

IRON OXIDE PIGMENTS

(Data in metric tons unless otherwise noted)

Domestic Production and Use: Iron oxide pigments (IOPs) are mined by three companies in three States in the United States. Production data, which were withheld by the U.S. Geological Survey to protect company proprietary data, were virtually unchanged in 2012 from those of 2011. There were six companies, including the three producers of natural IOPs, that processed and sold finished natural and synthetic IOPs. Sales by those companies were virtually unchanged in 2012 from those of 2011, still remaining well below the sales peak of 88,100 tons in 2007. About 60% of natural and synthetic finished IOPs were used in concrete and other construction materials, 25% in coatings and paints, 5% in foundry uses, and more than 2% each in industrial chemicals, animal food, magnetic tape and ink, and other uses.

Salient Statistics—United States:	2008	2009	2010	2011	2012^e
Production, mine	W	W	W	W	W
Production, finished natural and synthetic IOP	83,300	50,800	54,700	48,000	48,000
Imports for consumption	155,000	106,000	151,000	158,000	150,000
Exports, pigment grade	4,740	5,640	8,750	8,650	8,000
Consumption, apparent ¹	234,000	151,000	197,000	197,000	190,000
Price, average value, dollars per kilogram ²	1.39	1.46	1.48	1.54	1.54
Employment, mine and mill	65	58	60	58	58
Net import reliance ³ as a percentage of apparent consumption	>50%	>50%	>50%	>50%	>50%

Recycling: None.

Import Sources (2008–11): Natural: Cyprus, 61%; Spain, 14%; France, 11%; and other, 14%. Synthetic: China, 52%; Germany, 16%; Brazil, 7%; and other, 25%.

Tariff: Item	Number	Normal Trade Relations 12–31–12
Natural:		
Micaceous iron oxides	2530.90.2000	2.9% ad val.
Earth colors	2530.90.8015	Free.
Iron oxides and hydroxides containing more than 70% Fe ₂ O ₃ :		
Synthetic:		
Black	2821.10.0010	3.7% ad val.
Red	2821.10.0020	3.7% ad val.
Yellow	2821.10.0030	3.7% ad val.
Other	2821.10.0040	3.7% ad val.
Earth colors	2821.20.0000	5.5% ad val.

Depletion Allowance: 14% (Domestic and foreign).

Government Stockpile: None.

IRON OXIDE PIGMENTS

Events, Trends, and Issues: In 2012, natural IOP production and sales increased slightly compared with those of 2010 and 2011, reflecting the continued slow recovery of the U.S. and European economies from the economic recession in 2008 and 2009; moderate to strong growth continued in Asia. Domestically, residential construction, in which IOPs are used to color concrete block and brick, ready-mixed concrete, and roofing tiles, increased slightly. Housing starts and completions were expected to continue to increase during 2012, based on increases in both statistics during the first 6 months of 2012. Spending on commercial construction, which had decreased in the first 8 months of 2010 and 2011 from each prior year, increased for the same period in 2012 by 20% from that of 2011. Exports of pigment-grade IOPs increased to some Asian markets, where economic recovery was taking place at a faster pace than in other regions. Exports also increased moderately to Mexico and some European and South American markets. Exports of other grades of IOPs and hydroxides also increased to markets in Asia, Germany, Mexico, and the United Arab Emirates. Total imports of natural and synthetic IOPs were trending slightly lower during the first 9 months of 2012 compared to the same period in 2011.

A major producer of finished natural and synthetic IOPs in the United States announced that it would build a new synthetic IOP production plant in Augusta, GA. The company planned to invest \$115 million in the advanced technology facility, to be completed during the first half of 2013, which would be the first new IOP production plant built in the United States in nearly 35 years.

An increasing awareness of environmental issues, particularly in Europe and the United States, accompanied by an increasing demand for environmentally friendly products and industrial processes worldwide, presented challenges and opportunities for the pigments market. Efforts were underway to eliminate heavy metals and heavy-metal salts in the pigments for construction materials. Although losing some appeal because of toxicity, inorganic pigments with cadmium, chromium, or barium content were expected to continue to be the preferred types where heat, light, and chemical resistance properties were required.

World Mine Production and Reserves:

	Mine production		Reserves ⁴
	2011	2012 ^e	
United States	W	W	Moderate
Cyprus	12,000	12,000	Moderate
Germany ⁵	220,000	230,000	Moderate
India	395,000	395,000	Large
Pakistan	6,100	6,000	Moderate
Spain	140,000	145,000	Large
Turkey	100,000	100,000	NA
United Kingdom	8,000	8,000	NA
Other countries	20,000	21,000	Moderate
World total (rounded)	⁶ NA	⁶ NA	Large

World Resources: Domestic and world resources for production of IOPs are adequate. Adequate resources are available worldwide for the manufacture of synthetic IOPs.

Substitutes: IOPs are probably the most important of the natural minerals suitable for use as pigments after milling. Because IOPs are low cost, color stable, and nontoxic, they can be economically used for imparting black, brown, yellow, and red coloring in large and relatively low-value applications. Other minerals may be used as colorants, but they generally cannot compete with IOPs because of the limited tonnages available. Synthetic IOPs are widely used as colorants and compete with natural IOPs in many color applications. Organic colorants are used for some colorant applications, but several of the organic compounds fade over time from exposure to sunlight.

^eEstimated. NA Not available. W Withheld to avoid disclosing company proprietary data.

¹Defined as production of finished natural and synthetic IOPs + imports – exports.

²Unit value for finished iron oxide pigments sold or used by U.S. producers.

³Defined as imports – exports.

⁴[See Appendix C for resource/reserve definitions and information concerning data sources.](#)

⁵Includes natural and synthetic iron oxide pigment.

⁶A significant number of other countries undoubtedly produce iron oxide pigments, but output is not reported and no basis is available to formulate estimates of output levels. Such countries include Azerbaijan, China, Honduras, Kazakhstan, Russia, and Ukraine. Unreported output likely is substantial.