

MICA (NATURAL)

(Data in thousand metric tons unless otherwise noted)

Domestic Production and Use: Scrap and flake mica production, excluding low-quality sericite, was estimated to be 53,000 tons in 2010. Mica was mined in Alabama, Georgia, North Carolina, and South Dakota. Scrap mica was recovered principally from mica and sericite schist and as a byproduct from feldspar, kaolin, and industrial sand beneficiation. The majority of domestic production was processed into small particle-size mica by either wet or dry grinding. Primary uses were joint compound, oil-well-drilling additives, paint, roofing, and rubber products. The value of 2010 scrap mica production was estimated to be \$7.5 million.

A minor amount of sheet mica was produced in 2010 as a byproduct at a gemstone mine in Amelia, VA, and as incidental production from feldspar mining in the Spruce Pine area of North Carolina. The domestic consuming industry was dependent upon imports to meet demand for sheet mica. Most sheet mica was fabricated into parts for electronic and electrical equipment.

Salient Statistics—United States:	2006	2007	2008	2009	2010^e
Scrap and flake:					
Production: ^{1,2}					
Mine	110	97	84	50	53
Ground	123	99	98	77	82
Imports, mica powder and mica waste	45	41	27	20	27
Exports, mica powder and mica waste	7	8	9	8	7
Consumption, apparent ³	148	130	102	62	73
Price, average, dollars per metric ton, reported:					
Scrap and flake	204	149	143	140	140
Ground:					
Wet	784	683	651	651	650
Dry	237	243	251	284	290
Employment, mine, number	NA	NA	NA	NA	NA
Net import reliance ⁴ as a percentage of apparent consumption	26	26	18	19	27
Sheet:					
Production, mine ^e	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)
Imports, plates, sheets, strips; worked mica; split block; splittings; other >\$1.00/kg	1.77	1.95	1.90	1.51	2.10
Exports, plates, sheets, strips; worked mica; crude and rifted into sheet or splittings >\$1.00/kg	1.40	1.30	2.02	1.11	0.95
Shipments from Government stockpile excesses	(⁵)	(⁵)	(⁵)	—	—
Consumption, apparent	⁶ 0.38	⁶ 0.68	(^{6,7})	0.40	1.15
Price, average value, dollars per kilogram, muscovite and phlogopite mica, reported:					
Block	130	132	122	120	120
Splittings	1.53	1.57	^e 1.53	^e 1.60	1.60
Stocks, fabricator and trader, yearend	NA	NA	NA	NA	NA
Net import reliance ⁴ as a percentage of apparent consumption	100	100	100	100	100

Recycling: None.

Import Sources (2006–09): Scrap and flake: Canada, 34%; China, 34%; India, 22%; Finland, 7%; and other, 3%. Sheet: China, 25%; Brazil, 21%; Belgium, 18%; India, 17%; and other, 19%.

Tariff: Item	Number	Normal Trade Relations 12-31-10
Split block mica	2525.10.0010	Free.
Mica splittings	2525.10.0020	Free.
Unworked—other	2525.10.0050	Free.
Mica powder	2525.20.0000	Free.
Mica waste	2525.30.0000	Free.
Plates, sheets, and strips of agglomerated or reconstructed mica	6814.10.0000	2.7% ad val.
Worked mica and articles of mica—other	6814.90.0000	2.6% ad val.

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Depletion Allowance: 22% (Domestic), 14% (Foreign).

Government Stockpile: None.

Events, Trends, and Issues: Domestic production and consumption of scrap and flake mica were estimated to increase in 2010. The increase primarily resulted from increased production of minerals from which mica is a byproduct caused by a slight recovery in construction materials consumption. Apparent consumption of sheet mica increased in 2010 also. No environmental concerns are associated with the manufacture and use of mica products.

Significant stocks of sheet mica previously sold from the National Defense Stockpile (NDS) to domestic and foreign mica traders, brokers, and processors were exported, however, possibly resulting in understating apparent consumption in 2006 through 2009. The NDS has not held mica since 2008, when the last stocks of muscovite block were sold. Future supplies for U.S. consumption were expected to come increasingly from imports, primarily from Brazil, China, India, and Russia.

World Mine Production and Reserves:

	Scrap and flake			Sheet		Reserves ⁸
	Mine production ^e 2009	Mine production ^e 2010	Reserves ⁸	Mine production ^e 2009	Mine production ^e 2010	
All types:						
United States ¹	50	53	Large	(⁵)	(⁵)	Very small
Brazil	4	4	Large	—	—	NA
Canada	15	15	Large	—	—	NA
China	NA	NA	Large	—	—	NA
Finland:			Large			NA
Muscovite concentrate	8	8		—	—	
Biotite	60	60		—	—	
France	20	20	Large	—	—	NA
India	4	4	Large	3.5	3.5	Very large
Korea, Republic of	50	50	Large	—	—	NA
Norway	3	3	Large	—	—	NA
Russia	100	100	Large	1.5	1.5	Moderate
Other countries	<u>26</u>	<u>30</u>	<u>Large</u>	<u>0.2</u>	<u>0.2</u>	<u>Moderate</u>
World total (rounded)	340	350	Large	5.2	5.2	Very large

World Resources: Resources of scrap and flake mica are available in clay deposits, granite, pegmatite, and schist, and are considered more than adequate to meet anticipated world demand in the foreseeable future. World resources of sheet mica have not been formally evaluated because of the sporadic occurrence of this material. Large deposits of mica-bearing rock are known to exist in countries such as Brazil, India, and Madagascar. Limited resources of sheet mica are available in the United States. Domestic resources are uneconomic because of the high cost of hand labor required to mine and process sheet mica from pegmatites.

Substitutes: Some lightweight aggregates, such as diatomite, perlite, and vermiculite, may be substituted for ground mica when used as filler. Ground synthetic fluorophlogopite, a fluorine-rich mica, may replace natural ground mica for uses that require thermal and electrical properties of mica. Many materials can be substituted for mica in numerous electrical, electronic, and insulation uses. Substitutes include acrylic, cellulose acetate, fiberglass, fishpaper, nylon, nylatron, phenolics, polycarbonate, polyester, styrene, vinyl-PVC, and vulcanized fiber. Mica paper made from scrap mica can be substituted for sheet mica in electrical and insulation applications.

^eEstimated. NA Not available.

¹Sold or used by producing companies.

²Excludes low-quality sericite used primarily for brick manufacturing.

³Based on scrap and flake mica mine production.

⁴Defined as imports – exports + adjustments for Government and industry stock changes.

⁵Less than ½ unit.

⁶See explanation in the Events, Trends, and Issues section.

⁷Apparent consumption calculation in 2008 results in a negative number.

⁸See Appendix C for resource/reserve definitions and information concerning data sources.