



**GIA**<sup>®</sup>  
Diamond  
Origin

NAMIBIA





## Billion Years

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More than a billion years ago, 100 miles (161 km) or more beneath the earth's surface, in a cauldron of extreme temperatures and high pressure, carbon atoms bonded tightly together. At temperatures higher than 2100 °F (1150 °C) and pressures 45,000 times greater than at sea level, crystals formed, resulting in the hardest natural mineral on Earth: diamond.

Diamonds remained hidden deep within the earth for hundreds of millions of years, until volcanic activity violently transported them upwards towards the earth's surface in magma. Vertical rock formations, called "kimberlite pipes," are remnants of these ancient volcanoes. Erosion subsequently frees rough diamonds from their host rock to be transported by rivers and deposited sometimes at great distances, from their original source. Miners in places like India and Brazil would uncover them in alluvial deposits. Today, most diamonds are found in kimberlite pipes, which are the primary source of mined diamonds.

The discovery of a kimberlite pipe in South Africa in 1869 marks the beginning of the modern diamond industry. With it came the development of mining operations that produce tens of millions of carats of rough diamonds each year - that includes a major discovery in Botswana in 1967, as well as other areas of Africa, Australia, Siberia and the Northwest Territories of Canada.





# Incredible Birth

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From small tributaries in the mountains of Southern Africa, a river flowed westwards across Africa, carrying with it diamonds from volcanic kimberlite pipes located in the center of the continent. Known today as the Orange River, it swept up rough diamond crystals loosened from their kimberlite hosts by erosion, and transported them for thousands of miles across the Kalahari Desert.

Gradually over millions of years, these diamonds were deposited at Oranjemund (the mouth of the river), on the beaches, and in the ocean waters off Namibia's Atlantic coast. In 1908, a shiny pebble caught the eye of a railroad worker near the coastal town of Luderitz. Once it was identified as a diamond, fortune seekers came to this deserted, inhospitable land. Cities were established in the desert, which had a profound effect on the nation and its people. Namibia's diamond industry was born.

Nature's handiwork created the world's richest marine-diamond deposit in the sand and gravel below Namibia's territorial waters, thought to hold 80 million carats of diamond rough, but mining diamonds from the ocean floor is no small feat. It took decades to develop the technology used by the largest mining companies, and highly-specialized vessels are needed to find and extract submerged diamonds. Exploration is equally challenging, requiring drones and two-person submarines to search for areas where diamonds have been deposited.

The future looks bright for Namibia as mining companies continue to optimize technology to find and efficiently recover diamonds.



A dramatic sunset over a savanna. The sky is filled with large, dark clouds, with the sun breaking through near the horizon, creating a bright, golden glow. In the foreground, a herd of animals, including zebras and wildebeests, is silhouetted against the bright light of the setting sun. The overall scene is a classic African savanna landscape.

## Transformation Journey

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The transformation of diamond rough into polished stones requires a blend of old-world craftsmanship and high-tech tools. Today, Surat, India is the primary diamond cutting and polishing center. Other cutting centers historically have included New York, Antwerp and Tel Aviv.

The hardness of the material requires highly trained artisans who use specialized saws, laser equipment and polishing tools to complete the task in stages. Traditionally, cutters fashioned the rough into a finished stone by hand. Today, computer imaging and lasers aid the cutter in revealing the stone's beauty. First, the diamond cutter must assess the rough to determine how to cut the most beautiful diamond – or diamonds, as one piece of rough can yield multiple finished diamonds. To achieve the greatest yield, each cutter must decide whether a round, rectangular, pear, marquise or square gem can best be fashioned from the rough. The gem's sparkle is unleashed through a series of processes including shaping, faceting and polishing.

GIA and other diamond grading laboratories evaluate the quality of polished diamonds using the 4Cs of Diamond Quality (Color, Clarity, Cut and Carat Weight), the international standard created by GIA, and issue grading reports documenting their assessment. The GIA Diamond Origin Report for your diamond includes this independent and objective analysis in addition to confirming the country of its origin.



## Doing Good

Diamond mining is an integral part of Namibia's economy, and the industry significantly contributes to improving the lives of its citizens. Diamond revenues from exports and strategic partnerships account for nearly 10% of the country's GDP, and diamonds are the nation's largest export.

Namibia is an upper middle-income country with a stable, democratic government and a good reputation for human rights. Diamond industry jobs provide programs that focus on technical education and training, especially maritime functions and engineering. Employers have made a strong commitment to building skills and creating opportunities expressly for women in the often male-dominated mining industry.

The largest mining group, Namdeb, is a 50/50 partnership between the Namibian government and the DeBeers group. Namdeb is one of the country's leading employers and it annually contributes millions of dollars directly to the communities where it operates, including bursaries (scholarships based on need), sponsorships, and environmental funding, as well as providing for social improvement across Namibia.





## Doing Good

the country's leading marine diamond mining company and a world leader in marine diamond exploration. Debmarmine Namibia is committed to local economic development and their Social Responsibility Fund is a major contributor to important Namibian causes, with a focus on sustainable enterprise development, education, and healthcare.

Mining companies in Namibia are serious about protecting the environment. They are committed to minimizing ecological damage by returning removed sediment to the sea and allowing it to resettle. An important component of the mining process are the ecologists, employed to monitor environments where mining occurs, to ensure proper recovery takes place.

Though the volume of Namibia's diamond production is comparatively lower than other major producers, it has the highest price-per-carat value in the world, making diamonds from Namibia special and desirable. These beautiful gems, transported by natural forces for thousands of miles and deposited along beaches and on the ocean floor, help to sustain and empower the people of Namibia.





Every diamond has a story. Now make this story part of your own.

## About GIA

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The Gemological Institute of America® is internationally recognized as the leader in gem education, research and laboratory services. Committed to protecting all purchasers of gemstones and jewelry, the Institute developed the International Diamond Grading System™ and the 4Cs of diamond quality, and continues to set the standard for grading and identification practices used all over the world.



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