THE PERFECT SURFACE

HOW OSMIUM IS SHAKING UP THE JEWELRY MARKET

As a jewelry precious metal, osmium is new, ultra-exclusive, and can do something that was previously impossible in jewelry manufacturing. Until now, achieving a seamless and continuous sparkling surface down to the finest detail remained an elusive dream, primarily because diamonds had to be meticulously set one by one, and even the most skilled artisans eventually reached the limits of their craft. Strictly speaking, creating intricate and delicate designs was a challenge that exceeded conventional means. Osmium, on the other hand, can be cut with millimeter precision and sparkles without the known technical limitations. It sparkles without compromise.

Here, the expert is amazed: although osmium sparkles like diamonds, it is a precious metal and can therefore be used all the way into the smallest nook.

A marvel of the art of setting: In this ring, it can be seen that the osmium can be set right up to the gold.

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SPARKLE WITHOUT COMPROMISE

SECRETS OF THE NEW JEWELRY METAL OSMIUM

The new jewelry precious metal osmium is starting to change the market. How can it be used? We asked osmium expert Scarlett Clauss and Dario Vasco, who is currently launching an Osmium jewelry collection.

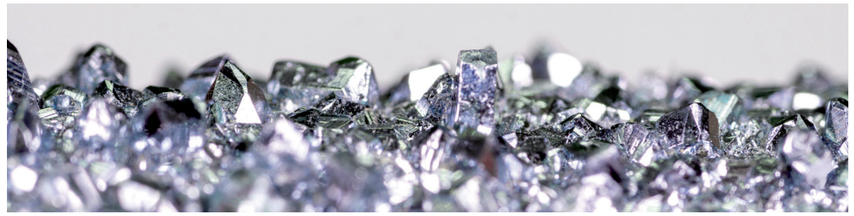
Scarlett Clauss and Dario Vasco are currently shaking up the market with osmium as a new jewelry metal.

There's much to delve into regarding the material and the remarkable crystallization process that became achievable in 2013. Much can also be said about its combination of rarity and unique structure, which distinguishes the precious metal as a counterfeit-proof asset. However, what truly captivates jewelers and goldsmiths are the advantages it offers as a novel jewelry precious metal. Dario Vasco can report on this.

Hailing from Pforzheim, Dario Vasco assumes the role of Managing Director at Vasco GmbH, boasting a wealth of expertise in surface processing within the jewelry industry. However, it's Osmium that truly captivates his enthusiasm, and this fascination sets it apart as an entirely unique topic of discussion. „I have always known platinum," Vasco acknowledges, appreciating its surface qualities and distinct virtues, particularly when compared to gold. But when it comes to Osmium, Vasco's passion is palpable, and he approaches the subject with a fresh perspective. His initial statement, „First and foremost, it's a metal," may seem mundane at first, but it hits the nail on the head. This material, in its crystalline form, possesses a radiant quality reminiscent of diamonds, characterized by an astonishing and mesmerizing sparkle.

If you look at crystalline osmium through a magnifying glass or microscope, you can see thousands of tiny crystals, all adorned with mirror-like surfaces and artfully arranged in a seemingly random pattern. This surface structure evokes the imagery of a starry night sky, and under the radiant sun, it glistens like nothing else. The physics behind this phenomenon are explained by Scarlett Clauss, who has been working with the precious metal for six years. She began serving as the Vice Director of the Osmium Institute, the company responsible for osmium certification and worldwide distribution. She later assumed the role of Managing Director at Oslery GmbH, where osmium inlays are crafted and collaborations with jewelry producers are initiated.

When a ray of light hits a diamond, it is refracted and broken down into the individual spectral colors. In contrast, when light encounters crystalline osmium, it experiences near-total reflection, remaining undivided. The „sparkle factor" is therefore greater. Clauss quantifies this effect with precision: Depending on visibility conditions, people can admire the brilliance of crystalline osmium in sunlight from distances of up to approximately thirty meters, whereas diamonds can only dazzle from a maximum distance of about seven meters. The Swiss refinery, as the manufacturer of the world's crystalline osmium, defines the „sparkle factor" on a scale of 1 to 5. Osmium with sparkling grade 5 achieves a distance of thirty meters. Here, the height of the osmium layer is a maximum of 1.2 millimeters. As the layer's height diminishes, so do the size of the mirror-like surfaces and the intensity of the metal's sparkle, culminating in a sparkling factor of 1 at a layer height of 0.4 millimeters.



Like a fingerprint, every tiny piece of crystallized osmium is unique - and unforgeable.

The crystallization process creates a unique surface structure that can be compared to a fingerprint. Every piece of crystallized osmium, no matter how small, is imaged and certified by the German Osmium Institute in Murnau am Staffelsee, a town in the south of Germany near Munich. This singular procedure endows this high-value precious metal with a quality that renders it both unique and captivating—an unforgeable, tangible asset. Every piece of osmium ever introduced into circulation has its record meticulously stored within the Osmium Institute's comprehensive database, making the material unsellable in the event of theft. Recently, as Scarlett Clauss recounts, the world's first and so far only case of stolen osmium was solved. Seven years after its theft, the precious material was recovered, and the trail of the stolen goods was traced with unwavering precision.

The evaluation of the material is simple. Crystalline osmium is always pure (99.9995 percent) and cannot be alloyed. Recognizing its unique attributes, Dario Vasco underscores the potential it holds for innovative jewelry concepts. The reason is simple: Crystalline osmium eliminates a longstanding compromise that has challenged jewelry designers throughout history. Traditionally, to achieve the desired level of radiance, designers have often turned to diamonds, relying on individual stones for that coveted sparkle. A surface with the desired level of sparkle could only be created from individual diamonds placed next to each other, possible only up to a certain size. Diamond surfaces are therefore always pixelated. Certain figures, such as a logo, were incredibly difficult to replicate, and others, such as intricate lettering or a coat of arms, impossible. This is precisely where osmium's unparalleled appeal as a jewelry metal takes center stage. The surface of crystalline osmium can be sculpted with such precision that it radiates brilliance even in the tiniest crevice.

THE ESTIMATED MINEABLE QUANTITY OF OSMIUM ON EARTH HOVERS AROUND A MERE 22,000 KILOGRAMS ... A CUBE WITH SIDES MEASURING ABOUT ONE METER.

Is this a minor detail? Anyone who looks at a diamond-set watch through a magnifying glass will see this trade-off. There's a point where the available flat space becomes too minute to accommodate individual stones. While the art of stone setting reaches its limits, the aspiration for a dazzling surface remains undiminished. Why is there boundless enthusiasm for innovation and minimal willingness to compromise in the realm of watch movements, while concessions are often made in the pursuit of surface aesthetics, sometimes even accepting optical illusions created by diamond surfaces?

Dario Vasco estimates that the market for surfaces with the perfect sparkle surfaces is huge. His elephant brooch, adorned with an osmium inlay, has garnered acclaim from both jewelry connoisseurs and enthusiasts worldwide. Vasco, a polishing and lapidary specialist, is convinced by the ability to cut inlays with such precision and sharp edges that they lie absolutely flat in the jewelry piece. With no compromises, it is the perfect surface – and a world apart from the concessions made with pave settings.

Manufacturing technology limits the maximum length of an osmium inlay to 9.5 centimeters. Osmium surfaces also cannot be curved. These are the only two constraints one encounters when working with crystalline osmium.

But is osmium merely a passing trend destined to fade into obscurity? Scarlett Clauss effectively dispels such doubts with a compelling example that proves invaluable in discussions and consultations with jewelers and goldsmiths: the periodic table of elements. Osmium isn't an alloy; it's a genuine metal. In the realm of jewelry production, eight precious metals hold significance, with seven already well-established in the market (including gold, silver, and the platinum group metals: platinum, ruthenium, rhodium, palladium, and iridium). Osmium claims its place as the eighth, and inarguably the most precious and rarest among them—a true superlative precious metal. Consider this: the estimated mineable quantity of osmium on Earth hovers around a mere 22,000 kilograms, equivalent to a cube with sides measuring about one meter. In this regard, osmium proudly asserts its status as the rarest non-radioactive element on our planet. #