resistant to corrosion, i.e., they are permanently chemically stable in natural environments under the influence of air and water.

Because of this stability, gold and silver have been used since antiquity for making jewelry and coins.

In the last four centuries, platinum metals have been discovered which are as corrosion resistant as gold.

Gold, silver, platinum, and palladium all played a role in world markets until this day.



Osmium in the periodic table among the eight precious metals.

From 2014 onward Crystalline osmium became available from the Osmium-Institutes and their retailers, as osmium can be used in its crystallized form.

Thus, it can be used as a value storage asset or jewelry metal in the market. The base metal sheds particles which cause a pungent odor and are toxic to humans.

Because of this, osmium could not be marketed before the crystallization process was discovered.

- The precious metals in the above periodic table became available from right to left, at intervals of many centuries.
- Of course, gold and silver have been known since antiquity as means of payment. It is possible that osmium comes to occupy an entirely new class of payment, situated above gold, due to its superior properties and rarity.

- Palladium and platinum have been brought into the financial markets only recently – The American mint only started selling Platinum Eagles in the year 1997. The metals have also been used for special pieces of jewelry, such as open platinum rings, which can hold a diamond without a setting between the two ends due to its increased hardness over gold.
- The most recent market launch for precious metals was ruthenium, which started with a furious rally at the end of 2017.
- Iridium and rhodium have had similar price movements on the commodity exchanges, but are not even rare or suitable outside of industry.

**Osmium will be the next and last of the eight precious metals to experience a massive price explosion!**

## Price development

- With the new perspective to obtain crystallized osmium, the demand for osmium is increasing.
- Due to its rarity and its natural occurrence as toxic osmium sponge, the metal had no mass industrial applications.
- The crystallization process invented in 2014 made osmium non-toxic by altering the atomic arrangement and opening new markets and areas of application.
- The process is comparable with growing conventional diamonds made from carbon at very high temperatures and under extreme pressures.
- At the time osmium was known to less than one percent of jewelers. Thanks to the products from Hublot and the growing jewelry market, this is rapidly changing.
- Even without the Osmium Big Bang, osmium is still a serious and very exciting investment that is sure to do well!

## Osmium, a fascinating precious metal, and a new asset class!



Osmium exposed to laser light

### Daily price

The daily price of osmium is determined and published in Switzerland. This data can be found on the website [www.osmium-preis.com/en/](http://www.osmium-preis.com/en/).

The price varies predominantly with existing stocks for crystallization operations, crystallization lead times and current reject rates. Osmium is sold plus VAT or stored in a bonded warehouse.

Proof of purchase and authenticity need to be provided when selling. For this reason, the Osmium-Institutes recommend that the digitally verifiable authenticity documents containing the Osmium Identification Code, an eight-digit letter-number code that comes with each purchase, should always be handed over together with the osmium.

When making a private purchase, the code can be verified via the Internet on <https://www.osmium-identification-code.com/en/> or via inquiry at an Osmium-Institute by comparing the high-resolution image of the corresponding piece with the pictures on file. This comparison is possible with the naked eye and always unambiguous, due to the crystalline structure of each piece being unique to that piece and that piece alone.

If a certificate is damaged or lost, a new certificate can be issued by an Osmium-Institute or simply printed out via the Internet.

However, while the crystals or jewelry are stored, it is advised to keep the code separate from the physical osmium. This impedes theft; Even while the the crystals are on display or worn, as any potential buyer from the thieves would immediately recognise the piece as stolen without the certificates to transfer ownership.

Most owners tend to keep their crystalized osmium at home for ease of access. The unique verification mechanism, being able to store the verification separate from the piece, helps do this securely.

While Osmium-Institutes do not buy osmium, they are exclusively responsible for introducing it to the market. Until a secondary market is created through increasing demand, the most effective way to sell osmium is through jewellers who process osmium.

## Current demand drivers for osmium

- Osmium is produced as so-called semi-manufactured product, which leaves potential usecases open.
- New players increasingly enter the jewelry market and make jewelry, watches and **crystalline micro-sculptures** from osmium.
- With a special spherical microstructure, even the rarest pieces of jewelry, the so-called **osmium pearls**, can now be produced.
- The number of countries with their own affiliated Osmium-Institute is growing steadily. The objective is to promote osmium locally on all continents.
- Investors in the German speaking countries, namely Germany, Austria and Switzerland, have already discovered crystalline osmium as an investment asset and the world is sure to follow.
- The lack of demand comes solely from a lack of history and unawareness about the asset, as its value proposition is solid. As knowledge and awareness of crystallized osmium spreads, invariably so will demand.



## Osmium: The Future of Value Compression.



A thousand times more rare, one gram of crystallized osmium could soon replace a kilogram of gold.

Crystalized Osmium stores value in the same way as gold does. It costs labor to pull it out of the ground, it costs labor to refine it into crystals, and the crystals are incredibly non-reactive; Making Crystalized Osmium a “Non-Deprecating Asset” just like gold.

However, because it is a thousand times more rare than gold, it costs a thousand times more labor to pull out of the ground. There simply isn't a lot of the stuff!

Just as a bar of gold allows the wealthy to compress a warehouse of printed currency bills inside a single bar of metal, so too in the very near future, will millionaires and billionaires be able to compress a hard to secure warehouse full of heavy and cumbersome metal within a few easily secured and transported disks of osmium.

## Who are Osmium trading partners?



More information about the various Osmium-Institutes can be found out at:

<https://www.osmium-institute.com/en/>

Trading partners are companies that have undergone a registration process and have in-depth knowledge of osmium. This knowledge can be acquired at [www.osmium-academy.com/en/](http://www.osmium-academy.com/en/). Courses are available both as online training and as classroom training.

Traders can register at: [www.osmium-onboarding.com/en/](http://www.osmium-onboarding.com/en/)

The password for entry is available at every Osmium-Institute.

## Osmium events



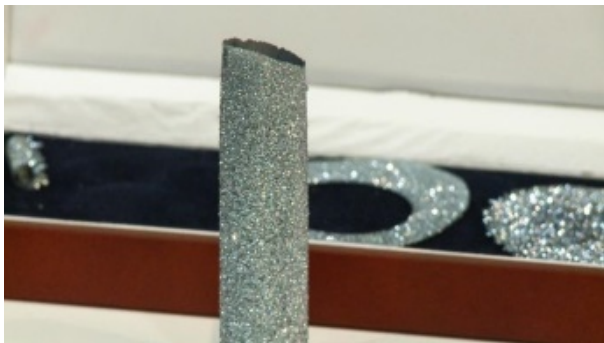
Director Ingo Wolf speaks for the IP-TV channel [www.commodity-tv.net](http://www.commodity-tv.net) at the "Invest" trade fair "Rohstoffnacht" ("Commodity Night") in Stuttgart, Germany.

You're welcome to attend events to gather knowledge about osmium, talk to experts, and get answers to your questions!

Events often take place at trade fairs or in small groups of retail sellers, wholesalers and customers.

At these events, examples of jewelry and watchmaking are on display and participants can learn more about the origin of the element, technical information about crystalized osmium's security features and further fascinating details about the metal and its future.

## Products and reactants



Semi-manufactured osmium tube for cutting small curved bars

Osmium is currently sold with the following specifications:

Osmium diamond, 3 mm diameter, flat crystal structure, approx. 0.07 to 0.13 g weight.

Osmium star, 4 mm longest diameter, flat crystal structure, approx. 0.07 to 0.13 g weight.

Osmium star-rows, up to 40 mm length, flat crystal structure consisting of several stars, 0.14 g to 0.7 g weight.

Osmium bars, rectangular, 1 g to 15 g, bars have side lengths between one and three centimeters because of their different thickness.

Osmium curved bars, inner diameter variable between approx. 10 and 25 mm, ring shape, weight depending on the diameter.

Osmium disk (wafer), approx. 55 mm diameter, flat and round, approx. 30g weight.



Osmium pearl

Osmium pearls with a diameter of approx. 5 to 21 mm

Three-dimensional structure

Weight depending on diameter

Applied onto carrier graphite

Usually, pearls have an outer diameter of 11 or 16 mm

## The osmium disk (wafer)



An “Investors Disk” of crystalized osmium

Disks, also referred to as wafers, are the largest geometry of crystalline osmium available. Electrical Discharge Machining (EDM) is used to cut osmium.

Being a semi-manufactured product, they can be cut into any desired shape. Jewelers can arrange for the cutting of specific osmium forms as desired by the customer.

A typical example is the cutting of the disks into diamonds and stars, which investors often do prior to selling to earn additional profits on processing.

The Osmium-Institutes are in direct contact with companies that cut osmium and can arrange the cutting on behalf of the owner.

After successfully cut, the resulting shapes are recertified and entered in the osmium database.



Osmium bar

## This is how new osmium objects are created



Osmium diamonds are manufactured with a diameter of 3 and 4 mm and are the geometric inverse of osmium stars. These two shapes can be cut from a disk or bar with almost no material loss.

Jewelers use these two shapes for making jewelry in the same way as carbon-based diamonds.

They can be easily set into rings and other jewelry and removed unchanged and undamaged.



## Star rows, the “Osmium Splitbars™”



Osmium Splitbars™ that can be easily divided.

Gold is available for purchase in bars which can be split in times of crisis. Usually 100g bars that are divided into 1g increments. The idea is to be able to easily break off pieces of gold to pay for emergency supplies such as groceries.

But what if you're in the market for something more expensive? It has been said that in times of crisis and hyperinflation, the average family home will cost about 500 ounces of silver. At an approximate 12,400 times greater rarity, that would come down to 1.25 grams of Osmium. This way, ounces of silver can be saved for food.

Osmium Splitbars™ offer the answer to settle debts and buy assets immediately with value that is as good as gold – but a lot easier to transport, a lot harder to forge, and even prettier to look at.

## Bespoke shapes and geometries



Flat osmium shaped as a sitting cat.

Osmium is usually sold in flat geometries. Osmium diamonds and osmium stars are small flat elements which come in round and star shapes. They result in almost no material loss, as they are the perfect geometric inverse of each other.

However, manufacturing bespoke shapes may result in a greater material loss.

The excess material left over from cutting is still high-purity crystalline osmium, with the caveat that the geometry cannot be used to make jewelry. This is inevitable, although of course as with polishing a gemstone, the area of a disk or bar is used as effectively as possible.

Unfortunately, the recycling of the excess material is just as expensive as creating new crystalline osmium, so all cut shapes inevitably

have a surcharge for cutting, manufacturing and material loss. Regrettably this process cannot be further optimized.

Because excess osmium needs to be granulated and returned to the costly osmium process, it cannot be used to make additional profits. Therefore, the cutting company will not provide reimbursement.

Osmium disks and bars are used as semi-manufactured goods when flat shapes are required. However, cutting by means of EDM results in both loss from excess material and material sticking to the erosion wire.

These quantities are negligibly small and it is not worthwhile to recover them from the erosion wire. This material is therefore included in the calculations for the price of processing flat structures.



Cut hexagonal star with perfect cutting edges

## **Bespoke shapes in 2D and 3D**

To create a bespoke shape, the following steps need to be followed:

For 2D objects, the flat design needs to be submitted. The jeweler then calculates material losses due to geometry and erosion wire cutting. This information may also be obtained from an Osmium-Institute or a company providing cutting services.

3D objects require submission or creation of a technical drawing. Subsequently, a high-precision carbon object is made on which the osmium is crystallized.

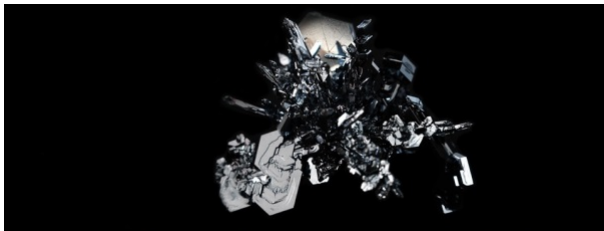
The amount of osmium required in this process is relatively small, but the preparation effort is very high. The carbon base inside the micro-sculpture will continue to remain inside and stabilize the osmium object.

All shapes can be requested from retailer sellers and wholesalers or specified via the Internet. The price calculation usually requires two business days.

Some customers request simple naturally shaped crystals. These structures are of extraordinary beauty with excessive sparkle.

However, these can only be used as sculptures and are rarely employed in jewelry manufacture.

## Processing guidelines



Largest osmium crystal in the world, approx. 40 g in weight.

Processing osmium is straightforward when setting it like a diamond in a ring or in a piece of jewelry.

However, osmium can also be glued or soldered. When soldering, a maximum temperature of 400 °C must not be exceeded to prevent the formation of osmium tetroxide, which spreads through the air.

When working with osmium, the solder normally reduces the osmium tetroxide directly back to the element, releasing the oxygen again. However, If a pungent odor is noticed, work need to be suspended immediately and the workshop must be aired.

Since an osmium diamond has a smooth bottom surface, it is generally much easier to set in and process into jewelry.

## Working with osmium as a jewelry manufacturer

Got tired of your shit and your shitty text. Have SCARLETT YOUR ACTUAL FUCKING JEWELER REWRITE THIS. Info:

Set like diamonds.

Talk about what jewelers wanna know not a smelly fabrication process

Stuff can be found on the academy.

Regulations by "*Osmium-Institut zur Inverkehrbringung und Zertifizierung von Osmium GmbH*" in Germany – you know you can translate this at times too to let people know wtf it says.

Cutting only by verified companies.

Then weave that into a story JEWELERS wanna hear. The piece below is nice tho.



Osmium decorative piece

## Osmium small curved bars



A small curved osmium bar

Small curved bars look like rings but are in fact bars that can be cut into segments by jewelers.

Small curved bars have a modern, industrial appearance and could be worn like rings.

**However, as a so-called semi-manufactured product, they should not be worn but stored in a safe place until further processing.**

Crystalline osmium can be bent to a certain degree, but it's brittle and may break when falling. It cannot be bent back after being bent once.

## Small curved osmium bars with protection

Small curved osmium bars should only be worn as jewelry if they are set in a ductile and therefore less brittle material, such as titanium.



Osmium small curved bar set in titanium

Titanium is one metal which is highly suitable for protecting small curved osmium bars while wearing them. However, you can work with almost any other metal.

In general, all ductile metals can be used to protect osmium.

Titanium has proven to be particularly suitable as it combines strength and corrosion resistance, and is easy to process.



### 3D objects made of osmium:



3D object shaped like a sitting cat

Crystalline 3D objects can be shaped in many different forms. Designs are constrained by the surface layer thickness distribution, which determines whether a specific geometry can be crystallized in osmium.

The design of the carbon base determines the shape of the resulting 3D geometry.

Osmium cannot attach itself to intricate geometries or undercuts of the carbon base during the crystallization process.

Please inquire the Osmium-Institute to review the feasibility of desired designs.

## The “Osmium Pearl”

- Osmium pearls are crystallized 3D spheres and referred to as osmium balls for the purpose of customs processing.
- Osmium pearls are not hollow. Instead, they contain a solid hyper-exact carbon sphere with a special surface acting as a substrate for crystallization.
- For chains, the sphere's hole - which is usually approx. 2mm in size and used to place the sphere on for crystallization - is extended to a tube shape, or “cannulation”.
- The common outer diameter of osmium pearls is 11 and 16 mm. In further processing they are treated similarly to conventional pearls.
- Manufacturing a single pearl requires large amounts of energy, is very risky and takes about three months. The success rate has been as low as 10%.
- Paradoxically, the percentage yield of pearls decreases with increasing numbers of pearls in the crystallization furnace. Therefore, the price of pearls increases exponentially with increased demand, while they are already expensive as one-off products to begin with.
- **For this reason, osmium pearls are the most exclusive pieces of jewelry in existence.**

## **Customs designations for osmium in the United States**

In order to transport osmium across international borders, customs agreements have been established with many countries around the world. Upon import the national Osmium-Institutes are responsible for compliance with these agreements.

The agreements are based on regulations which the Osmium-Institute Germany and the Osmium-Institute Australia have negotiated with the respective customs authorities.

It was possible to raise the status of osmium to that of gold for several reactants and products.

The customs designation is a letter prefixed to the osmium code. It is often followed by a number representing a diameter or a product shape. The eight digits following are the OIC, the Osmium Identification Code.

Customs designations may differ from product categories used in online shops. The reason for this is the requirement for an unambiguous customs system which can accommodate new products that did not exist at the time when the agreements were made.

The following table assigns customs designations to the product categories which are used in the online shop and provides information on cases in which numbers are used, for example, to specify the inner diameter of a ring.

Customs designation	Product name	Shop category
F	Medium edged bar	Bars
K	Big round bar	Bars
D3	Osmium small round bar (3 mm)	Diamonds & Stars
D4	Osmium small round bar (4 mm)	Diamonds & Stars
R10, R11, ..., R25	Small curved bar	Bars
S3	Small edged bar (3 mm)	Diamonds & Stars
S4	Small edged bar (4 mm)	Diamonds & Stars
W2, W3, ..., W8	Star row (2 to 8 stars)	Diamonds & Stars
T10, T11, ..., T25	Small curved bar with titanium setting	Jewelry
A	2D Shapes	2D Shapes
B5, B6, ..., B21	Balls	3D Objects
G	3D objects e.g., cat shape	3D Objects

Each piece of osmium is registered at the *"Osmium-Institut zur Inverkehrbringung und Zertifizierung von Osmium GmbH."*

Each piece is assigned a unique Osmium Identification Code.

The institute in Germany is the global governing body for the certification of osmium.

### Certification of osmium in the osmium database

- Each osmium piece is scanned after crystallization and, similar to a fingerprint, archived in an international database available on the Internet.
- For online identification a code consisting of three blocks is assigned to the resulting data for each osmium piece: The **Osmium Identification Code (OIC)**.
- The database is freely accessible from anywhere. The code can be entered on the websites of the Osmium-Institutes and hundreds of partners.
- The authenticity of osmium can be verified via the Internet by comparing the scanned crystal structure in the database with a high-resolution close-up photograph.
- The reliability of detection is approximately 10,000 times higher than that of a fingerprint.
- Blockchain technology is being prepared to make the code even more secure!
- This enables the direct sale to jewelers or jewelry manufacturers, as the authenticity can be confirmed immediately and a certificate printed.

- In addition, by searing the OIC in the database any osmium owner can see a current price of his or her osmium in local currency; And determine the value of his or her entire osmium portfolio in a single step.

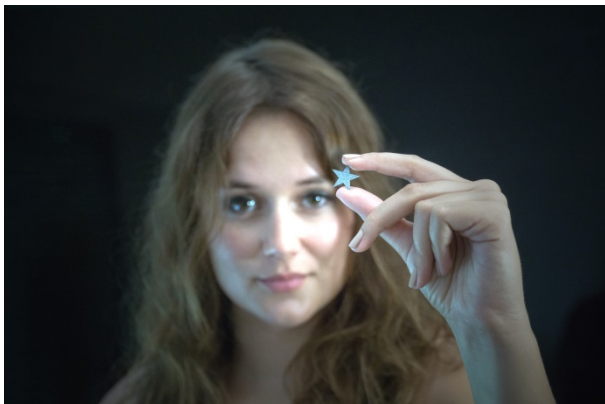
The price displayed for each piece corresponds to the wholesale price as if it was placed on the open market.



High-resolution scan of osmium crystal structure

### **ATTENTION!**

A code for a piece cannot be requested again if it gets lost! If the code is lost, the piece must pass through a laboratory process to obtain a completely new code. This process is paid for by the end customer. We therefor highly recommend customers store the code for a piece of osmium at a secured location.



Osmium star

### **Owner Change Code**

The Owner Change Code is issued with each piece of osmium and serves the purpose of a one-time change of ownership. It can only be changed once by the owner in the International Osmium Database when the osmium is sold.

Control then passes to the new owner, who can also change the Owner Change Code once.

The Owner Change Code is also used to change ownership during storage or processing. This can be done multiple times during processing.

## **The Osmium Identification Code, or OIC.**

The Osmium Identification Code is a letter-number code. Its purpose is to identify each piece of osmium instantly via the internet.

Example of an OIC: D3 – D34B – 27A9

Identification is only possible if the code for an osmium piece is known to the owner. Only then can this person can query the identification scan, the associated data and the current price online.

OIC database entries are based on a high-resolution scan of the crystalline surface structure of each osmium piece.

In addition, the piece is weighed to four decimals, its dimensions are taken, and in some cases, a crystallization quality grade is assigned. Chemical purity is determined over an entire production batch and confirmed in the certificate.

An osmium piece can only be recrystallized with considerable effort and will lose its original structure during the process. For this reason, every piece is clearly identifiable and chemical purity cannot be changed by melting.

The database displays the current price of each osmium piece or of an entire account in multiple currencies.



## Security through the OIC

The Osmium Identification Code is intended to ensure that the seller sets a realistic price and to give the buyer the security of being able to identify an osmium piece as real.

In case of theft, the osmium piece can be identified and traced at the time of sale. This helps to deter theft and mitigates the associated risk of loss.

Syntax of the Osmium Identification Code is as follows:

B13 – LM3D – T93G

The first letter refers to the type of the osmium piece and may consist of multiple digits. In the above case, it refers to an osmium pearl. The following two numbers refer to a geometry or indicate a diameter, or a size unit in millimeters.

The following two number blocks consist of 2x4 digits. The code permits an extremely high number of combinations and therefore a high security level. The code is randomly generated by when an osmium piece is certified.

There are numerous platforms where an owner can access the Osmium Identification database.

**The Osmium-Identification-Code can be entered at:**

[www.osmium-identification-code.com/en/](http://www.osmium-identification-code.com/en/)

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

Partners can build the code checking field into their own websites. The above applies to all jewelers, wholesalers and retail partners. For this purpose an API is provided which connects to the database.

When the code is entered the information of the piece appears in a window. The photo can be enlarged to showcase the crystal structure. Weight and dimensions are listed, and the current price can be seen in several currencies.

Each certificate can be printed via a small printer icon; And the certificate can also be downloaded as a PDF file. Several codes can be entered into the field separated by commas.

The pieces are then displayed together in an inventory list issued to the owner. The owner of each piece may also be named in the list if they so wish.

## **Osmium – A toxic substance until 2013.**

Osmium is extracted as an osmium sponge which is toxic to humans. For this reason, only specialty chemical companies are allowed to trade it.

Osmium sponge is harmful because it forms osmium tetroxide in an oxygen atmosphere. The gas has a pungent odor, a characteristic which osmium derives its name from.

In its crystalline form, osmium is non-hazardous no way harmful to health.

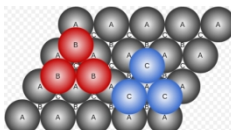
In its crystalline form, osmium is extremely durable and resistant to strong acids and caustic solutions, and can only form osmium tetroxide at temperatures well above 400 °C.

The crystallization process was perfected in 2013, making the crystals inert. The reason why crystalized osmium wasn't brought to market sooner is because the process was not considered mature until 2012.

It took nearly 40 years for a team of Russian and Swiss crystallizers to refine the process!

## Hexagonal close-packed structure

At the level of individual atoms, osmium is packed extremely dense, and this crystal structure results in some unique characteristics:



- Highest density
- Non-compressible
- Highest abrasion resistance



Multiple osmium investor disks

## A purity of Five 9's

What counts in terms of purity is the number of nines in a pure sample. In its crystalline form, osmium shows a unique purity of **99.9995%**, which is unusual, even for precious metals!



GDM  
ANALYTICAL REPORT

EVANS ANALYTICAL GROUP SAS  
84, chemin de la Peyrette  
Tournetville, France 31170

Telephone (+33) 5 61 73 15 28  
Fax (+33) 5 61 73 15 67  
Email info.fr@eaglabs.com  
www.eaglabs.com

P.O.#

Date of Analysis 21-nov.-2017  
Customer ID: Os

Job # FOHH8412  
Sample ID: F171115022 - CB  
Issued on: 22/11/2017

échantillon d'Osmium

Element	Concentration [ppm wt]	Element	Concentration [ppm wt]
Li	< 0.005	Pd	< 0.01
Be	< 0.005	Ag	< 0.01
B	< 0.005	Cd	< 0.01
C	-	In	< 0.01
N	-	Sn	< 0.005
O	-	Sb	< 0.005
F	< 0.05	Te	< 0.005
Na	< 0.005	I	< 0.005
Mg	< 0.005	Cs	< 0.005
Al	< 0.005	Ba	< 0.005
Si	< 0.005	La	< 0.005
P	< 0.005	Ce	< 0.005
S	< 0.01	Pr	< 0.005
Cl	< 0.01	Nd	< 0.005
K	< 0.05	Sm	< 0.005
Ca	< 0.01	Eu	< 0.005
Se	< 0.005	Gd	< 0.005
Ti	< 0.005	Tb	< 0.005
V	< 0.005	Dy	< 0.005
Cr	< 0.005	Ho	< 0.005
Mn	< 0.005	Er	< 0.005
Fe	< 0.005	Tm	< 0.005
Co	< 0.005	Yb	< 0.005
Ni	< 0.005	Lu	< 0.005
Cu	< 0.005	Hf	< 0.005
Zn	< 0.01	Ta	< 5
Ga	< 0.01	W	< 0.05
Ge	< 0.01	Re	< 0.05
As	< 0.01	Os	Matrix
Se	< 0.01	Ir	< 0.1
Br	< 0.01	Pt	< 0.1
Rb	< 0.005	Au	< 0.5
Sr	< 0.005	Hg	< 0.1
Y	< 0.005	Tl	< 0.5
Zr	< 0.005	Pb	< 0.5
Nb	< 0.005	Bi	< 0.01
Mo	< 0.005	Th	< 0.001
Ru	0.45	U	< 0.001
Rh	< 0.005		

H, C, N, O recommended by Interstitial Gas Analysis (internally equipped)

C.BAZILLE (signature)

ISO 9001:2008 registered

Page 1 of 1

Approved by:

The measurement uncertainties are available upon request. The tests results in the report relate only to the test sample submitted to analysis.  
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Original osmium analysis sheet

## **Counterfeiting osmium is Impossible!**

- Gold can be counterfeited by enclosing a tungsten core as the density of the two elements is very similar. However, since osmium has the highest density of all elements, no other element or chemical compound can achieve this density.
- For this reason, it is not possible to place a less valuable core inside an osmium bar that closes in on osmium's density. A simple density measurement would expose the counterfeit.
- Once a piece of osmium is listed in the International Osmium Database, counterfeiting is impossible because the crystallization can never be achieved in the exact same way.
- Due to the extreme temperatures of around 3000C during crystalization, using a fake metal core is hard if not impossible to do – only space age alloys expensive in their own right can withstand that heat.
- **Counterfeiting osmium is therefore simply impossible!**
- **All customs authorities can rely on this database with full confidence.**

### **What can be made out of osmium?**

Any shape without complex holes and with bridges of more than 2 mm width can be produced. Price inquiries take approximately two days.



Osmium shape made on the customers request.

### **How do I order my own shape?**

Jewelry manufacturers have many options to choose from since almost any geometry can be implemented. All they have to do after designing their jewelry is to submit the specifications to an Osmium-Institute, which arranges cutting and insurance.

The process of manufacturing of unique pieces takes approximately three months.

## Bespoke osmium jewelry

Jewelers who have been working with osmium for a long time have become quite experienced in working with the material and have no difficulty creating unique pieces to custom order.



osmium inlaid necklace

This is how sensational artwork is created directly according to the customers specifications. Each piece is unique in terms of the final result as well as the specific osmium shape, increasing the value of the jewelry even more.



Studs with osmium diamonds



## **Osmium information portals**

In the jewelry market osmium is used exclusively in its crystalline form. You can find more information about crystalline osmium on [www.osmium-institute.com/en/](http://www.osmium-institute.com/en/).

Alternatively you can buy crystalized osmium today at [www.buy-osmium.com](http://www.buy-osmium.com)!

All officially bought crystalized osmium comes with an official certification in the central database and a Osmium Identification Code.

Osmium is imported into the respective destination country by an Osmium-Institute partner and delivered to the customer by secured courier.

Delivery times for goods in stock may be as short as one day. Goods that have to be shipped across borders will take substantially longer; And goods that have to be manufactured first may take up to three months to deliver.

## Safety information

Crystalline and metallic osmium are safe and absolutely harmless. Allergic reactions have not been found.

However, osmium tetroxide is toxic and volatile. Airborne particulates and dust may cause lung irritation with hyperemia and pulmonary edema as well as skin or eye damage.

Since small amounts of osmium tetroxide are always formed if metallic osmium in powder form is exposed to air, care must also be taken with this form of the element.

As a fine powder or dust, metallic osmium is highly flammable. This does not apply to the bulk form.

Metal fire extinguishers (Class D) or suitable extinguishing powder need to be used to extinguish osmium dust fires; water may not be used under any circumstances because of the danger of explosion due to the formation of hydrogen.

Crystalized Osmium must not be heated above 400 °C to prevent the formation of osmium tetroxide (osmium tetroxide does not form at room temperature and temperatures below 400 °C). For this reason, processing with high-temperature brazing or welding is not possible.

The formation of osmium tetroxide is indicated by a pungent chlorine-like odor.

### Precious metals comparison sheet

<b>Symbol</b>	<b>Ag</b>	<b>Au</b>	<b>Pt</b>	<b>Os</b>
<b>Name</b>	<b>Silver</b>	<b>Gold</b>	<b>Platinum</b>	<b>Osmium</b>
Ordinal number	<b>47</b>	<b>79</b>	<b>78</b>	<b>76</b>
Atomic mass (u)	107.86	196.96	195.08	190.23
Melting point (°C)	961	1064	1772	3027
Boiling point (°C)	2163	2807	3827	5012
Density (g/cm <sup>3</sup> )	10.5	19.32	21.45	22.61
Thermal conductivity (W/mK)	429	317	71.6	87.6
Hardness (Mohs)	2,5	2.5	3.5	7
Compressive modulus (GPa)	103.6	171	276	443
Superconductivity (K)				0.66

Data such as density is measured and based on the calculations of the crystalline structure; values may slightly differ.

## Official osmium websites

### 1. [Osmium.info/en/](https://osmium.info/en/)

The basic information page for the first contact with osmium. Contains all relevant information for retail sellers, wholesalers, and intermediary sales partners to pass the online partner test.

### 2. [Osmium-academy.com/en/](https://osmium-academy.com/en/)

A short explanation of the virtual academy, the online learning tool. Also contains further information about seminars and training.

### 3. [Osmium-institute.com/en/](https://osmium-institute.com/en/)

Covers the tasks of the Osmium-Institutes and their employees. All international institutes are listed by region. Website Passwords are available at the Osmium-Institutes and can be requested there.

### 4. [Osmium-onboarding.com/en/](https://osmium-onboarding.com/en/)

An explanation of how to cooperate with Osmium-Institutes. New partners can sign on here. They can also enter referral codes and generate their own.

We are always looking for new partners who want to engage in the osmium market and provide jewelers and end-customers access to osmium!

**5. [Osmium-sales.com/en/](https://osmium-sales.com/en/)**

A website for sales partners' accounting and basic information, containing the explanation of the Earnings and Marketing Plan detailing the earnings possibilities in the osmium market.

Password: "bigbang"

**6. [Osmium-identification-code.com/en/](https://osmium-identification-code.com/en/)**

Website that offers verification of the authenticity of osmium, based on the comparison of the crystalline structure of the piece to the high-resolution photographs in the database.

**7. [Buy-osmium.com](https://buy-osmium.com)**

An online shop for osmium and osmium jewelry. Offers access for sales partners and branded shops for wholesale partners.

**8. [Osmium-TV.com/en/](https://osmium-tv.com/en/)**

The channel reports about osmium, presents new jewelry, and introduces partners. All new information is prepared and broadcasted in HD and 4k resolutions.

**9. [Osmium-dlc.com/en/](https://osmium-dlc.com/en/)**

A platform providing photographs, texts, flyers, video clips, brochures, posters and interviews. All current press releases and press bundles are available for download here.

**10. [Osmium-Jewelry.com/en/](http://Osmium-Jewelry.com/en/)**

This website lists all jewelers trading internationally with osmium, and contains Information on processing, protection, and setting of osmium; As well as always up to date photographs of new creations and products in the osmium jewelry market.

**11. [Osmium-Preis.com/en/](http://Osmium-Preis.com/en/)**

This website shows the current daily price of osmium and the corresponding charts. The price per gram is critical for determining the material price in all denominations, which the website can display.

**12. [Osmium-World-Council.com/en/](http://Osmium-World-Council.com/en/)**

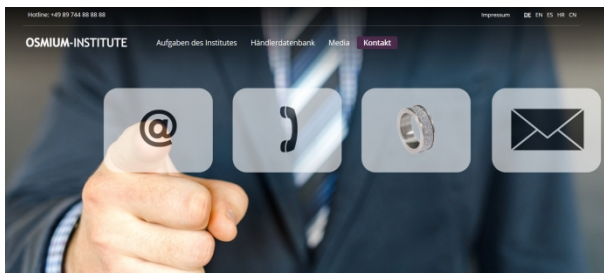
The Osmium World Council is the international point of contact for obtaining information about osmium and for shaping the osmium market together with the Osmium-Institutes.

### Further online tools:

- Facebook page with events and news: <https://www.facebook.com/pg/osmiuminstituteGermany/posts/>
- Branded websites for all partners: Osmium-Institutes, wholesalers, jewelers.
- API's to determine the value of osmium jewelry via the international osmium database on partner websites



Osmium investors disk



### Fast contact and fast information:

[osmium.info/en/](https://osmium.info/en/)

Main information website

[osmium-preis.com/en/](https://osmium-preis.com/en/)

Daily price, different currencies

[osmium-onboarding.com/en/](https://osmium-onboarding.com/en/)

Retail, wholesale, intermediary sales

[osmium-jewelry.com/en/](https://osmium-jewelry.com/en/)

Manufacture of osmium jewelry

[buy-osmium.com](https://buy-osmium.com)

Online shop

[osmium-institute.com/en/](https://osmium-institute.com/en/)

Osmium-Institut zur Inverkehrbringung und Zertifizierung von Osmium GmbH

**Hotline:**

+49 (89) 7 44 88 88 88

**Email:**

[info@Osmium-Institute.com](mailto:info@Osmium-Institute.com)



## **Monopoly disclosure of crystalline osmium**

This monopoly disclosure relates solely to crystalline osmium.

Crystalline osmium is marketed exclusively by the German “Osmium Institut zur Inverkehrbringung und Zertifizierung von Osmium GmbH”. Osmium in its crystalline form is only available from a single source in Switzerland.

The German “Osmium-Institut für Inverkehrbringen und Zertifizierung von Osmium GmbH” has concluded an exclusive agreement with the supplier in Switzerland without any time limitations.

The purpose of the agreement is a regulated introduction into the market via the German Osmium-Institute, which was exclusively commissioned by the Swiss company with the introduction into the market. The employees of the institute have the obligation to act according to strict scientific principles and to provide each piece of osmium with a certificate of authenticity.

The Osmium-Institute Germany maintains a database in which high-resolution photographs of the osmium pieces in circulation be found. The purpose of the database is to compare the crystal structure of a real piece of osmium with its photographs from certification.

Every owner of osmium has the right to retrieve data about his or her osmium from this database at any time if he or she can prove ownership of the osmium. Proof is provided by submitting or entering the Osmium Identification Code, which is supplied with each piece of Os-

mium. The Osmium Identification Code is an eight-digit letter and number code.

The German Osmium-Institute's sole marketing of osmium results in a monopoly linked to the monopoly for crystallization, i.e. the process of modifying the crystal structure of osmium.

Pricing, which takes place in Switzerland, is also linked to the monopoly. Osmium is currently not traded through a trading system. The price is not represented by a quotation.

However, the supply of raw osmium and the demand for crystalline osmium have a significant influence on the price. The price shall be established and published each day taking into account the following essential aspects:

Supply of raw osmium, supply of crystalline osmium offcuts for re-distillation, option contracts for raw osmium, current stock level of raw osmium, number of crystallization ovens, electricity price, personnel costs, laboratory safety costs, build-up of reserves, certification and packaging costs, cutting prices for crystalline osmium, demand for crystalline osmium, current sales of crystalline osmium and several minor weighted factors.

The most important aspect of daily pricing is the output rate. The output rate is the amount of osmium that can be used after growing the crystals and does not have to be returned to the process.

The resulting waste of unusable crystals must be re-distilled several times and recrystallized with great technical and financial effort.

**Notes:**

**Administration in Munich:**

Höllriegelskreuther Weg 3, 82065 Baierbrunn, Germany

**Showroom and outlet store in Oberland:**

Am Mösl 41, 82418 Murnau, Germany

Osmium Hotline, German and English: +49 (0)89 7 44 88 88 88



Osmium curved bar ring and investors disk