

The Case For Harmony Precious Metals™ By [Hoover & Strong](#)

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1. U.S. Green Jewelry Market Trends

- Total sales for the U.S. Retail Industry in 2007 (including food service and automotive) were \$4.48 trillion with jewelry sales comprising \$64.8 billion.^{1,2}
- About 39 percent of the U.S. adult population purchases fine jewelry each year, and consumers from age 18 to 24 have the highest incidence of jewelry purchases.³
- Metal mining is the number one toxic polluter in the United States, responsible for more than a quarter of all reported toxic releases in 2005, including 92% of arsenic releases, 84% of mercury releases, and 83% of lead releases.⁴
- Open-pit precious metal mines essentially obliterate the landscape, opening up vast craters, flattening or even inverting mountaintops, and producing 8 to 10 times more waste than underground mining.⁵
- Cyanide is used by large mining operations to separate silver & gold from ore. Cyanide pollution is a major concern. A rice-grain sized dose of cyanide can be fatal to humans; concentrations of 1 microgram (one-millionth of a gram) per liter of water can be fatal to fish.⁶
- Thus far, 57 jewelry retailers have signed on to the No Dirty Gold campaign's "Golden Rules" criteria for more responsible mining and sourcing of metals. These retailers represented \$14.5 billion in US jewelry sales in 2006 or 23 percent of the US jewelry market, and include 8 of the top 10 retail jewelers in the US.⁷
- 77% of U.S. consumers surveyed in June 2009 said that a product's "energy footprint" influenced their purchasing decisions.⁸

Market Trends (cont'd.)

- 76% of U.S. consumers are willing to pay more at the register for environmentally friendly products.⁸
- 74% of U.S. employees believe organizations should take action to lead eco-friendly initiatives.⁹
- U.S. Consumers Likely to spend \$104 billion on Green Technology Products Per Year⁹
- 71% of U.S. consumers are interested in green technology but there is a large gap between the number of products consumers own now and the number they say they would like to own.¹⁰
- 83% of U.S. adults want to preserve and protect the environment.¹⁰
- 42% percent of adults said products and services that help the environment are hard to find.¹⁰
- 59% percent of U.S. adults say they like trying new technologies that help the environment.¹⁰
- 56% percent of U.S. adults say gadgets designed to help the environment would be fun to own.¹⁰
- 68% percent of U.S. adults like to do business with companies that are environmentally responsible.¹⁰
- 72% percent of U.S. adults say they resent companies who say they care about the environment but are not sincere.¹⁰

Sources

1. U.S. Census Bureau
2. February 3 2008, http://www.idexonline.com/portal_FullNews.asp?id=29499)
3. (JEWELRY-RETAIL AN INDUSTRY STUDY © 2006 MARK S. GOTTLIEB, CPA, PC JEWELRY-RETAIL Tel: 516-829-4936 / www.msgcpa.com)
4. Toxics Release Inventory, 2005 dataset, U.S. Environmental Protection Agency, <http://www.epa.gov/triexplorer/>
5. Carlos D. Da Rosa, J.C. and James S. Lyon, *Golden Dreams, Poisoned Streams* (Washington, DC: Mineral Policy Center, 1997), pp. 37, 42.
6. Da Rosa and Lyon, p. 43; Robert E. Moran, *Cyanide in Mining* (Golden, Colorado: MPC, undated), p. 6.
7. www.nodirtygold.com
8. U.S. National Survey conducted by ORC Guideline Research Group June 2009 http://www.orcguideline.com/about_us_news.aspx
9. [Center for Excellence in Service at the University of Maryland's Robert H. Smith School of Business](http://www.rhsmith.umd.edu/ntrs/) and technology research firm [Rockbridge Associates Inc.](http://www.rockbridgeassociates.com/) June 2, 2009
10. <http://www.rhsmith.umd.edu/ntrs/> March 12, 2008

2. Information on Harmony™ 100% eco-friendly, non-mined, metals and interesting articles on Eco Jewelry Trends.

- Link to Hoover & Strong's Harmony™ Metal Solutions page
<http://www.hooverandstrong.com/category/HARMONY+Metals+and+Gems/>
- Link to great article in National Geographic:
<http://ngm.nationalgeographic.com/2009/01/gold/larmer-text>
- The Logistical Challenges In Converting to 100% Recycled Precious Metals:
<http://www.fairjewelry.org/archives/837>
- Link to the No Dirty Gold Campaign: <http://www.nodirtygold.org/>
- Link list of participating retailers: http://www.nodirtygold.org/supporting_retailers.cfm

3. List of retailers and manufacturers that have publicly stated they will seek to use eco friendly metals whenever possible

List of the retailers who support the No Dirty Gold pledge, and what their CEO's are saying about the issue:

[Alberto Parada](#)
[April Doubleday](#)
[Beaverbrooks*](#)
[Ben Bridge Jeweler](#)
[Birks & Mayors](#)
[Boscov's](#)
[Boucheron](#)
[Brilliant Earth](#)
[Cartier](#)
[Commemorative Brands](#)
[Cred Jewellery](#)
[Fey & Co. Jewelers](#)
[F. Hinds*](#)
[Fifi Bijoux](#)
[Fortunoff](#)
[Fraser Hart*](#)
[Fred Meyer and Littman Jewelers](#)

List of the retailers (cont'd.)

[Goldsmiths*](#)
[Hacker Jewelers](#)
[Helzberg Diamonds](#)
[Henrich & Denzel GmbH](#)
[Herff Jones](#)
[Ingle & Rhode](#)
[Intergold](#)
[JCPenney](#)
[Jostens](#)
[Leber Jeweler](#)
[Lena Marie Echelle Designs](#)
[Mappin and Webb*](#)
[Michaels Jewelers](#)
[Mike Angenent](#)
[Nature's Candy Designs, Ltd.](#)
[Piaget](#)
[QVC](#)
[Real Jewels](#)
[Reflective Images](#)
[Security Jewelers](#)
[Signet Group](#)
[Stephen Fortner](#)
[Tiffany & Co.](#)
[Toby Pomeroy](#)
[TurningPoint](#)
[Van Cleef & Arpels](#)
[Van Gundy](#)
[Victoria Casal USA](#)
[Wal-Mart](#)
[Warren James*](#)
[Watches of Switzerland*](#)
[Whitehall Jewellers](#)
[Zale Corp.](#)

Retailer Statements

"While we can't guarantee all the gold we have is from appropriate sources, we are striving to make sure that our suppliers comply with the principles outlined. It is important for us as retail jewelers to do all practically in our power to adhere to the principles of the No Dirty Gold campaign. It is the "right thing to do" for our community, our customers as well as the world environment."

-- Jon Bridge, co-CEO, [Ben Bridge Jeweler](#)

Retailer Statements (cont'd.)

"We know our customers expect their jewelry to sparkle without the taint of dirty gold. We believe it is our responsibility, as the premier jewelry retailer in Southeastern United States, to take the lead in the effort to ensure that gold is mined with socially and environmentally responsible methods."

-- Thomas A. Andruskevich, President and CEO, Birks & Mayors

"Our primary customers--college and high school students--make up a generation firmly committed to supporting brands that take corporate social responsibility seriously. By supporting the No Dirty Gold campaign's Golden Rules, we hope to reflect the values of the many students around the country who have a deep commitment to human rights and the environment."

-- Matt Gase, General Manager, Commemorative Brands

See the video where Matt Gase explains the importance of the company's endorsement of the Golden Rules.

"Leber Jeweler Inc. salutes the No Dirty Gold Campaign for their efforts in raising awareness to issues relating to the mining of precious metals. We look forward to the day when all mining is done responsibly.

Leber Jeweler Inc. continues to be a strong advocate for both sound environmental stewardship and the preservation of human rights in the extraction and sourcing of precious metals and gemstones. Working with fellow industry members, non-governmental organizations, as well as US government agencies, we are steadfast in our determination to raise and uphold the highest standards of socially responsible business practices so that they may guarantee a healthy future for both our planet and all people.

Leber Jeweler Inc. believes the jewelry industry, from the mine to the retail store, has a shared obligation in addressing the myriad of issues that face us. We are in a prime position to accomplish so much good by acting responsibly and decisively."

-- Brian T. Leber, President, Leber Jeweler

"Wherever possible, Brilliant Earth uses precious metals from renewed sources derived from recycled jewelry or industrial products. By using renewed metals, our goal is to reduce the need for additional dirty mining of precious metals. Brilliant Earth supports the goals of the No Dirty Gold campaign. Cofounders Beth Gerstein and Eric Grossberg formed Brilliant Earth based on a passion for fine jewelry and a common belief that socially and environmentally responsible buying choices should be freely available to the consumer."

-- Beth Gerstein and Eric Grossberg, Brilliant Earth

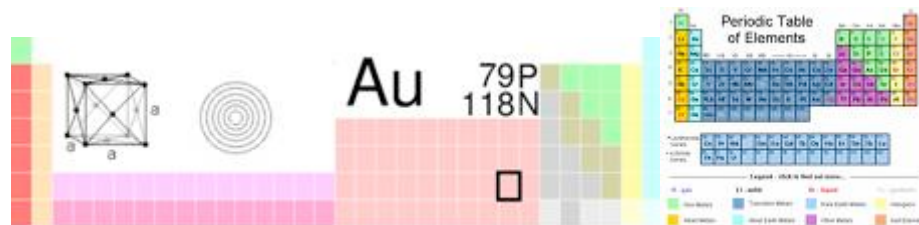
"Helzberg Diamonds was among the first jewelry retailers nationally to make a public commitment to ensure that the gold and metals we purchase come from sources that meet the highest standards for human rights, social responsibility and environmental stewardship.

We believe that gold should be extracted and processed in a manner that respects the needs of current and future generations, and we expect our business partners to adhere to ethical business practices."

-- Helzberg Diamonds

4. The Differences and Similarities Between Mined Metal and Harmony Precious Metal™

Although the majority of the following descriptions and statistics refer to gold, similar methods are applicable when comparing Harmony™ silver, palladium and platinum with mined silver, palladium and platinum.



Pure gold from any source is an irreducible element with specific physical properties; one of 117 elements known to humankind. It is number 79 on the periodic table of elements owing to the fact that its unique atomic structure contains 79 protons.

All gold in use today was at one time located on or inside the Earth. Gold is also abundantly present in seawater. However gold in the ocean exists in such low concentrations (perhaps 1-2 parts per 10 billion or 0.1 to 2mg / ton) that extraction is not economically feasible.¹


Pure gold (24 karat gold) is too soft to be used for jewelry. From ancient times human beings have added other metals to give gold the strength and physical properties it needs to be fashioned into wearable jewelry. Common metals mixed with gold to give it strength, alter its color or melting point, and improve its ductility are: nickel, silver, copper, zinc, and palladium.

14 karat gold is comprised of 14/24 or 58.3% pure gold and 41.7% other metals. Pure gold mixed with one or more metals, where the principal component is gold, is known as gold alloy.

More than 80% of all gold used in the U.S. is used to make jewelry.²

Mined Gold vs. Harmony™ Gold (cont'd.)

Here's a side by side description of how obtaining gold from inside the Earth's crust (mined gold) compares with obtaining recycled metals used to produce Harmony™ Gold:

Gold	
Mined Gold	Harmony™ Gold
Locating the Gold	Locating the Gold
<p>Gold in the ground is usually contained in deposits of rock that also contain other components or minerals. These deposits are called gold ore.</p> <p>Production quantities of gold ore are usually located through Exploration Drilling.</p> <p>It is estimated that at current gold mining rates there is enough gold left in the ground to last another 45 years.³ Only three out of every billion (0.000000003) parts of the Earth's crust is gold.⁴</p> <p>The production of gold from the Earth may have peaked and appears to be declining. South Africa, until recently the world's largest mined gold supplier, produced 1,000 mined tons in 1970. By 2007 its production was just 272 mined tons. China has now surpassed South Africa by producing 276 mined tons in 2007.⁵</p>  <p style="text-align: center;">Source: U.S. Geological Survey, June 18, 2007</p>	<p>It is estimated that 158,000 tons of pure gold was extracted from the Earth from the beginning of human civilization to the present day.¹²</p> <p>This pure gold was used to make jewelry, dental fillings, wire and other industrial components. The owners of gold bearing items often seek to convert the value of their gold back into money by selling it as scrap.</p> <p>Gold scrap is sent to Hoover & Strong's state of the art eco-friendly refinery by thousands of jewelers, scrap buyers, smelters, secondary refiners, dental labs and industrial concerns from all over the world. Hoover & Strong's refinery has operated since 1912.</p>

Mined Gold vs. Harmony™ Gold (cont'd.)

Mined Gold	Harmony™ Gold
<p data-bbox="293 247 691 275" style="text-align: center;">Extracting Gold from the Ground</p> <p data-bbox="188 317 760 415">Gold Ore is extracted from the ground using the following methods (all of which damage the environment):</p> <p data-bbox="188 459 470 487">Open Pit (Strip) Mining</p> <p data-bbox="188 495 704 558">Ore is mined in four steps: drilling, blasting, loading and hauling.</p> <p data-bbox="188 602 406 630">Blast Hole Mining</p> <p data-bbox="188 638 763 737">Explosives are detonated to create a series of holes. The resulting ore bearing rubble is loaded into trucks using bulldozers and large shovels.</p> <p data-bbox="188 781 444 808">Underground Mining</p> <p data-bbox="188 816 786 984">Tunnels are dug into the ground to reach the Gold ore. Manual extraction is performed with pick and shovel mining techniques. To mine larger quantities explosives are detonated at the site of the vein. Broken up ore is hauled to the surface.</p> <p data-bbox="188 1029 628 1056">Separating Pure Gold from Gold Ore</p> <p data-bbox="188 1064 787 1163">The occurrence of pure gold in gold ore is typically 1-5 parts per million. Up to 20 tons of earth must be mined in order to extract one ounce of gold.</p> <p data-bbox="188 1207 766 1270">Some processes used to separate gold from gold ore are:</p> <p data-bbox="188 1278 477 1306">Mercury Amalgamation</p> <p data-bbox="188 1314 776 1661">Amalgamation is one of the oldest methods of extracting gold from its ores. It consists of a concentrating process in which metallic gold or silver, or an alloy of the two, is mixed with mercury, either in a amalgamation drum, or on a amalgamation table, where the precious metal bonds with the mercury to form the metal laden mercury AMALGAM and the waste (barren) ore pulp are caused to travel different paths to effect separation.⁶</p> <p data-bbox="188 1705 795 1944">Mercury Amalgamation mining has been banned in many parts of the world. However the practice still persists in economically underdeveloped areas where the lure of inexpensively mined gold can be irresistible. Mercury contamination from historic gold mines will remain a significant health risk far into the future.⁷</p>	<p data-bbox="964 247 1292 310" style="text-align: center;">Extracting Gold from Scrap (Gold Refining)</p> <p data-bbox="824 352 1403 489">Refining is the process of purification of a substance. Another name for pure gold is “fine” gold. When gold is separated from other substances (impurities) it is said to be “re”-fined.</p> <p data-bbox="824 533 1429 632">Hoover & Strong employs state of the art refining techniques to separate precious metals from other materials present in scrap.</p> <p data-bbox="824 676 1406 844">Recycling is the processing of used materials into new products in order to prevent the waste of useful materials. Since Harmony™ metal is made from useful products discarded by their previous owners it is recycled.</p> <p data-bbox="824 888 1370 987">To further safeguard the natural environment Hoover & Strong employs the following Eco-Friendly Refining techniques:</p> <ul data-bbox="824 1031 1429 1829" style="list-style-type: none"> • A newly developed gold refining process, known as the “Miller” process, reduces the quantity of waste products generated per ounce recovered by 75%. • A newly developed platinum and palladium refining process reduces the quantity of waste products generated per ounce recovered by 60%. • All furnace and chemical exhaust fumes are processed through a scrubber system that removes all harmful particulates, cleaning the air before it is released into the environment. • The water treatment facility removes all harmful materials from our waste water before it is evaporated. Absolutely no waste water is discharged into the environment. • All cooling water for our refining smelting furnaces is provided by a fully recycled, no-loss water cooling system.

Mined Gold vs. Harmony™ Gold (cont'd.)	
Mined Gold	Harmony™ Gold
<p>Mercury Amalgamation mining has been banned in many parts of the world. However the practice still persists in economically underdeveloped areas where the lure of inexpensively mined gold can be irresistible. Mercury contamination from historic gold mines will remain a significant health risk far into the future. ²</p> <p>Heap Leaching A dilute cyanide solution is poured over a heap of crushed ore dissolving the gold. The gold is then extracted from the cyanide solution. This process can take several weeks. If not properly executed heap leaching can result in the introduction of cyanide into groundwater, streams, lakes or rivers. ⁸</p> <p>Milling The ore is fed into mills that grind the ore to a fine slurry or powder for additional treatment.</p> <p>Leaching The slurry is thickened and run through a series of leaching tanks. The gold in the slurry adheres to carbon in the tanks.</p> <p>Stripping The carbon is then moved into a stripping vessel where the gold is removed from the carbon with the use of a caustic soda and cyanide solution. Then the solution is processed through electrolytic cells where the gold is recovered.</p> <p>Smelting Once the gold is extracted from its ore it is then melted in a furnace at about 2,100°F and poured into bar shaped molds. The resulting gold bars still contain impurities.</p> <p>Refining The bars produced at the mine site are then sent to a refinery for further processing into pure gold.</p>	

Quick Facts About Gold Mining⁹

- A single gold ring leaves in its wake at least 20 tons of mine waste.
- Open-pit gold mines essentially obliterate the landscape, opening up vast craters, flattening or even inverting mountaintops, and producing 8 to 10 times more waste than underground mining.
- Cyanide is used by large mining operations to separate gold from ore. Cyanide pollution is a major concern. A rice-grain sized dose of cyanide can be fatal to humans; concentrations of 1 microgram (one-millionth of a gram) per liter of water can be fatal to fish.
- Metal mining employs just 0.09 percent of the global workforce but consumes as much as 10 percent of world energy.
- Between 1995 and 2015, approximately half the gold produced worldwide has or will come from indigenous peoples' lands.
- Metal mining is the number one toxic polluter in the United States, responsible for 89% of arsenic releases, 85% of mercury releases, and 84% of lead releases in 2004.
- The world's largest open pit, the Bingham Canyon mine in Utah, is visible to astronauts from outer space. It measures 1.5 kilometers (1 mile) deep and 4 kilometers (2.5 miles) across.
- 120,000 tons of toxic waste spilled from the Baia Mare gold mine in Romania in 2000, contaminating the drinking water of 2.5 million people and killing 1,200 tons of fish.

Environmental Impacts¹⁰

[Poisoned Waters](#)

[Solid Waste](#)

[Polluted Air](#)

[Threatened Natural Areas](#)

Community Impacts¹¹

[Endangered Communities](#)

[Disadvantaged Women](#)

[Violated Human Rights](#)

[Toll on Indigenous Peoples](#)

[A Dangerous Profession](#)

[Undermined Workers' Rights](#)

[Economic and Financial Toll](#)

Hoover & Strong "GREEN" Processes

Hoover & Strong is fully committed to recycling and protecting the environment in every way possible. Our facility is operated at the highest standards in the industry and we expect no less from our vendors and suppliers. Throughout the Hoover & Strong factory, we've instituted internal processes that re-use materials and conserve energy.



In the Mill and Jewelry Division:

- All clean manufacturing scrap from our operations is re-melted.
- Floor sweeps, sink sludge and mixed scrap are all refined.
- Cooling water from casting and melting is re-circulated within the plant.
- All copper and brass is recycled from the tool and die department.

In the Refining Division:

- A newly developed gold refining process reduces the quantity of waste products generated per ounce recovered by 75%.
- A newly developed platinum and palladium refining process reduces the quantity of waste products generated per ounce recovered by 60%.
- All furnace and chemical exhaust fumes are processed through a scrubber system that removes all harmful particulates, cleaning the air before it is released into the environment.
- The water treatment facility removes all harmful materials from our waste water before it is evaporated. Absolutely no waste water is discharged into the environment.
- All cooling water for our refining smelting furnaces is provided by a fully recycled, no-loss water cooling system.