# MALAYSIAN MINERALS YEARBOOK 2013

**MINERALS AND GEOSCIENCE DEPARTMENT MALAYSIA**
MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT MALAYSIA

23rd Issue

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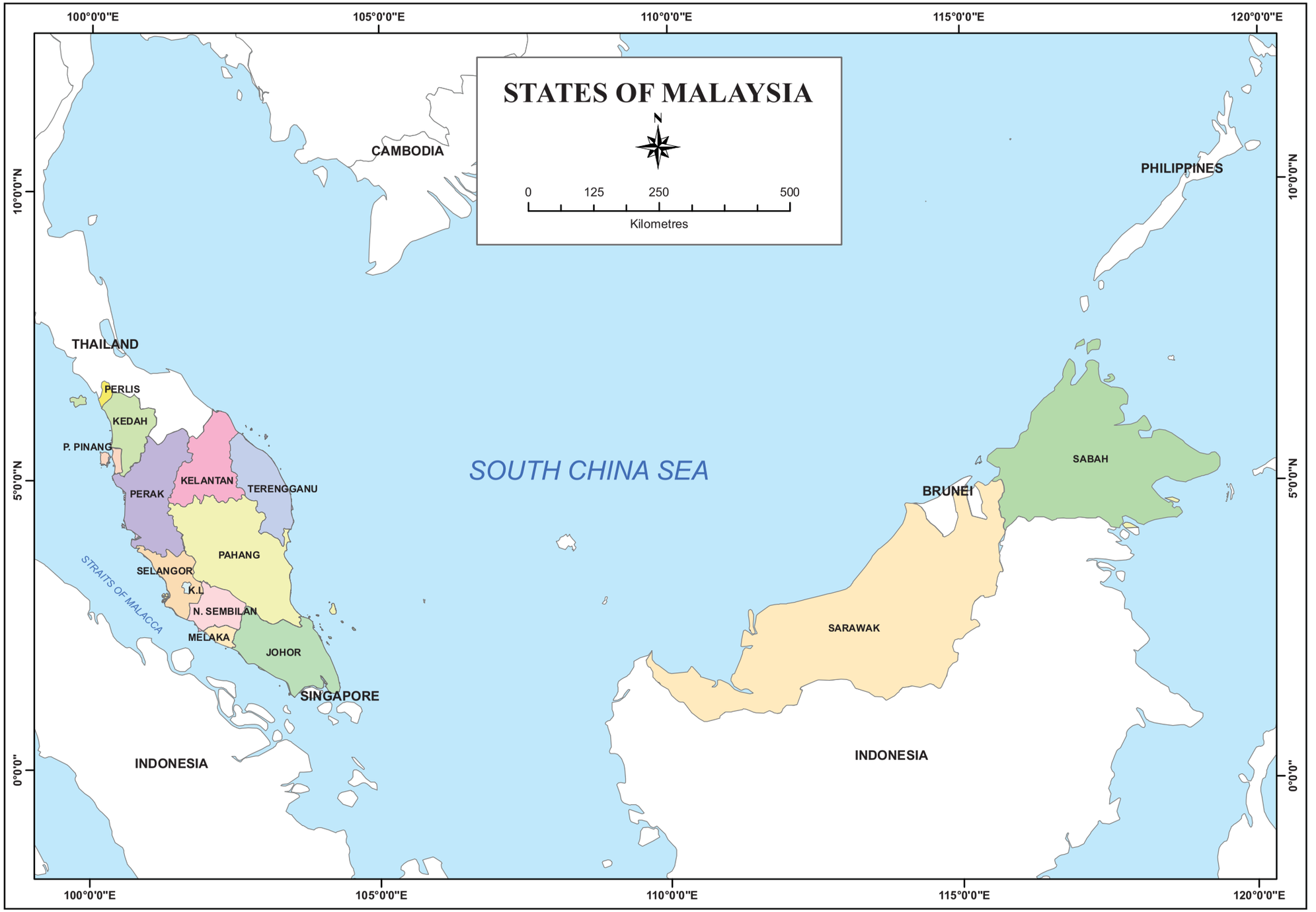

# PREFACE

This Malaysian Minerals Yearbook is the 23rd edition of its series produced by the Minerals and Geosciences Department of Malaysia (JMG). It is a reflection of the added responsibility of being the main reference point for minerals data in Malaysia. Its aim is to provide reliable and comprehensive information on the entire minerals production in Malaysia.

As in the previous year, this report discusses the performance of the Malaysian minerals industry during the year 2013 and provides the background information to assist in interpreting the performance of the mineral sector and mineral commodity produced in Malaysia. Besides, it also provides an overview of some imported minerals that are equally important in domestic mineral industry. The information in this publication includes commodity reviews, mineral production, import, export, mineral prices and analyses of the mineral commodities sector encompassing the metallic, non-metallic and energy minerals. A list of all the mines currently in operation during the year for each state in Malaysia is also presented.

In order to improve the accuracy and reliability of the data, JMG has undertaken various efforts towards strengthening relationships with data providers to improve the quality of its publications for the benefit of the mineral fraternity. JMG welcomes any constructive comments and suggestions that may help us to improve the value of this publication and meet the changing needs and requirements of the mineral sector in Malaysia.

Finally, I would like to extend my sincere appreciation to all the government agencies, various organisations, companies and individuals who have been continuously providing us with the valuable information for the preparation of this report.

DATO' YUNUS BIN ABD RAZAK
Director General
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November 2014

# ACKNOWLEDGEMENTS

Although the compilation of this report is principally the effort of the Minerals and Geoscience Department Malaysia, much of the information presented is based on data originally collected by other departments and agencies. The following sources are gratefully acknowledged:

**Trade Statistics:**

- *External Trade Statistics 2013* published by the *Department of Statistics, Malaysia*

**World Minerals Production:**

- *Mineral Commodity Summaries 2014* published by the *U.S Geological Survey (USGS)*
- *World Mineral Production 2008 - 2012* published by the *British Geological Survey (BGS)*

**Minerals prices:**

- *Monthly Commodity Price Bulletin* published by *United Nations Conference on Trade and Development (UNCTAD) - 2013*
- *UNCTAD Commodity Yearbook* published by *United Nations,* Geneva - *2013*
- *Industrial Minerals* published by *Metal Bulletin Journals - 2013*
- *Malaysian Tin Bulletin* by *Tin Industry Board - 2013*

# EXPLANATORY NOTES

## Malaysian mineral production data

| | |
|---|---|
| **Aggregates** | Production figures represent the total tonnage of crushed rocks, including crushed limestone for industrial and agricultural uses. |
| **Clays** | Production figures shown also include ball clay. |
| **Copper** | Mine production of copper is shown as copper-in-concentrates. |
| **Limestone** | Production figures shown include crushed limestone used for aggregates unless specified e.g. limestone for cement. |
| **Rare earths** | The annual production figures represent the aggregate tonnages of monazite and xenotime concentrates produced as by-products of tin mining. |
| **Silica** | Silica production figures represent the aggregate tonnage of silica sand, mine tailing sand and quartz rock powder. |
| **Tantalum-Niobium** | The annual production figures represent the aggregate tonnage of columbite and struverite concentrates produced as by-products of tin mining. |
| **Tin** | Mine production of tin is shown as tin content of concentrates (tin-in-concentrates). |
| **Titanium** | Production is shown as gross tonnage of ilmenite concentrates produced as a by-product of tin mining. A small amount of rutile may be included. |
| **Zirconium** | Production is shown as gross tonnage of zircon concentrates produced as a by-product of tin mining. |

## Trade

In this edition, three consecutive years of import/export data are shown (2011, 2012, 2013). Export figures shown in the trade tables represent net exports (i.e. excluding re-exports).

## World production

The world production tables only give the major world producers. Other producers are included in the row depicted as 'other countries'.

## Price graphs

Where information is available, actual prices of mineral commodities are shown over a ten-year period.

## Local terminology

In the review texts, heavy minerals produced in the process of alluvial tin ore beneficiation are referred to by the term 'amang' which is widely used in the local tin industry.

## Units of weight

| | | | | |
|---|---|---|---|---|
| t | = | tonne | = | 1,000 kg |
| Mt | = | million tonnes | = | 1,000,000 t |
| kg | = | kilogram | = | 1,000 gm |
| gm | = | gram | = | 0.001 kg |
| tr oz | = | troy ounce | = | 31.1035 gm |

## Units of area

| | | | | |
|---|---|---|---|---|
| sq km | = | square kilometre | = | 100 ha |
| ha | = | hectare | = | 0.01 square kilometre |

## Units of currency

| | | |
|---|---|---|
| RM | = | Ringgit Malaysia |
| US$ | = | US Dollar<br>(2013 average exchange rate: 1US$ = RM3.15) |
| £ | = | British Pound<br>(2013 average exchange rate: £1 = RM4.93) |
| A$ | = | Australian Dollar<br>(2013 average exchange rate: 1A$ = RM3.04) |
| € | = | The Euro<br>(2013 average exchange rate: 1€ = RM4.18) |

## Conventions

| | | |
|---|---|---|
| '000 | = | × thousand |
| 0 | = | nil or quantity less than half the unit shown |
| N.A | = | not available |
| n.y.a. | = | not yet available |
| e | = | estimated |
| p | = | preliminary |

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# MALAYSIAN MINERALS YEARBOOK 2013

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# OVERVIEW

## OVERVIEW

Driven by the continued strong growth in domestic demand the Malaysian economy expanded by 4.7% in 2013 compared with 5.6% in 2012. Despite the weaker external environment in the first half of 2013, domestic demand remained resilient throughout the year, led by robust private sector activities. The Malaysian economy is expected to remain on a steady growth path in 2014, expanding by 4.5 to 5.5% (Bank Negara Report, 2013).

During 2013, the mining sector registered a slower growth of 0.5%, reflecting the reduction in crude oil production amid maintenance works that occurred in the latter half of the year. Growth remained strong in the construction sector, expanded by 10.9%, owing to robust activities in the residential and civil engineering sub-sectors. Growth in the residential sub-sectors was underpinned by the construction of high-end and high-rise properties in the Klang Valley, Penang and Johor. In the civil-engineering sub-sector, activities in infrastructure and oil and gas-related projects supported growth. Notable projects included Tanjung Bin and Jana Manjung Power Plants, MRT, Sabah Oil and Gas Terminal, Sabah-Sarawak Gas Pipeline and the Kebabangan Oil and Gas project.

The manufacturing sector expanded by 3.4%, attributable to the continued strength in the domestic-oriented industries and better performance of the export-oriented industries in the second half of 2013.

### Minerals Production

Generally the domestic mineral production experienced an increase of 20% in total mineral output valued at RM6.93 billion in 2013 compared with RM5.76 billion in 2012. The increased in value was caused by higher production of mainly non-metallic minerals with improved global mineral demand and market prices. Whilst the production for energy mineral remained at a steady level but with the higher market prices.



However, the metallic minerals productions in 2013 were decreasing slightly compared to the previous year due to slower global demand and lower prices. The value of metallic minerals production registered a decrease of 5% to RM2.64 billion from RM2.78 billion recorded in 2012. The metallic minerals production accounted for 38% share of the total mineral production value. In terms of quantity, the metallic minerals that increased in production were only manganese (1.13 million tonnes), bauxite (208,770 tonnes) and rare earth minerals (358 tonnes); whilst those metallic minerals which decreased in production were iron ore (12.1 million tonnes), ilmenite (16,043 tonnes), rutile (5, 983 tonnes). tin (3,697 tonnes ), zircon (379 tonnes), struverite (190 tonnes), gold (3,822.7 kg) and silver (360.8 kg).

As in the previous year, the non-metallic minerals production value continued to maintain its dominant share of the country's mineral contribution. In 2013, the overall non-metallic mineral production value increased by 26% to RM3.76 billion from RM2.98 billion recorded in 2012 and that accounted for 54% share of the total mineral output value in 2013. In 2013, more than half of the non-metallic minerals had shown an increase in production except for clay and earth materials, limestone (for cement), kaolin and feldspar which showed a decrease in production. A decrease in production recorded for clay and earth materials (29.8 million tonnes), limestone for cement (18.1 million tonnes), kaolin (293,480 tonnes) and feldspar (314,399 tonnes). The non-metallic minerals production continued to be dominated by aggregates that registered an increased production of 153 million tonnes, followed by an increased production of sand and gravel (35.6 million tonnes), silica sand (1.24 million tonnes), mica (4,363 tonnes) and barytes (500 tonnes).

The production value of the energy mineral sector represented by coal, had registered an increase in production value of RM523.3 million due to higher coal price in 2013 compared with RM441.2 million recorded in 2012 with a steady total production of 2.9 million tonnes.

## Manufactured Mineral-Based Products

In 2013, the overall production value of selected manufactured mineral-based products registered an increase slightly of 0.3% to RM63.6 billion compared to RM63.4 billion recorded in the previous year.

The metallic mineral-based products decreased by 3% to RM41.9 billion compared to RM43.4 billion recorded in 2012; while non-metallic mineral-based products increased by 19% to RM21.7 billion compared to RM18.2 billion recorded in 2012. In terms of contribution to the total output value, the metallic mineral-based products accounted for 66% and the remaining 34% was contributed by non-metallic mineral-based products. Primary iron and steel industry continued to maintain its leading position in term of output value. However, its production value decreased by 6% in 2013 to RM22 billion from RM23.3 billion in 2012. Whereas, the production value of other iron and basic steel industries also decreased to RM6.1 billion compared with RM6.2 billion in year 2012. Tin smelting experienced an increment to RM2.7 billion from RM2.5 billion in the previous year. The value of structural metal products more or less maintained at RM2.0 billion in 2013.

During 2013, the overall output value of manufactured non-metallic mineral-based products registered an increase of 8% to RM21.7 billion from RM20.1 billion in the previous year. The main industries contributing to the non-metallic mineral-based products were hydraulic cement, fertilizer and nitrogen, glass and glass products and ready-mix concrete industries. The production value for hydraulic cement products registered an increase of 14% to RM5.5 billion. Fertilizers and nitrogen products and ready-mix concrete products increased to RM3.9 billion and RM3.2 billion respectively. On the other hand, glass and glass products experienced a decrease in production value to RM2.9 billion and refractory ceramic products decreased to RM0.3 billion.



## Export and Import of Minerals

The total mineral export value in 2013 registered an overall increase of 19% to RM2.17 billion compared with RM1.82 billion in 2012.

The main minerals exported were metallic minerals which contributed about 73%, non-metallic minerals 19% and coal export remains at about 8%. The major minerals exported during the year were iron ore, copper and zircon concentrates, limestone flux, aggregates, coal, clay minerals and silica sand.

The export value of metallic mineral ores and concentrates in the year 2013 registered an increase of 45% to RM1,623.2 million compared with RM1,128.3 million in 2012. The increase was contributed largely due to the jump in the export of iron ore amounting to RM1,464.5 million and copper ore concentrate to RM144.1 million.

The export value of non-metallic minerals decreased by 30% to RM443.0 million compared with RM633.5 million recorded in 2012. This was contributed mainly by the decrease in the export of rock aggregates. Rock aggregates exports decreased to RM144.5 million in 2013 from RM396.6 million registered in 2012. Export of silica sand value also decreased to RM44.5 million, compared with RM29.5 million in 2012.

However, the export value of energy mineral in 2013 recorded a huge increase to RM100.7 million in 2013 compared with RM61.2 million in 2012.

During 2013, the overall import value of minerals recorded a decrease of 10% to RM9.5 billion compared with RM10.5 billion in 2012. Only non-metallic minerals registered an increase in import value of RM800.0 million in the year. In terms of percentage, the biggest share of minerals imported was coal which accounted for 62%, metallic minerals, 30% and non-metallic minerals, 8%.

The major mineral commodities imported in 2013 was coal, with a value of RM5.8 billion; iron ore (RM1.1 billion), tin ore and concentrate (RM1.1 billion), copper ore and concentrate (RM355.6 million), zircon and concentrate (RM202.0 million), clay and other refractory minerals (RM190.8 million), phosphate (RM178.6 million), gypsum (RM103.7 million) and aggregates (RM26.4 million).

## Export and Import of Mineral-Based Products

In 2013, the overall export value of major mineral-based products increased by 12% to RM34.2 billion compared with RM30.5 billion in 2012. About 90% of the exported mineral-based products were of metallic-based mineral and 10% were of non-metallic. The export value for metallic mineral-based products increased 16% from the previous year to RM30.9 billion. In contrast, the export value of non-metallic mineral-based products decreased 13% to RM3.3 billion.

The major metallic mineral-based products exported in 2013 were copper-based products with a value of RM10.35 billion; iron and steel products valued at RM7.40 billion; aluminium-based products (RM4.84 billion), followed by tin-based products (RM2.65 billion), tin metal (RM2.53 billion) and non-monetary gold (RM1.10 billion). Exports of copper and aluminium based products increased in 2013 compared to the previous year while exports of iron and steel products decreased during the same period.



Non-metallic mineral-based products export value decreased by 14% to RM3.31 billion in 2013 compared with RM3.84 billion in 2012. Glass and glassware products were the major export contributors during the year but showed a decrease in value to RM0.85 billion and RM0.96 billion respectively. In 2013, glass and glassware products decreased by 33% and 10% respectively, compared to the previous year. Other major non-metallic minerals-based products exported were clay-based and ceramic products, with a value of RM603.9 million; cement (RM504.3 million), pottery (RM174.0 million), lime (RM140.1 million) and activated clay (RM50.8 million). Other related products exported in 2013 include monumental or building stone (RM19.7 million) and dimension stone block (RM1.1 million).

The total import value of mineral-based products in 2013 rose by 16% to RM64.7 billion compared with RM55.6 billion in 2012. The total import value of metallic mineral-based products recorded an increase of 17% to RM60.7 billion from RM51.7 billion, whilst the non-metallic mineral-based products more or less maintained at RM3.9 billion in 2013 compared to RM3.9 billion in 2012.

The main metallic mineral-based products imported were zinc-based (RM60.11 billion), iron and steel (RM23.66 billion), aluminium-based (RM17.08 billion), non-monetary gold (RM11.40 billion), copper-based (RM10.67 billion) and tin-based (RM1.13 billion). Whilst, the main non-metallic mineral-based products imported during the year were glass (RM1,735.1 million), cement (RM707.9 million), glassware (RM678.7 million), clay-based and ceramics products (RM492.8 million), monumental or building stone (RM129.1 million) and pottery (RM111.5 million).

## Mineral Exploration Activities

In 2013, Minerals and Geoscience Department continued it mineral exploration and resources evaluation activity for metallic, non-metallic and energy minerals. Regional reconnaissance, follow-up and detailed geochemical surveys over previously identified anomalous areas for selected metallic minerals were carried out. As a result, several potential localities for gold, iron ore, tin and ilmenite were delineated.

Resource evaluation for non-metallic minerals in several states have also identified areas with significant reserves of marine clay (Selangor), refractory clay (Sarawak), feldspar (Pahang) and construction sand (Sabah). In addition, a few other potential mineral deposits were also identified which include barytes (Kelantan), feldspar (Johor), silica (Negeri Sembilan and Perak) as well as new discovery of andalusite in Terengganu and zeolite in Kedah. For energy mineral, coal resources evaluation in Sarawak and Sabah has identified several potential coal occurrences and reserves.

Preliminary study for metallic mineral resources were carried out at Bukit Manisan, Segamat in Johor (iron ore), Jelebu and Linggi in Negeri Sembilan (tin ore), Sg. Sendat, Hulu Yam in Selangor (tin-tungsten), Mahang, Sedim in Kedah (tin) and Sg. Cheniah, Dungun in Terengganu (ilmenite) covering a total area of 155 $km^2$. The study reported they are several potential areas of these minerals in most of the states.

Follow-up and detailed geochemical surveys for metallic minerals resources, covering a total area of 260 $km^2$, had delineated several potential areas for amang in Kinta and Kampar District, Perak; gold in Sg. Wias, Gua Musang, Kelantan; gold in Kuala Lipis, Pahang; gold in Bukit Demam, Serian, Sarawak and gold in Balung Timur, Sabah.



Resource evaluations were also carried out for non-metallic minerals in several states of Peninsular Malaysia, Sabah and Sarawak. Several areas with significant reserves for barytes, clay, feldspar, sand and gravel, silica, and zeolite were delineated. The occurrences of andalusite have been identified from follow-up study at Sg. Parang, Kemaman in Terengganu. The study has also delineated a 61.2 million tonnes reserves of marine clay, 0.5 million tonnes of refractory clay, 980 million tonnes of feldspar and 0.2 million tonnes of construction sand.

An evaluation of sand and gravel in Sg. Padas, Beaufort, Sabah had found a total of 0.2 Mt sand suitable for construction purposes. The study of marine clay resources in Sabak Bernam and Klang, Selangor had identified a total of 61.2 Mt reserves deposit, whilst there was 0.5 Mt refractory clay deposit in Silantek, Sri Aman, Sarawak.

Silica rock investigation were carried out at Ulu Rokan, Gemencheh, Negeri Sembilan and Lawin, Perak covering a total of 5.7 $km^2$. Other non-metallic minerals investigated during the year were zeolite in Padang Terap, Kedah; barytes in Sg. Perdah, Kuala Krai and Bukit Penchuri, Tanah Merah, Kelantan and in Jenderak, Kuala Tembeling, Pahang.

For energy mineral, coal resources evaluations were carried out in Sarawak and Sabah, covering an area of 20 $km^2$ and 5 $km^2$ respectively. Coal exploration in Sarawak involved the re-assessment of coal resources in Nyalau Formation within the Tunoh area, Kapit. The thickness of the coal seams in the area ranges from 0.2 m to 0.5 m. An analysis showed that the coal was of high volatile bituminous type. In Sabah, coal exploration was conducted in Susui Block, Pinangah area. Further drilling works had confirmed the seam extension with an additional reserve of 1.2 million tonnes.

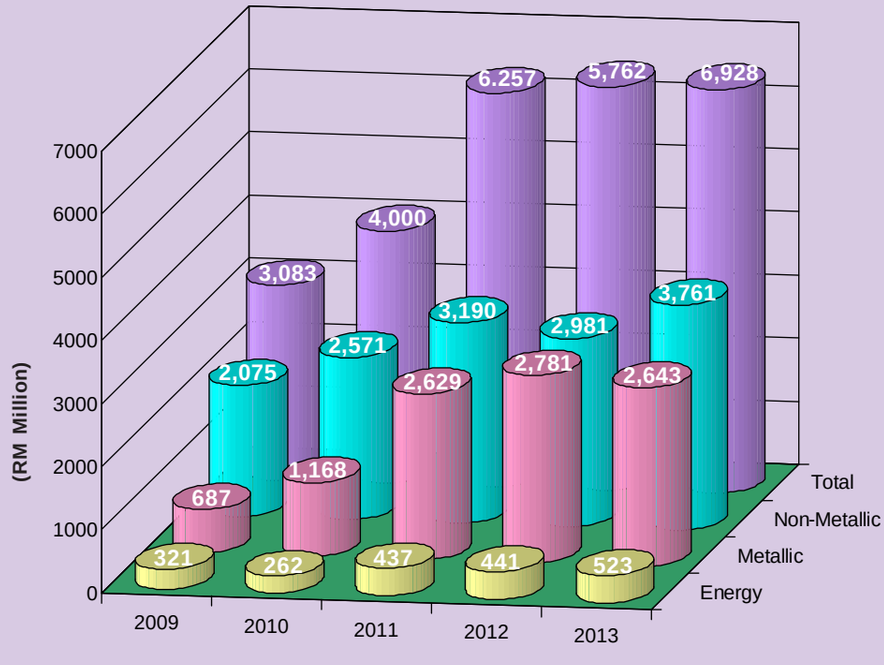
# Minerals in Brief

## MALAYSIA'S MINERALS PRODUCTION 2012 - 2013

| Mineral | 2012 Tonnes (unless stated otherwise) | 2012 Value (RM) | 2013 Tonnes (unless stated otherwise) | 2013 Value (RM) |
|---|---|---|---|---|
| **Energy Minerals** | | | | |
| Coal | 2,951,037 | 441,243,000 | 2,907,963 | 523,343,340 |
| **Total** | | **441,243,000** | | **523,343,340** |
| **Metallic Minerals** | | | | |
| Iron ore | 10,886,022[r] | 1,632,903,300[r] | 12,134,258 | 1,698,796,120 |
| Gold (gm) | 4,624,987 | 739,997,920 | 3,822,708 | 535,179,120 |
| Tin-in-concentrates | 3,725 | 242,125,000 | 3,697 | 258,790,000 |
| Manganese | 1,099,585 | 109,958,500 | 1,125,127 | 112,512,700 |
| Bauxite | 121,873 | 9,749,840 | 208,770 | 16,701,600 |
| Ilmenite | 22,275 | 15,592,500 | 16,043 | 8,012,500 |
| Rare earth minerals | 179 | 2,685,000 | 358 | 2,864,000 |
| Struverite | 262 | 6,288,000 | 190 | 3,040,000 |
| Rutile | 20,008 | 15,006,000 | 5,983 | 5,348,700 |
| Zircon | 442 | 1,989,000 | 379 | 1,137,000 |
| Silver (gm) | 1,627,711 | 4,720,362 | 360,828 | 1,046,401 |
| **Total** | | **2,781,015,422[r]** | | **2,643,473,141** |
| **Non-Metallic Minerals** | | | | |
| Aggregates | 110,339,370 | 1,863,371,166 | 153,173,432 | 2,528,413,376 |
| Sand and gravel | 28,592,007 | 460,007,343 | 35,577,567 | 553,244,431 |
| Limestone (for cement) | 23,533,922 | 235,741,563 | 18,068,782 | 314,728,666 |
| Clay & earth materials | 30,689,951 | 261,389,145 | 29,830,904 | 254,252,803 |
| Silica sand | 1,119,906 | 79,313,524 | 1,243,660 | 52,779,282 |
| Kaolin | 438,923 | 41,873,543 | 293,480 | 28,813,784 |
| Feldspar | 482,906 | 37,131,440 | 314,399 | 25,051,042 |
| Mica | 3,967 | 2,578,550 | 4,363 | 3,490,400 |
| Barytes | – | – | 500 | 250,500 |
| **Total** | | **2,981,406,274** | | **3,761,023,785** |
| **Grand total** | | **5,762,421,696[r]** | | **6,927,840,266** |

[r] - Revised data

## MALAYSIA'S PRODUCTION VALUE OF MINERALS 2009 - 2013



## STATISTIC OF SELECTED MINERAL-BASED MANUFACTURING INDUSTRIES

| Raw material (Industry code) | Sales value of own manufactured products (Ex-factory, RM) | |
|---|---|---|
| | 2012 | 2013 |
| **Metallic** | | |
| Basic iron and steel products (27100) | 23,272,180,000 | 21,983,107,000 |
| Other basic precious and non-ferrous metals (27209) | 6,166,299,000 | 6,127,640,000 |
| Wire, wire products and metal fasteners (28992) | 3,986,916,000 | 3,875,690,000 |
| Tin smelting* | 2,493,304,153 | 2,658,116,922 |
| Tin cans and metal boxes (28991) | 2,110,923,000 | 2,125,979,000 |
| Structural metal products (28110) | 2,039,922,000 | 1,998,397,000 |
| Other fabricated metal products not elsewhere classified (28999) | 1,961,059,000 | 1,900,801,000 |
| Brass, copper, pewter and aluminium products (28993) | 1,296,682,000 | 1,239,249,000 |
| **Sub-total** | **43,361,836,153** | **41,908,979,922** |
| **Non-metallic** | | |
| Hydraulic cement (26941) | 5,197,170,000 | 5,508,593,000 |
| Fertilisers and nitrogen (24120) | 3,442,490,000 | 3,854,579,000 |
| Ready-mix concrete (26951) | 2,683,193,000 | 3,171,404,000 |
| Glass and glass products (26100) | 2,858,507,000 | 2,900,579,000 |
| Other articles of concrete, cement and plaster (26959) | 1,987,854,000 | 2,261,756,000 |
| Structural non-refractory clay and ceramic products (26930) | 1,648,997,000 | 1,661,909,000 |
| Other non-metallic mineral products, n.e.c (26990) | 1,482,964,000 | 1,608,613,000 |
| Non-structural non-refractory ceramic ware (26910) | 454,854,000 | 432,249,000 |
| Refractory ceramic products (26920) | 315,865,000 | 269,379,000 |
| **Sub-total** | **20,070,894,000** | **21,669,061,000** |
| **Total Value** | **63,433,730,000** | **63,578,041,000** |

Source: Monthly Manufacturing Statistics Malaysia, March 2014, Department of Statistics
* Mineral and Geoscience Department Malaysia

## EXPORT AND IMPORT VALUE OF MAJOR MINERALS

| Minerals | 2012 RM | | 2013p RM | |
|---|---|---|---|---|
| | Export | Import | Export | Import |
| **Metallic** | | | | |
| Iron ore (SITC: 281) | 1,082,836,000 | 1,827,828,000 | 1,464,507,000 | 1,086,669,000 |
| Copper ore and concentrate (SITC: 283-100-000) | 3,613,000 | 413,000 | 144,060,000 | 355,636,000 |
| Bauxite (SITC: 285-100-000) | 6,840,000 | 6,777,000 | 7,786,000 | 6,964,000 |
| Ilmenite (SITC: 287-830-100) | 7,829,000 | 90,130,000 | 4,142,000 | 66,947,000 |
| Monazite (SITC: 286-200-000) | 2,343,000 | 0 | 1,594,000 | 0 |
| Columbite (SITC: 287-850-110) | 0 | 0 | 0 | 0 |
| Zircon and concentrate (SITC: 287-840-100) | 18,407,000 | 204,560,000 | 0 | 201,972,000 |
| Tin ore and concentrate (SITC: 287-600-000) | 2,533 | 927,973,000 | 1,129,000 | 1,138,959,000 |
| Lead ore and concentrate (SITC: 287-400-000) | 6,490,000 | 9,925,000 | 29,000 | 6,000 |
| **Sub-total** | **1,128,361,000** | **3,069,606,000** | **1,623,247,000** | **2,857,153,000** |
| **Non-metallic** | | | | |
| Phosphate (SITC: 272-3) | 0 | 191,084,000 | 8,860 | 178,577,000 |
| Dimension stone (SITC: 273-1) | 4,194,000 | 19,985,000 | 16,563,000 | 29,672,000 |
| Limestone flux (SITC: 273-220-000) | 92,431,000 | 293,000 | 111,725,000 | 802,000 |
| Gypsum (SITC: 273-230-000) | 669,000 | 105,235,000 | 1,187,000 | 103,684,000 |
| Silica sand (SITC: 273-310-000) | 29,518,000 | 11,066,000 | 44,542,000 | 13,092,000 |
| Sand & gravels (SITC: 273-390-000) | 936,000 | 13,601,000 | 1,612,000 | 7,242,000 |
| Aggregates (SITC: 273-4) | 396,604,000 | 25,539,000 | 144,510,000 | 26,372,000 |
| Clay & other refractory min. (SITC: 278-2) | 56,456,000 | 193,159,000 | 68,510,000 | 190,761,000 |
| Kaolin (SITC: 278-260-000) | 26,620,000 | 58,355,000 | 26,461,000 | 66,480,000 |
| Mica powder (SITC: 278-522-000) | 9,298,000 | 5,603,000 | 9,192,000 | 4,849,000 |
| Feldspar (SITC: 278-53) | 14,454,000 | 76,371,000 | 16,132,000 | 44,366,000 |
| Barytes (SITC: 278-921-000 &278-922-000) | 2,280,000 | 79,911,000 | 2,534,000 | 134,170,000 |
| **Sub-total** | **633,460,000** | **780,202,000** | **442,976,860** | **800,067,000** |
| **Energy** | | | | |
| Coal (SITC: 321) | 61,179,000 | 6,664,941,000 | 100,702,000 | 5,842,421,000 |
| **Sub-total** | **61,179,000** | **6,664,941,000** | **100,702,000** | **5,842,421,000** |
| **Total Value** | **1,822,999,000** | **10,512,749,000** | **2,166,926,000** | **9,499,641,000** |

Source: Department of Statistics

## EXPORT VALUE OF MAJOR MINERAL-BASED PRODUCTS

| Commodity | 2012 Ringgit (RM) | 2013p Ringgit (RM) |
|---|---|---|
| **Metallic Product** | | |
| Copper-based (SITC: 682) | 4,328,813,000 | 10,350,152,000 |
| Iron & steel (SITC: 671 to 679) | 9,863,800,000 | 7,401,714,000 |
| Aluminium-based (SITC: 684) | 3,760,664,000 | 4,844,098,000 |
| Tin-based (SITC: 687) other than SITC: 687-110-000 | 2,655,483,000 | 2,648,095,000 |
| Tin metal (SITC: 687-110-000) | 2,409,791,000 | 2,525,691,000 |
| Lead-based (SITC: 685) | 486,092,000 | 891,604,000 |
| Zinc-based (SITC: 686) | 858,292,000 | 606,182,000 |
| Titanium dioxide pigments (SITC: 533-11) | 433,044,000 | 476,747,000 |
| Titanium oxides (SITC: 522-560-000) | 30,262,000 | 22,505,000 |
| Gold, non-monetary (SITC: 971) | 1,877,539,000 | 1,102,110,000 |
| **Sub-total** | **26,703,780,000** | **30,868,898,000** |
| **Non-metallic Product** | | |
| Glassware (SITC: 665) | 1,065,557,000 | 962,357,000 |
| Glass (SITC: 664) | 1,265,248,000 | 851,668,000 |
| Clay-based and ceramics (SITC: 662) | 670,524,000 | 603,903,000 |
| Cement (all types) (SITC: 661-2) | 505,587,000 | 504,333,000 |
| Pottery (SITC: 666) | 133,722,000 | 173,925,000 |
| Lime (SITC: 661-1) | 132,591,000 | 140,052,000 |
| Activated clay (SITC: 598-650-100) | 47,577,000 | 50,810,000 |
| Monumental or building stone (SITC: 661) | 18,669,000 | 19,748,000 |
| Limestone flux (SITC: 273-220-000) | 1,097,000 | 816,000 |
| Dimension stone block (SITC: 273-1) | 1,670,000 | 1,129,000 |
| **Sub-total** | **3,842,242,000** | **3,308,741,000** |
| **Total Export Value** | **30,546,022,000** | **34,177,639,000** |

Source: Department of Statistics

## IMPORT VALUE OF MAJOR MINERAL-BASED PRODUCTS

| Commodity | 2012 Ringgit (RM) | 2013p Ringgit (RM) |
|---|---|---|
| **Metallic Product** | | |
| Iron & steel (SITC: 671 to 679) | 22,669,090,000 | 23,658,800,000 |
| Copper-based (SITC: 682) | 9,917,429,000 | 17,083,866,000 |
| Gold, non-monetary (SITC: 971) | 9,196,828,000 | 11,402,216,000 |
| Aluminium-based (SITC: 684) | 5,639,296,000 | 5,244,469,000 |
| Tin-based (SITC: 687) other than (SITC: 687-110-000) | 1,774,149,000 | 1,127,501,000 |
| Tin metal (SITC: 687-110-000) | 980,950,000 | 818,064,000 |
| Zinc-based (SITC: 686) | 665,163,000 | 561,943,000 |
| Titanium dioxide pigments (SITC: 533-1) | 298,433,000 | 438,123,000 |
| Lead-based (SITC: 685) | 522,893,000 | 377,370,000 |
| Titanium oxides (SITC: 522-560-000) | 80,558,000 | 65,482,000 |
| **Sub-total** | **51,744,789,000** | **60,757,834,000** |
| **Non-metallic Product** | | |
| Glass (SITC: 664) | 1,736,288,000 | 1,735,133,000 |
| Cement (all types) (SITC: 661-2xx) | 703,527,000 | 707,891,000 |
| Glassware (SITC: 665) | 789,557,000 | 678,654,000 |
| Clay-based and ceramics (SITC: 662) | 455,429,000 | 492,819,000 |
| Monumental or building stone (SITC: 661-3) | 86,454,000 | 129,072,000 |
| Pottery (SITC: 666) | 90,627,000 | 111,457,000 |
| Dimension stone block (SITC: 273-1) | 14,575,000 | 24,150,000 |
| Activated clay (SITC: 598-650-100) | 3,198,000 | 15,074,000 |
| Lime (SITC: 661-1) | 6,311,000 | 10,532,000 |
| Limestone flux (SITC: 273-220-000) | 293,000 | 802,000 |
| **Sub-total** | **3,886,259,000** | **3,905,584,000** |
| **Total Import Value** | **55,631,048,000** | **64,663,418,000** |

Source: Department of Statistics

# Summary of Malaysian Production of Mineral Commodities 2013

| Commodity | Unit | Johor | Kedah | Kelantan | Melaka | N.Sembilan | Pahang | Perak | Perlis | P.Pinang | Selangor/KL | Terengganu | Sabah | Sarawak | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Metallic minerals** | | | | | | | | | | | | | | | |
| Bauxite | tonnes | 208,770 | – | – | – | – | – | – | – | – | – | – | – | – | 208,770 |
| Gold | grams | – | – | 559,065 | – | – | 3,220,424 | – | – | – | – | 43,219 | – | – | 3,822,708 |
| Iron Ore | tonnes | 972,418 | 603,978 | 1,122,087 | 10,470 | 21,417 | 8,448,693 | 16,000 | – | – | – | 939,195 | – | – | 12,134,258 |
| Manganese | tonnes | – | – | 846,255 | – | – | 278,872 | – | – | – | – | – | – | – | 1,125,127 |
| REM (Monazite)* | tonnes | – | – | – | – | – | – | 261 | – | – | – | – | – | – | 261 |
| REM (Xenotime)* | tonnes | – | – | – | – | – | – | 97 | – | – | – | – | – | – | 97 |
| Silver | grams | – | – | – | – | – | 360,828 | – | – | – | – | – | – | – | 360,828 |
| Ta-Nb mineral* | tonnes | – | – | – | – | – | – | 190 | – | – | – | – | – | – | 190 |
| Tin-in-concentrates | tonnes | 65 | 82 | – | – | – | 263 | 3,213 | – | – | 42 | 32 | – | – | 3,697 |
| Ilmenite* | tonnes | – | – | – | – | – | – | 16,043 | – | – | – | – | – | – | 16,043 |
| Rutile* | tonnes | – | – | – | – | – | – | 5,983 | – | – | – | – | – | – | 5,983 |
| Zircon* | tonnes | – | – | – | – | – | – | 379 | – | – | – | – | – | – | 379 |
| **Non-metallic minerals** | | | | | | | | | | | | | | | |
| Aggregates | tonnes | 41,747,493 | 10,073,474 | 2,749,522 | 2,157,513 | 11,336,400 | 3,859,055 | 24,606,628 | 2,915,840 | 6,775,639 | 25,522,229 | 5,580,557 | 5,262,553 | 10,589,528 | 153,173,432 |
| Barytes | tonnes | – | – | 500 | – | – | – | – | – | – | – | – | – | – | 500 |
| Clay & earth mat. | tonnes | 6,176,076 | 3,188,546 | 197,642 | 737,842 | 1,546,970 | 1,430,415 | 6,388,740 | 1,739,273 | 34,420 | 2,785,982 | 3,206,454 | 561,061 | 1,837,484 | 29,830,904 |
| Feldspar | tonnes | – | – | 277,061 | – | 37,338 | – | – | – | – | – | – | – | – | 314,399 |
| Kaolin | tonnes | 28,651 | – | – | – | – | 58,850 | 205,979 | – | – | – | – | – | – | 293,480 |
| Limestone | tonnes | – | 883,194 | 226,101 | – | 2,475,636 | 310,794 | 15,781,066 | 3,113,243 | – | 2,106,581 | – | 341,000 | 5,095,135 | 43,728,648 |
| Mica | tonnes | – | – | – | – | – | – | 4,363 | – | – | – | – | – | – | 4,363 |
| Sand & gravel | tonnes | 8,398,633 | 1,464,081 | 174,317 | 279,149 | 1,644,474 | 4,793,222 | 5,708,100 | – | – | 8,644,780 | 811,877 | 638,436 | 3,020,499 | 35,577,567 |
| Silica sand | tonnes | 655,924 | – | – | – | – | – | 376,248 | – | – | 7,634 | – | – | 203,854 | 1,243,660 |
| **Energy minerals** | | | | | | | | | | | | | | | |
| Coal | tonnes | – | – | – | – | – | – | – | – | – | – | – | – | 2,893,963 | 2,893,963 |

Notes:

- Selangor's production includes Federal Territory of Kuala Lumpur
- Aggregates production includes crushed limestone
- Aggregates production in Sarawak and Sabah includes gravel
- Clay production refers to clay and earth materials production
- Limestone production includes limestone for aggregate, cement and agriculture but excludes dimension stone
- Silica production includes silica sand, sand as by-product of tin mining and crushed quartz rock
- REM = Rare Earth Mineral

* By-product includes production from mineral processing (amang) plants only

\+ Estimated

# COMMODITY REVIEWS

# Metallic Minerals

# ALUMINIUM

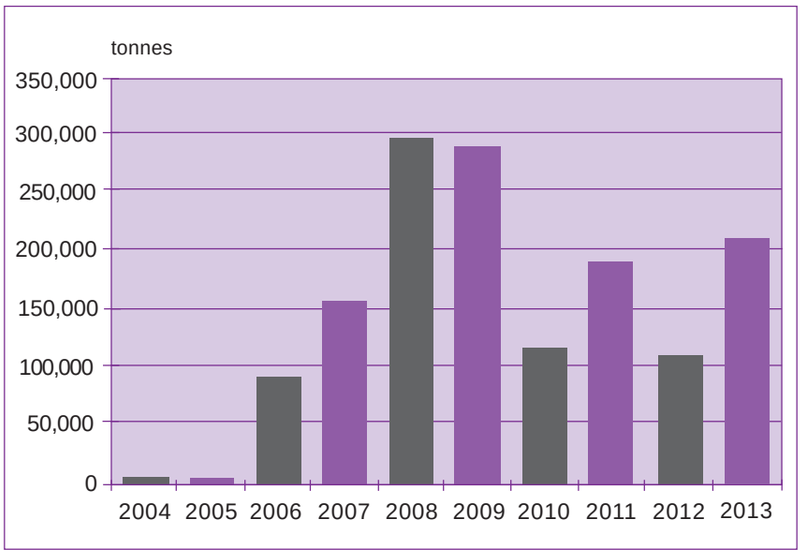
**Malaysia's production of bauxite 2010 - 2013**

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Johor | 124,274 | 2 | 188,141 | 2 | 121,873 | 2 | 208,770 | 1 |

**Malaysia's historic production (bauxite)**

| Year | tonnes |
|---|---|
| 2004 | 2,040 |
| 2005 | 4,735 |
| 2006 | 91,806 |
| 2007 | 156,785 |
| 2008 | 295,176 |
| 2009 | 274,456 |
| 2010 | 124,274 |
| 2011 | 188,141 |
| 2012 | 121,873 |
| 2013 | 208,770 |

**Malaysia's production of bauxite (2004 - 2013)**




**External Trade**

**Exports**

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2606 | Bauxite incl. calcined | 19,360 | 19,339 | 17,462 | 7,099 | 6,840 | 7,786 |
| 2818 | Alumina & Al hydrate | 430 | 747 | 5,285 | 8,820 | 732 | 19,235 |
| 7601 | Unwrought (a) | 342,280 | 506,602 | 400,193 | 2,427,037 | 2,097,492 | 2,667,258 |
| 7602 | Waste & scrap | 12,104 | 9,227 | 8,884 | 33,946 | 29,176 | 30,816 |
| 7603 | Powder & flakes | 4,603 | 4,770 | 4,220 | 19,871 | 20,460 | 17,751 |
| 7604 | Bar, rods & profile (a) | 12,864 | 23,803 | 59,460 | 263,783 | 436,971 | 570,997 |
| 7605 | Wire | 51,168 | 20,057 | 12,097 | 423,433 | 157,138 | 101,124 |
| 7606 | Plates, sheets & strip | 7,827 | 7,961 | 41,578 | 144,642 | 127,124 | 784,803 |
| 7607 | Foil | 76,072,499 | 65,964,462 | 43,656 | 217,086 | 218,134 | 489,668 |
| 7608 | Tubes & pipes (a) | 5,010 | 2,371 | 17,114 | 134,976 | 92,443 | 175,094 |
| 7609 | Tubes & pipes fitting | 1,107 | 3,335 | 1,065 | 37,409 | 58,092 | 37,401 |

**Imports**

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2606 | Bauxite incl. calcined | 4,755 | 4,811 | 5,221 | 8,213 | 6,777 | 6,964 |
| 2818 | Alumina & Al hydrate | 180,485 | 12,861 | 120,716 | 269,718 | 356,564 | 1,085,503 |
| 7601 | Unwrought (a) | 394,003 | 374,148 | 264,044 | 3,483,977 | 2,780,088 | 1,823,880 |
| 7602 | Waste & scrap | 79,515 | 74,988 | 70,492 | 349,806 | 356,759 | 282,807 |
| 7603 | Powder & flakes | 1,221 | 2,206 | 2,372 | 7,346 | 13,220 | 17,278 |
| 7604 | Bars, rods & profiles (a) | 35,293 | 28,437 | 36,210 | 489,434 | 365,506 | 440,764 |
| 7605 | Wire | 8,539 | 7,211 | 8,002 | 111,640 | 84,903 | 108,429 |
| 7606 | Plates, sheets & strip | 123,186 | 121,151 | 184,261 | 1,728,003 | 1,654,778 | 1,950,403 |
| 7607 | Foil | 32,112 | 24,129 | 29,132 | 490,383 | 446,871 | 592,288 |
| 7608 | Tubes & pipes (a) | 8,944 | 9,209 | 30,762 | 158,067 | 144,978 | 26,808 |
| 7609 | Tubes & pipes fitting | 1,513 | 1,864 | 1,265 | 27,317 | 29,873 | 23,359 |

Note(s): (a) = including alloys

Source: Department of Statistics

**Malaysia's exports of bauxite, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Bauxite (HS: 2606.00.000)* | | | | | | |
| China | 8,000 | 2,396,000 | 16,875 | 6,143,000 | 12,685 | 6,919,000 |
| Thailand | 498 | 712,000 | 450 | 477,000 | 4,500 | 477,000 |
| United States of America | 359 | 328,000 | – | – | 140 | 132,000 |
| France | – | – | – | – | 97 | 45,000 |
| Japan | 5,000 | 3,603,000 | 2,000 | 203,000 | – | – |
| Republic of Korea | 3 | 59,000 | 13 | 17,000 | – | – |
| Singapore | – | – | – | – | 40 | 213,000 |
| **Total** | **13,860** | **7,098,000** | **19,338** | **6,840,000** | **17,462** | **7,786,000** |

**Malaysia's imports of bauxite, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Bauxite (HS: 2606.00.000)* | | | | | | |
| China | 4,625 | 7,953,000 | 4,460 | 6,159,566 | 4,557 | 5,840,564 |
| Thailand | – | – | 197 | 367,550 | 310 | 554,428 |
| India | 75 | 75,000 | 131 | 173,155 | 177 | 208,387 |
| Netherlands | – | – | 14 | 32,000 | 22 | 55,259 |
| Italy | – | – | 7 | 20,000 | – | – |
| Others | 54 | 186,000 | 3 | 24,398 | 154 | 305,657 |
| **Total** | **4,755** | **8,213,000** | **4,811** | **6,776,669** | **5,220** | **6,964,295** |

Source: Department of Statistics

## Price

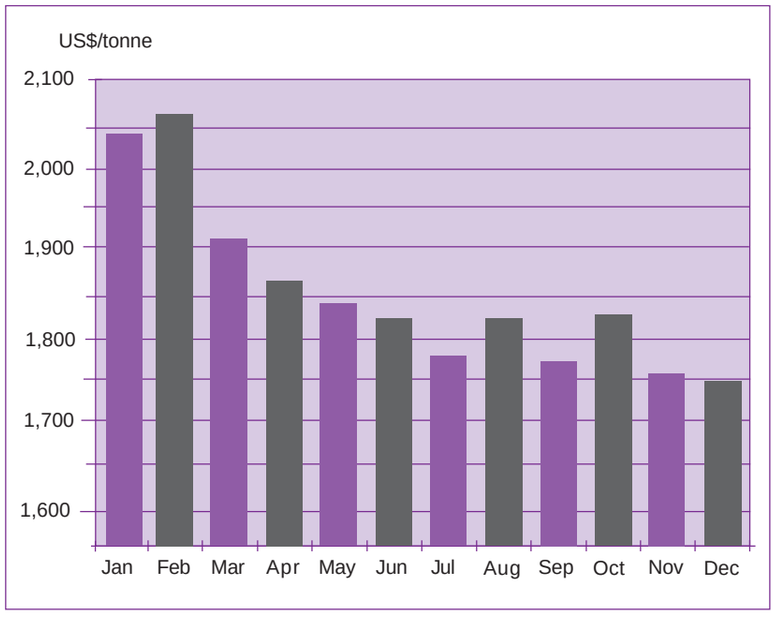


**Average monthly aluminium price in 2013**

| 2013 | US$/ tonne |
|---|---|
| January | 2,037.70 |
| February | 2,053.10 |
| March | 1,912.80 |
| April | 1,856.20 |
| May | 1,830.30 |
| June | 1,816.30 |
| July | 1,767.40 |
| August | 1,814.50 |
| September | 1,760.10 |
| October | 1,812.00 |
| November | 1,748.90 |
| December | 1,738.50 |
| **Annual Avg** | **1,845.65** |

Source: UNCTAD

**Average monthly aluminium price in 2013**



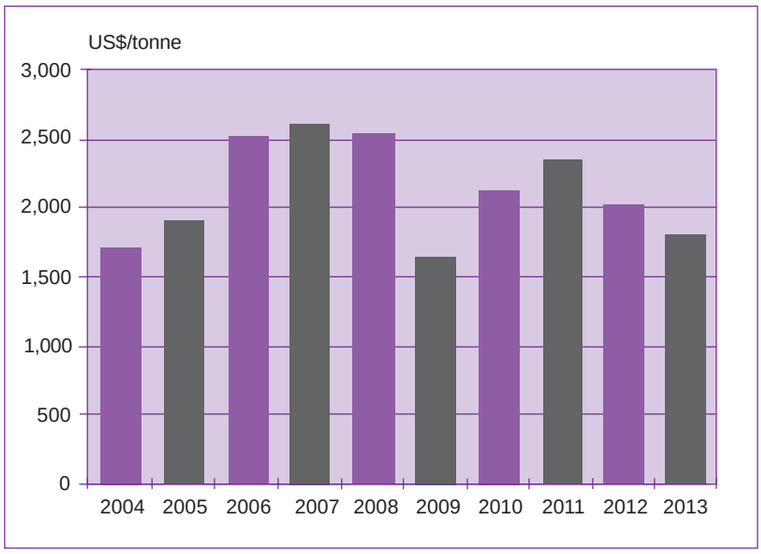
**Average annual aluminium price (2004 - 2013)**

| Year | US$/ tonne |
|---|---|
| 2004 | 1,715.54 |
| 2005 | 1,898.12 |
| 2006 | 2,569.43 |
| 2007 | 2,637.80 |
| 2008 | 2,572.36 |
| 2009 | 1,664.44 |
| 2010 | 2,172.69 |
| 2011 | 2,397.89 |
| 2012 | 2,019.14 |
| 2013 | 1,845.65 |

London Metal Exchange, High Grade, Cash

Source: UNCTAD

**Average annual aluminium price (2004 - 2013)**




**World mine production of bauxite 2011- 2013p**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| China | 18,100,000 | 20,300,000 | 21,500,000 | 45.5 |
| Russia | 3,990,000 | 3,850,000 | 3,950,000 | 8.4 |
| Canada | 2,980,000 | 2,780,000 | 2,900,000 | 6.1 |
| United States | 1,986,000 | 2,070,000 | 1,950,000 | 4.1 |
| United Arab Emirates | 1,800,000 | 1,820,000 | 1,800,000 | 3.8 |
| Australia | 1,950,000 | 1,860,000 | 1,750,000 | 3.7 |
| India | 1,670,000 | 1,700,000 | 1,700,000 | 3.6 |
| Brazil | 1,440,000 | 1,440,000 | 1,330,000 | 2.8 |
| Norway | 1,070,000 | 1,150,000 | 1,200,000 | 2.5 |
| Bahrain | 881,000 | 890,000 | 900,000 | 1.9 |
| Iceland | 800,000 | 820,000 | 825,000 | 1.7 |
| South Africa | 809,000 | 665,000 | 820,000 | 1.7 |
| Qatar | 390,000 | 604,000 | 600,000 | 1.3 |
| Mozambique | 562,000 | 564,000 | 560,000 | 1.2 |
| Other countries | 5,973,000 | 5,400,000 | 5,510,000 | 11.7 |
| **World total (rounded)** | **44,400,000** | **45,900,000** | **47,300,000** | |

Source: United States Geological Survey

## Review

Bauxite is the most common aluminium ore. It is hard, reddish and clayey-like material. The production of bauxite involves crushing, washing and screening through run-off-mill to remove clays and limonitic materials.

In Malaysia, bauxite was first discovered and mined in Johor during the colonial era. In 2013, there was one bauxite mine located in Johor namely, Johore Mining and Stevedoring Sdn Bhd (JOMIS) in Sungai Rengit, Pengerang. The bauxite production has been in a fluctuation trend. During 2013, its production has risen by 71% to 208,770 tonnes from 121,873 tonnes recorded in 2012. However, exports of bauxite decreased to 17,462 tonnes in 2013 from 19,339 tonnes n the previous year. Most of the bauxite was exported to China and Thailand. During the year, Malaysia also imported bauxite with a total of 5,220 tonnes.

To date, there are two aluminium smelters plants set-up in Sarawak. The plants owned and operated by Press Metal Smelter and have been in operation since November 2009. The first aluminium smelter in Balingian in Mukah Division which is currently operating at its full capacity of 120,000 tonnes per annum. The Press Metal's second aluminium smelter plant is located in Samalaju Industrial Park with a capacity of 240,000 tonnes per year. The combined capacity of these two plants would be 360,000 tonnes a year.

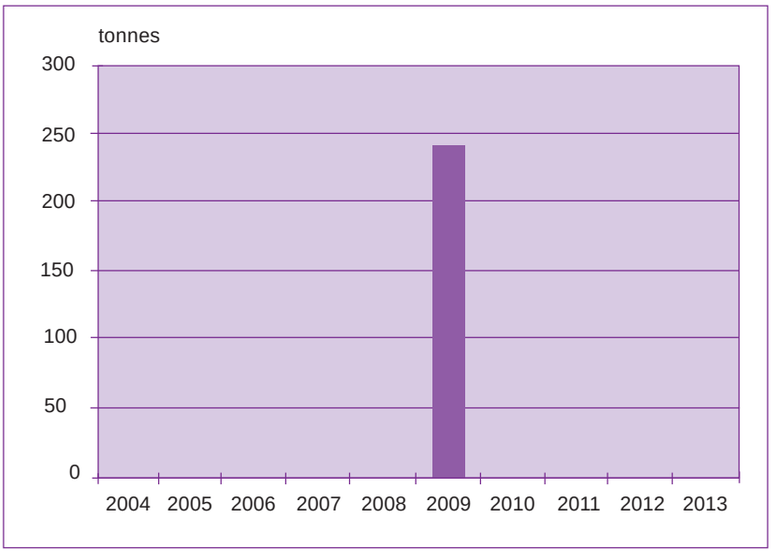
In Malaysia, the other potential resources of bauxite are mainly located in Bukit Goh, Kuantan and Lanchang, Maran in Pahang; Jabor in Terengganu; Bukit Gebong, Lundu-Semantan, Tanjung Seberang and Bukit Batu in Sarawak; and Labuk Valley and Bukit Mengkabau in Sabah. ■

# COPPER

**Malaysia's historic production of copper-in-concentrates**

| Year | Tonnes |
|---|---|
| 2004 | – |
| 2005 | – |
| 2006 | – |
| 2007 | – |
| 2008 | – |
| 2009 | 240 |
| 2010 | – |
| 2011 | – |
| 2012 | – |
| 2013 | – |

**Malaysia's production of copper (2004 - 2013)**




## External Trade



**Exports**

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2603 | Ores & concentrates | 780 | 2,066 | 81,447 | 2,117 | 3,613 | 144,060 |
| 7401 | Mattes & cement copper | 1,053 | 146 | 169 | 7,708 | 976 | 1,095 |
| 7402 | Unrefined | 4 | – | – | 35 | – | – |
| 7403 | Refined (a) | 10,316 | 1,410 | 266,821 | 206,382 | 32,236 | 6,047,656 |
| 7404 | Waste & scrap | 29,964 | 17,498 | 12,740 | 285,089 | 170,311 | 152,722 |
| 7405 | Master alloys | – | – | – | – | – | – |
| 7406 | Powder & flakes | 18,106 | 22,713 | 20,585 | 290,299 | 309,121 | 244,568 |
| 7407 | Bars, rods & profile (a) | 30,023 | 30,193 | 52,360 | 805,928 | 736,604 | 1,025,996 |
| 7408 | Wire (a) | 49,868 | 45,196 | 48,799 | 1,315,550 | 1,035,125 | 1,115,839 |
| 7409 | Plates, sheets & strip (a) | 9,986 | 11,275 | 8,854 | 354,167 | 226,303 | 194,189 |
| 7410 | Foil (a) | 24,415 | 22,039 | 17,919 | 752,528 | 669,879 | 567,594 |
| 7411 | Tubes & pipes (a) | 38,401 | 40,917 | 40,290 | 1,174,331 | 1,137,592 | 1,094,829 |
| 7412 | Tubes & pipes fitting (a) | 236 | 243 | 437 | 4,923 | 5,828 | 13,269 |

**Imports**

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2603 | Ores & concentrates | 230 | 175 | 39,244 | 213 | 413 | 355,636 |
| 7401 | Mattes & cement copper | 98 | 68 | 714 | 2,228 | 853 | 18,527 |
| 7402 | Unrefined | 513 | – | – | 11,742 | – | – |
| 7403 | Refined (a) | 226,018 | 214,607 | 522,612 | 6,260,105 | 5,338,100 | 12,389,327 |
| 7404 | Waste & scrap | 15,972 | 13,523 | 12,968 | 368,367 | 275,045 | 191,066 |
| 7405 | Master alloys | 990 | 724 | – | 26,483 | 27,103 | – |
| 7406 | Powder & flakes | 704 | 471 | 499 | 19,808 | 7,450 | 7,769 |
| , 7407 | Bars, rods & profile (a) | 15,639 | 31,213 | 37,828 | 415,030 | 709,734 | 892,710 |
| 7408 | Wire (a) | 40,877 | 34,971 | 47,202 | 1,145,557 | 1,189,676 | 1,105,362 |
| 7409 | Plates, sheets & strip (a) | 37,228 | 34,508 | 35,885 | 1,194,434 | 1,077,261 | 997,972 |
| 7410 | Foil (a) | 28,446 | 18,714 | 17,540 | 569,654 | 496,346 | 499,921 |
| 7411 | Tubes & pipes (a) | 32,312 | 30,318 | 34,130 | 946,327 | 829,622 | 879,145 |
| 7412 | Tubes & pipes fitting (a) | 3,568 | 2,975 | 2,973 | 90,041 | 94,561 | 105,630 |

Note(s): (a) = including alloys

Source: Department of Statistics



**Malaysia's exports of copper ores and concentrates, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Copper ores & concentrates (HS: 2603.00.000)* | | | | | | |
| China | 370 | 1,016,000 | 286 | 714,000 | 81,447 | 144,059,735 |
| Singapore | – | – | 1,374 | 1,882,000 | – | – |
| Vietnam | 169 | 456,000 | 352 | 879,000 | – | – |
| Hong Kong | 108 | 302,000 | 63 | 82,000 | – | – |
| Other | 134 | 343,000 | 22 | 55,000 | – | – |
| **Total** | **781** | **2,117,000** | **2,066** | **3,613,000** | **81,447** | **144,059,735** |

**Malaysia's imports of copper ores and concentrates, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Copper ores & concentrates (HS: 2603.00.000)* | | | | | | |
| Peru | – | – | – | – | 10,288 | 111,701,000 |
| Chile | – | – | – | – | 12,231 | 93,452,000 |
| Canada | – | – | – | – | 7,741 | 57,891,000 |
| Switzerland | – | – | – | – | 4,623 | 41,741,000 |
| Spain | – | – | – | – | 1,543 | 36,037,000 |
| Others | 230 | 212,590 | 175 | 412,510 | 2,799 | 14,814,000 |
| **Total** | **230** | **212,590** | **175** | **412,510** | **39,224** | **355,636,000** |

Source: Department of Statistics

**Price**

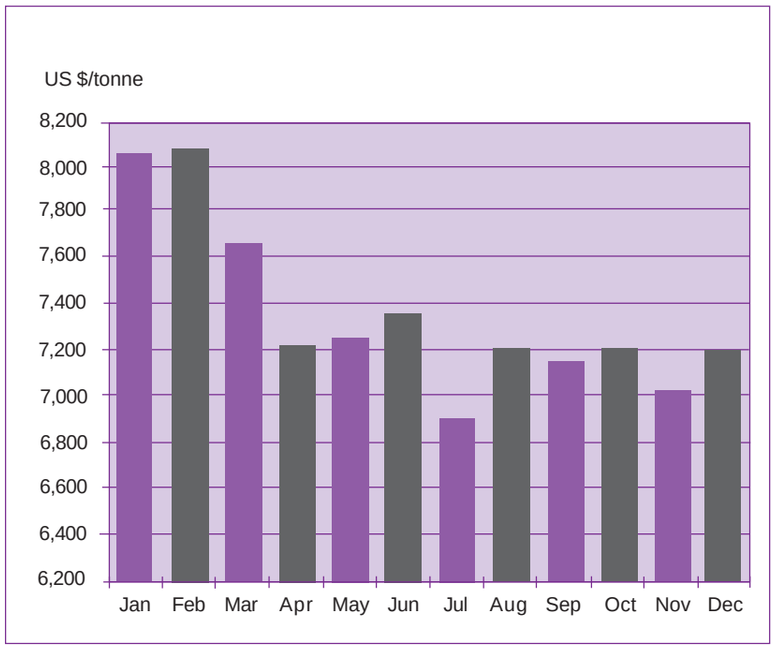


**Average monthly copper price in 2013**

| 2013 | US$/ tonne |
|---|---|
| January | 8,048.80 |
| February | 8,069.80 |
| March | 7,662.10 |
| April | 7,202.90 |
| May | 7,228.60 |
| June | 7,003.60 |
| July | 6,896.00 |
| August | 7,182.70 |
| September | 7,155.40 |
| October | 7,190.50 |
| November | 7,066.20 |
| December | 7,201.00 |
| **Annual Avg** | **7,325.63** |

Source: UNCTAD

**Monthly average copper price in 2013**



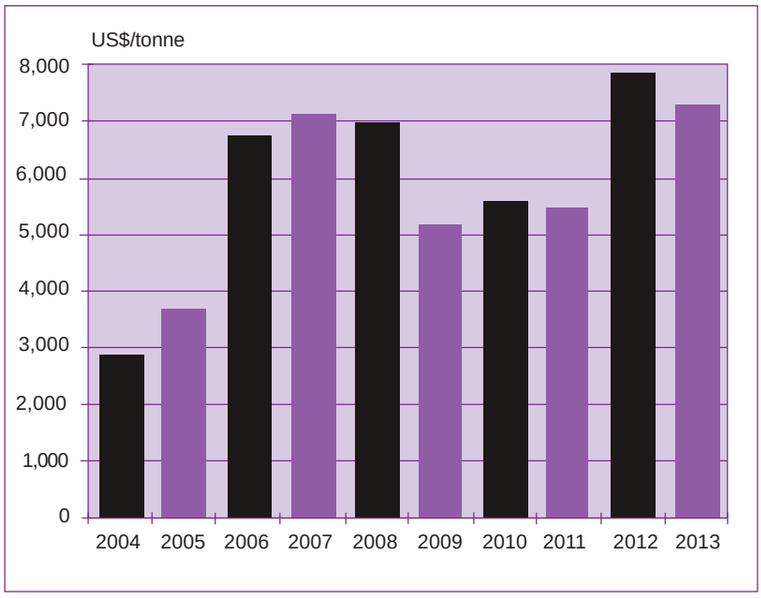
**Average annual copper price (2004 - 2013)**

| Year | US$/ tonne |
|---|---|
| 2004 | 2,865.09 |
| 2005 | 3,678.13 |
| 2006 | 6,720.80 |
| 2007 | 7,117.25 |
| 2008 | 6,955.01 |
| 2009 | 5,127.25 |
| 2010 | 5,646.54 |
| 2011 | 5,496.48 |
| 2012 | 7,949.43 |
| 2013 | **7,325.63** |

London Metal Exchange, Grade A, Cash

Source: UNCTAD

**Average annual copper price (2004 - 2013)**






**World mine production of copper 2011 - 2013**

| Country | tonnes (metal content) | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| Chile | 5,260,000 | 5,430,000 | 5,700,000 | 31.9 |
| China | 1,310,000 | 1,630,000 | 1,650,000 | 9.2 |
| Peru | 1,240,000 | 1,300,000 | 1,300,000 | 7.2 |
| United States of America | 111,000 | 1,170,000 | 1,220,000 | 6.8 |
| Australia | 958,000 | 958,000 | 990,000 | 5.5 |
| Russia | 713,000 | 883,000 | 930,000 | 5.2 |
| Congo(Kinshasa) | 520,000 | 600,000 | 900,000 | 5.0 |
| Zambia | 668,000 | 690,000 | 830,000 | 4.6 |
| Canada | 566,000 | 579,000 | 630,000 | 3.5 |
| Mexico | 443,000 | 440,000 | 480,000 | 2.7 |
| Kazakhstan | 417,000 | 424,000 | 440,000 | 2.5 |
| Poland | 427,000 | 427,000 | 430,000 | 2.4 |
| Indonesia | 543,000 | 360,000 | 380,000 | 2.1 |
| Other countries | ,970,000 | 2,000,000 | 2,000,000 | 11.2 |
| **World total (rounded)** | **16,100,000** | **16,900,000** | **17,900,000** | |

Source: United States Geological Survey

## Review

In 2013, there was no copper production in Malaysia after the last copper production in 2009 from the Mengapur copper mine in Pahang due to depleting ore reserve in the mining area.

During the year, a Canadian-based company Monument Mining Limited continued the evaluation work on the Mengapur Cu-Au-Ag-S (Fe-Mo) deposit located in the Central Belt area of Peninsular Malaysia. The company has conducted confirmation, exploration drilling and metallurgical test works (advanced-stage) at the Mengapur Polymetallic Project.

The other prospective areas in this country are found mainly in East Malaysia. In Sabah, copper resources occur in Tampang, Bidu-Bidu Hills, Kiabau, Pinanduan, Karang, Gunung Nungkok and Bambangan. In Sarawak, areas with copper potential have been identified in Bukit Jebong-Biawak, Kendai, Bau, Gunung Buri, Bukit Subong-Bukit Pan and Bukit Nimong.

Malaysia relied on imported copper metal and products to meet the demand for local industry. In 2013, Malaysia imported 522,612 tonnes of refined copper and copper alloys and 12,968 tonnes of copper scrap with a total valued RM12.58 billion. During the year, Malaysia exported 266,821 tonnes of refined copper and copper alloys and 12,740 tonnes of copper scrap with a total value of RM6.20 billion.

In 2013, Malaysia continued to be an importer of copper ores and concentrates mainly from Peru, Chile, Canada, Switzerland and Spain. The total imports were 39,224 tonnes worth RM 355.6 million increased from 175 tonnes in the previous year. Malaysia exported 81,447 tonnes of copper ores and concentrates valued at RM144.06 million in 2013 compared to 2,066 tonnes valued at RM3.62 million during 2012. ■

# GOLD

**Malaysia's production of raw gold 2010- 2013**

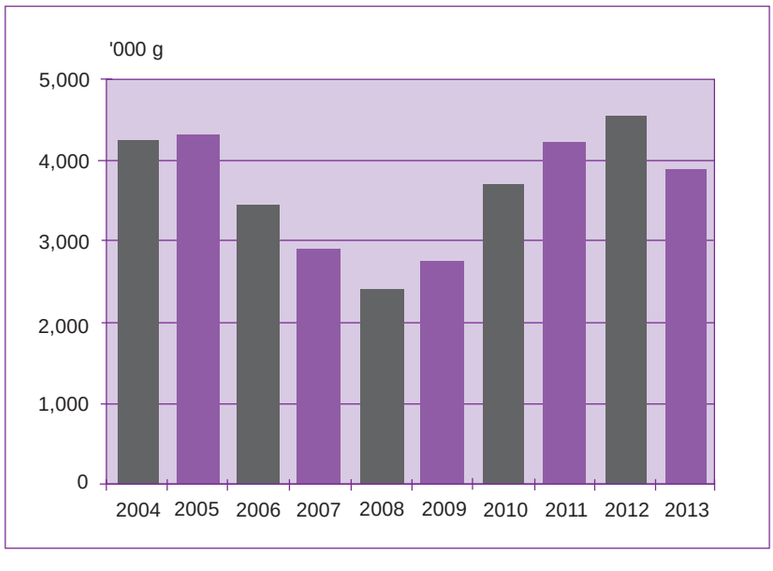
| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | grams | mines | grams | mines | grams | mines | grams | mines |
| Pahang | 3,655,669 | 8 | 4,010,294 | 10 | 4,347,473 | 10 | 3,220,424 | 7 |
| Kelantan | 101,417 | 6 | 183,440 | 4 | 265,090 | 6 | 559,065 | 8 |
| Terengganu | 8,850 | 2 | 25,590 | 3 | 12,424 | 1 | 43,219 | 3 |
| **Total** | **3,765,936** | **16** | **4,219,324** | **17** | **4,624,987** | **17** | **3,822,708** | **18** |

Note(s): mines = indicates maximum number of mines operating during the year

**Malaysia's historic production of gold**

| Year | '000 g |
|---|---|
| 2004 | 4,221 |
| 2005 | 4,249 |
| 2006 | 3,497 |
| 2007 | 2,913 |
| 2008 | 2,490 |
| 2009 | 2,794 |
| 2010 | 3,765 |
| 2011 | 4,219 |
| 2012 | 4,625 |
| 2013 | 3,823 |

**Malaysia's production of raw gold (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | kg | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2616.90.100 | Ores & concentrates | – | – | 8,975,283 | – | – | 122,296 |
| 7108.11.000 | Powder | 72 | 86 | – | 4,512 | 13,720 | – |
| 7108.12.000 | Unwrought (a) | 2,156 | 5,337 | 15,865 | 279,437 | 748,943 | 655,140 |
| 7108.13.000 | Semi-manufactures (a) | 3,847 | 1,933 | 1,302 | 475,531 | 284,069 | 155,399 |
| 7109.00.000 | Rolled gold unworked | 122 | 145 | 64 | 2,185 | 1,502 | 2,616 |
| 7112.10.000 | Waste and scrap | – | – | – | – | – | – |

### Imports

| H.S. | Commodity | kg | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2616.90.100 | Ores & concentrates | 118,350 | 1,360 | 19,976,655 | 2,224 | 7 | 330,165 |
| 7108.11.000 | Powder | 197 | 17 | 4 | 12,996 | 1,707 | 587 |
| 7108.12.000 | Unwrought (a) | 12,788 | 11,986 | 55,561 | 1,930,102 | 1,873,690 | 7,536,441 |
| 7108.13.000 | Semi-manufactures (a) | 30,634 | 30,567 | 22,672 | 4,203,556 | 4,744,109 | 3,262,409 |
| 7109.00.000 | Rolled gold unworked | 315 | 155 | 555 | 13,483 | 2,495 | 2,842 |
| 7112.10.000 | Waste and scrap | 40,707 | 10,481 | – | 803,905 | 852,151 | – |

Note(s): (a) = including alloys

Source: Department of Statistics

**Malaysia's exports of gold (non-monetary), by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (kg) | Value (RM) | Quantity (kg) | Value (RM) | Quantity (kg) | Value (RM) |
| *Gold, Non-Monetary (HS: 7108)* | | | | | | |
| Australia | 2,938 | 369,013,000 | 4,912 | 684,291,000 | 3,816 | 454,445,000 |
| Singapore | 2,333 | 220,229,000 | 2,733 | 396,294,000 | 12,678 | 244,977,000 |
| Switzland | 2,634 | 331,088,000 | 2,629 | 424,763,000 | 842 | 113,216,000 |
| Hong Kong | 1,485 | 202,869,000 | 1,025 | 135,589,000 | 645 | 82,223,000 |
| UAE | 289 | 38,038,000 | 402 | 44,522,000 | 331 | 46,190,000 |
| Others | 1,341 | 107,021,000 | 1,932 | 192,080,000 | 2,112 | 161,059,000 |
| **Total** | **11,021** | **1,268,275,000** | **13,634** | **1,877,359,000** | **20,425** | **1,102,110,000** |

**Malaysia's imports of gold (non-monetary), by country**



| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (kg) | Value (RM) | Quantity (kg) | Value (RM) | Quantity (kg) | Value (RM) |
| *Gold, Non-Monetary (HS: 7108)* | | | | | | |
| United Arab Emirates | 62,344 | 4,000,969,000 | 30,908 | 4,316,428,000 | 35,728 | 5,104,067,000 |
| Singapore | 17,017 | 2,066,765,000 | 17,768 | 2,594,846,000 | 23,892 | 3,150,501,000 |
| Switzerland | 10,524 | 1,567,772,000 | 9,665 | 1,499,557,000 | 21,380 | 2,771,844,000 |
| Hong Kong | 4,717 | 720,313,000 | 4,080 | 672,926,000 | 2,185 | 294,583,000 |
| USA | 434 | 37,756,000 | 277 | 18,655,000 | 174 | 19,288,000 |
| Others | 1,797 | 250,341,000 | 1,065 | 94,416,000 | 1,096 | 60,932,000 |
| **Total** | **96,833** | **8,643,917,000** | **63,763** | **9,196,828,000** | **84,454** | **11,402,216,000** |

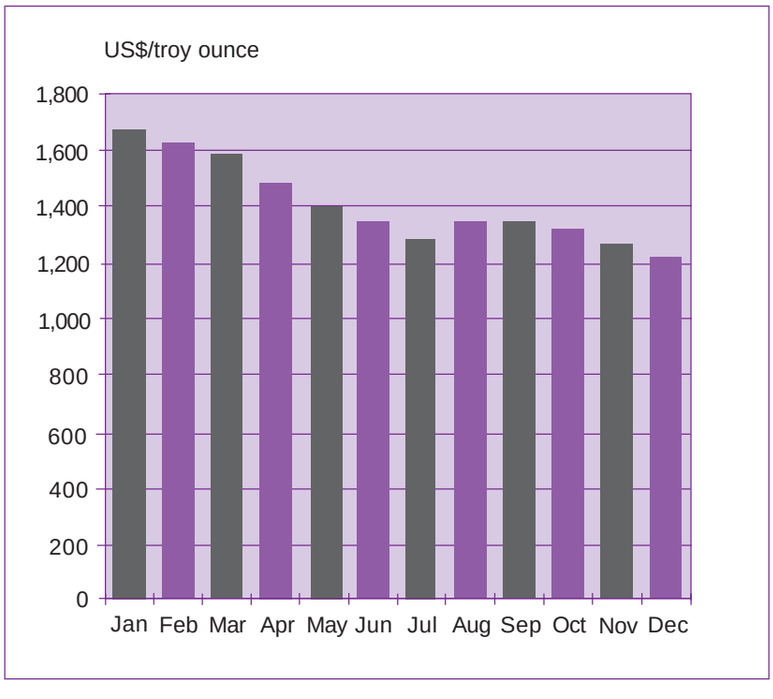
Source: Department of Statistics

## Price

### Average monthly gold price in 2013

| 2013 | US$/troy ounce |
|---|---|
| January | 1,670.96 |
| February | 1,627.59 |
| March | 1,592.86 |
| April | 1,485.08 |
| May | 1,413.5 |
| June | 1,342.36 |
| July | 1,286.72 |
| August | 1,347.1 |
| September | 1,348.8 |
| October | 1,316.19 |
| November | 1,275.82 |
| December | 1,225.4 |
| **Annual Avg** | **1,411.03** |

### Average monthly gold price in 2013





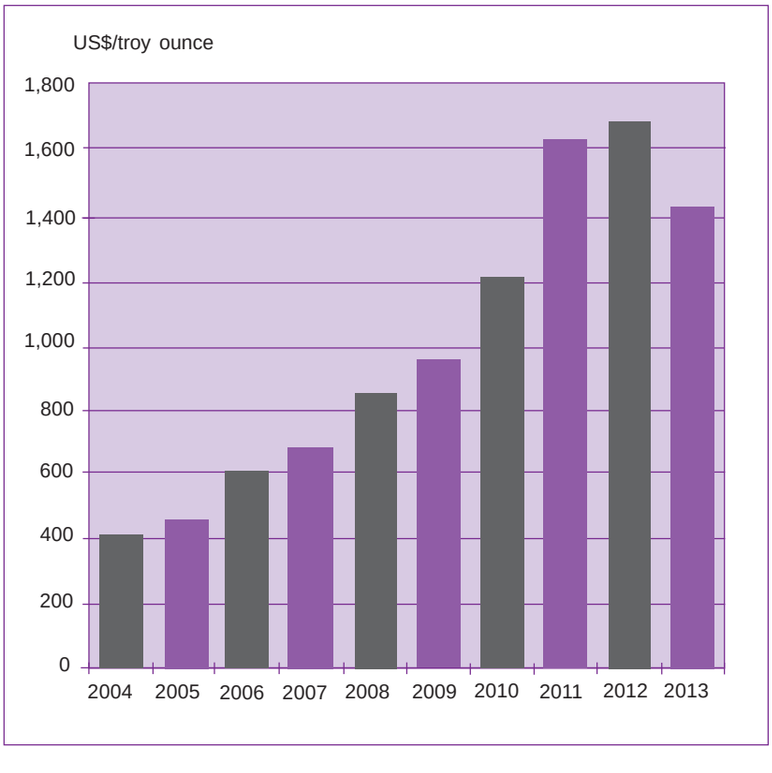

### Average annual gold price (2004 - 2013)

| Year | US$/ troy ounce |
|---|---|
| 2004 | 421.08 |
| 2005 | 444.88 |
| 2006 | 604.39 |
| 2007 | 696.70 |
| 2008 | 871.71 |
| 2009 | 973.00 |
| 2010 | 1,227.34 |
| 2011 | 1,652.31 |
| 2012 | 1,668.82 |
| 2013 | 1,411.03 |

London, 99.5% fine, Afternoon Fixing

Source: UNCTAD

### Average annual gold price (2004 - 2013)



**World mine production of gold**

| Country | kilograms (metal content) | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| China | 362,000 | 403,000 | 420,000 | 15.18 |
| Australia | 258,000 | 250,000 | 255,000 | 9.22 |
| United States of America | 234,000 | 235,000 | 227,000 | 8.20 |
| Russia | 200,000 | 218,000 | 220,000 | 7.95 |
| Peru | 164,000 | 161,000 | 150,000 | 5.42 |
| South Africa | 181,000 | 160,000 | 145,000 | 5.24 |
| Canada | 97,000 | 104,000 | 120,000 | 4.34 |
| Indonesia | 96,000 | 59,000 | 60,000 | 2.17 |
| Other countries | 1,075,000 | 1,100,000 | 1,170,000 | 42.28 |
| **World total (rounded)** | **2,660,000** | **2,690,000** | **2,767,000** | |

Source: United States Geological Survey

## Review

During 2013, there were a total of 18 gold mines operating in the country which located in the states of Pahang, Kelantan and Terengganu.



Malaysia's total gold production during the year decreased by 17% from 4,625.0 kg in 2012 to 3,823 kg in 2013. The average gold price in 2013 was at US$1,411.03 per troy ounce which decreased from US$1,668.82 per troy ounce recorded in the previous year.

Average gold prices finished lower in 2013 after a bullish 12 consecutive years. Over the period, a number of factors are said to have contributed to the yellow metal rise, including: the introduction of Exchange Traded Funds (ETF); a weaker US dollar; a slowdown in sales; buying by central banks; and increased money supply by governments aimed at spurring growth.

In 2013, the Malaysia gold production mainly comes from the state of Pahang which contributed about 84% (3,220 kg) of the total gold produced in the country, although the production decreased 26% from 4,347 kg in 2012. During the year, there were seven gold mines operating in Pahang compared to 10 mines in the previous year. The major gold mines operating in Pahang are Selinsing Mines Manager Sdn. Bhd. in Sg. Kermoi, Penjom Gold Mine in Penjom, and Raub Australian Gold Mining Sdn. Bhd. in Bukit Koman. Most of the gold produced in Malaysia comes from the Selinsing Mines Manager Sdn. Bhd. and Penjom Gold Mine. Selinsing Gold Mine is owned by Monument Mining Limited which is an established Canadian gold producer, with production cash costs among the lowest in the world. Its experienced management team is committed to growth and is now advancing several exploration and development projects in Malaysia, including the Mengapur Polymetallic Project which is in its feasibility stage.

Besra who is the leading producer of gold in Vietnam has actively carried out feasibility studies over the Jugan Hill and Young's Hill area in Bau, Sarawak since 2009. The Carlin-style gold deposits occurring in the Bau mining district has to date, produced over 3 million ounces of gold. Besra has completed a resource update at its Jugan Hill gold deposit that substantially increases its' measured and indicated resources to 17,911,300 tonnes at 1.51 g/t Au for 870,500 ounces. Feasibility studies in November 2013 indicates that production may reach more than 100,000 ounces per annum with a potential reserves of 5 to 10 million ounces.

The Minerals and Geoscience Department have continuously been undertaking gold exploration activities. Gold potential areas have been delineated in Sungai Malati, Kunak in Sabah and Gunung Nyendeng in Sarawak. ■

# IRON

**Malaysia's production of iron ore**

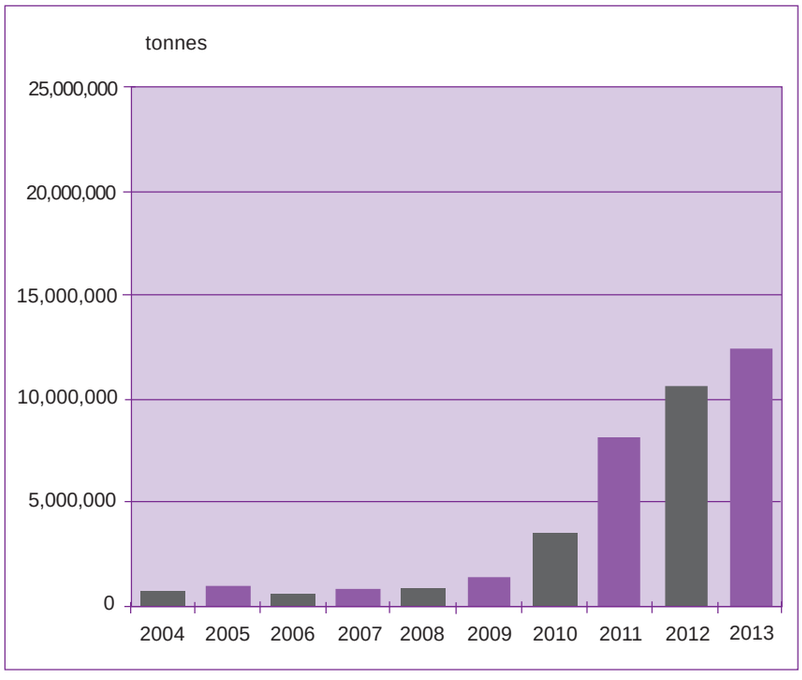
| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Pahang | 2,465,418 | 29 | 5,792,313 | 44 | 6,968,755 | 54 | 8,448,693 | 52 |
| Kelantan | 20,985 | 6 | 548,090 | 8 | 1,417,249 | 12 | 1,122,087 | 18 |
| Terengganu | 168,426 | 9 | 489,244 | 11 | 703,916 | 12 | 939,197 | 13 |
| Johor | 586,615 | 7 | 902,479 | 10 | 1,113,709 | 10 | 972,418 | 10 |
| Kedah | 91,918 | 2 | 310,112 | 3 | 444,500 | 6 | 603,978 | 9 |
| Perak | 35,580 | 3 | 17,095 | 2 | 71,710 | 3 | 16,000 | 2 |
| Melaka | – | – | 14,900 | 1 | 22,940 | 1 | 10,470 | 1 |
| Neg. Sembilan | – | – | 3,646 | 1 | 143,243 | 5 | 21,417 | 5 |
| **Total** | **3,347,960** | **56** | **8,077,879** | **80** | **10,886,022** | **103** | **12,134,258** | **110** |

mines = indicates highest number of mines operating during the year

**Malaysia's historic production of iron ore**

| Year | tonnes |
|---|---|
| 2004 | 663,732 |
| 2005 | 949,605 |
| 2006 | 667,082 |
| 2007 | 802,030 |
| 2008 | 981,932 |
| 2009 | 1,470,186 |
| 2010 | 3,368,942 |
| 2011 | 8,077,879 |
| 2012 | 10,886,022 |
| 2013 | 12,134,258 |

**Malaysia's production of iron ore (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2601 | Ores & concentrates | 5,696,546 | 3,290,933 | 12,429,183 | 714,164 | 1,827,828 | 1,464,507 |
| 7201 | Pig iron | 516 | 45 | 554 | 1,928 | 536 | 2,892 |
| 7202 | Ferro-alloys | 2,180 | 7,217 | 3,585 | 10,977 | 61,587 | 40,115 |
| 7203 | Direct reduced & sponge | 633,822 | 874,066 | 52,715 | 886,461 | 1,093,619 | 585,106 |
| 7204 | Waste & scrap | 70,780 | 82,096 | 52,579 | 65,731 | 70,401 | 62,718 |
| 7205 | Granules & powders | 3,446 | 7,996 | 8,493 | 15,296 | 14,508 | 21,636 |
| 7206 | Iron & steel ingots | 310 | 14 | 918 | 1,899 | 522 | 2,907 |
| 7207 | Semi-finished products | 860,707 | 583,476 | 134,197 | 1,799,658 | 1,149,567 | 246,949 |
| 7218 | Stainless steel ingots | 953 | 2,429 | 5,045 | 7,009 | 13,526 | 49,325 |
| 7224 | Other alloys steel ingots | 16,231 | 17,144 | 5,787 | 87,497 | 112,385 | 40,812 |



### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2601 | Ores & concentrates | 2,851,854 | 3,290,933 | 1,710,912 | 1,909,702 | 1,827,828 | 1,086,669 |
| 7201 | Pig iron | 79,651 | 58,366 | 153,122 | 6,136,299 | 90,378 | 199,958 |
| 7202 | Ferro-alloys | 80,143 | 62,219 | 63,850 | 457,741 | 343,672 | 322,757 |
| 7203 | Direct reduced & sponge | 36,795 | 34,918 | 59,890 | 73,332 | 38,001 | 91,099 |
| 7204 | Waste & scrap | 2,049,791 | 1,816,176 | 1,920,870 | 3,303,746 | 2,558,246 | 2,425,903 |
| 7205 | Granules & powders | 14,257 | 31,336 | 57,620 | 83,444 | 55,086 | 914,658 |
| 7206 | Iron & steel ingots | 231 | 683 | 339 | 3,092 | 3,394 | 5,406 |
| 7207 | Semi-finished products | 140,877 | 184,426 | 134,920 | 340,369 | 383,112 | 226,809 |
| 7218 | Stainless steel ingots | 927 | 3,969 | 5,327 | 15,222 | 58,645 | 64,638 |
| 7224 | Other alloys steel ingots | 47 | 62,050 | 13,000 | 1,437 | 199,605 | 8,380 |

Source: Department of Statistics

**Malaysia's exports of iron ore, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Iron ore (HS: 2601)* | | | | | | |
| China | 5,672,248 | 702,295,000 | 8,930,715 | 1,082,791,000 | 12,277,700 | 1,438,900,000 |
| Indonesia | – | – | – | – | 117,657 | 16,780,000 |
| Hong Kong | 20,878 | 9,943,000 | 33 | 6,000 | 17,678 | 6,879,000 |
| Singapore | 250 | 28,000 | 9 | 21,300 | 16,100 | 1,916,000 |
| Brazil | – | – | – | – | 49 | 32,000 |
| Others | 3,169 | 1,898,000 | 41 | 17,000 | – | – |
| **Total** | **5,696,546** | **714,163,000** | **8,930,799** | **1,082,836,000** | **12,429,184** | **1,464,507,000** |

**Malaysia's imports of iron ore, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Iron ore (HS: 2601)* | | | | | | |
| Brazil | 2,303,853 | 1,529,820,000 | 2,760,822 | 1,494,066,000 | 1,706,491 | 1,083,283,000 |
| Singapore | – | – | 100 | 100,000 | 3,629 | 2,067,000 |
| Japan | 24 | 244,000 | 15 | 168,000 | 71 | 607,000 |
| Spain | – | – | 90 | 35,000 | 654 | 548,000 |
| China | 35 | 115,000 | 15 | 136,000 | 42 | 82,000 |
| Others | 547,941 | 379,522,000 | 529,885 | 333,323,000 | 24 | 82,000 |
| **Total** | **2,851,854** | **1,909,702,000** | **3,290,933** | **1,827,828,000** | **1,711,000** | **1,086,669,000** |

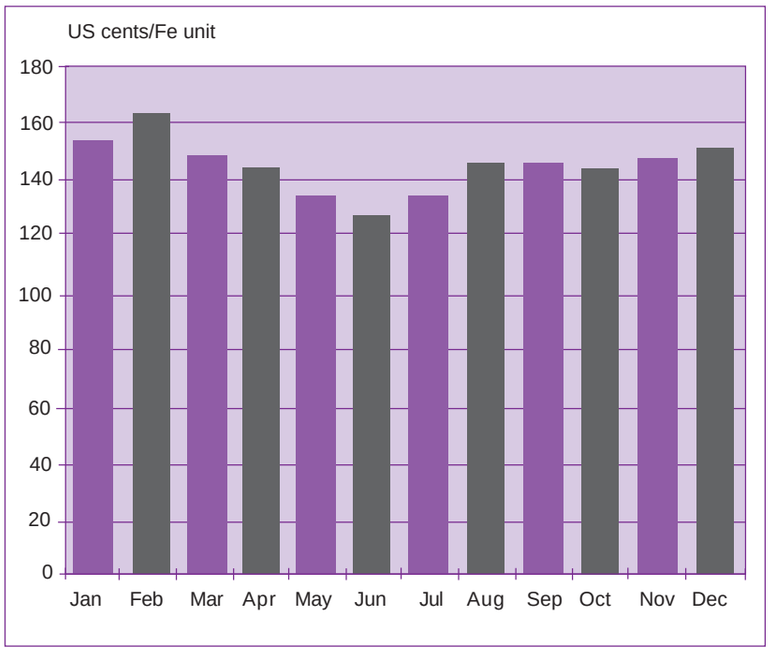
Source: Department of Statistics

## Price

### Average monthly price in 2013

| 2013 | US cents/ Fe Unit |
|---|---|
| January | 157 |
| February | 162 |
| March | 148 |
| April | 146 |
| May | 135 |
| June | 123 |
| July | 135 |
| August | 145 |
| September | 145 |
| October | 143 |
| November | 148 |
| December | 150 |
| **Annual Avg** | **144.8** |

### Average monthly iron ore price in 2013



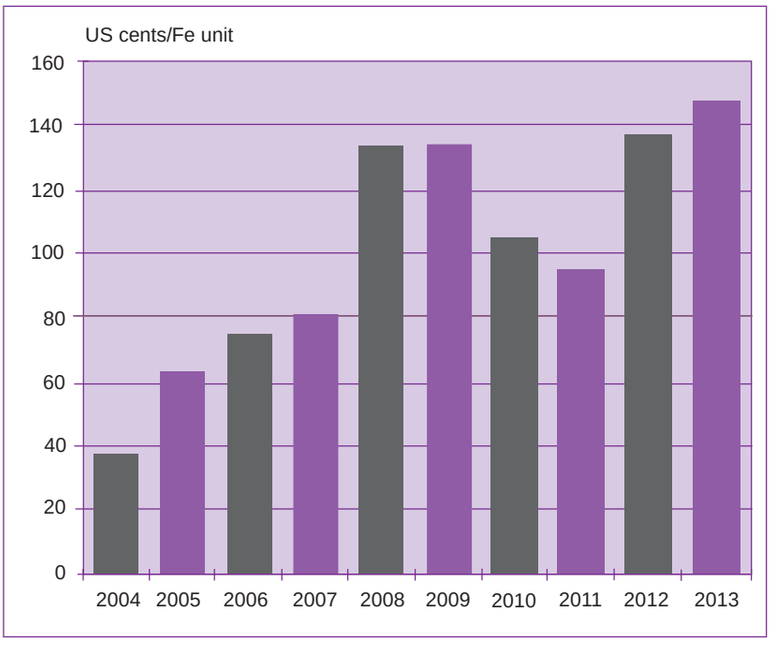



### Average annual iron ore price (2004 - 2013)

| Year | US cents/ Fe Unit |
|---|---|
| 2004 | 36.45 |
| 2005 | 62.51 |
| 2006 | 74.39 |
| 2007 | 81.46 |
| 2008 | 134.41 |
| 2009 | 134.41 |
| 2010 | 105.90 |
| 2011 | 96.50 |
| 2012 | 138.10 |
| 2013 | 144.80 |

Brazilian to Europe
C. 64.5% Fe F.O.B

### Average annual iron ore price (2004 - 2013)




Note:
Price is reported in cents, U.S. currency, for each percentage point of iron in a tonne of ore, e.g., at 74.39¢/Fe unit, ore grading 64.5% iron would bear a price of 74.39¢ x 64.5 = US$47.98/t.

Source: UNCTAD

**World mine production of iron ore**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| China | 1,330,000,000 | 1,310,000,000 | 1,320,000,000 | 44.82 |
| Australia | 488,000,000 | 521,000,000 | 530,000,000 | 18.00 |
| Brazil | 373,000,000 | 398,000,000 | 398,000,000 | 13.51 |
| India | 240,000,000 | 144,000,000 | 150,000,000 | 5.09 |
| Russia | 100,000,000 | 105,000,000 | 102,000,000 | 3.46 |
| Ukraine | 81,000,000 | 82,000,000 | 80,000,000 | 2.72 |
| South Africa | 60,000,000 | 63,000,000 | 67,000,000 | 2.28 |
| United States of America | 55,000,000 | 54,000,000 | 52,000,000 | 1.77 |
| Canada | 34,000,000 | 39,000,000 | 40,000,000 | 1.36 |
| Sweden | 25,000,000 | 23,000,000 | 26,000,000 | 0.88 |
| Other countries | 156,000,000 | 186,000,000 | 180,000,000 | 6.11 |
| **World total (rounded)** | **2,942,000,000** | **2,925,000,000** | **2,945,000,000** | |

Source: United States Geological Survey

## Review

Malaysian iron ore production was from the small-scale mines operating in the States of Pahang, Johor, Kelantan, Terengganu, Kedah, Perak, Melaka, and Negeri Sembilan. In 2013, there were 110 operating iron ore mines, an increase of seven percent from 103 mines in 2012. Malaysia's iron ore production recorded an upward trend since 2006. During the year, the production amounted to 12,134,258 tonnes increasing by 11% from 10,886,022 tonnes compared to the previous year. This amount registered the highest production figure in the last ten years. The types of iron ore commonly produced are magnetite, hematite and ferro-manganese. Most of the high grade iron ore was exported while low grade was consumed by the pipe-coating industry and cement factories.

In 2013, a total of 12,429,183 tonnes of high grade iron ore was exported with an increase to 3,290,933 tonnes in 2012. During the year, Malaysia exported 12.28 million tonnes of iron ore to China and imported 1.71 million tonnes of high-grade iron ore in the form of pellet from Brazil. The average annual iron ore price in 2013 was 144.8 US cents/Fe unit increasing from 138.10 US cents/Fe unit in the previous year.

The Malaysian steel industry imports their raw material requirements in the form of lumps, pellets and scraps as the main feed materials. In 2013, all iron ore pellets required by the local steel mills were imported mainly from Brazil. During the year, import of iron ore including pellets amounted to 1.7 million tonnes valued at RM1.09 billion, whilst waste and scrap (1.9 million tonnes valued at RM2.4 billion) and pig iron (153,122 tonnes valued at RM199.9 million).

Other potential areas for iron ore are in Pahang (Bukit Ibam, Sg. Temau, Ulu Rompin and Tasik Chini), Terengganu (Bukit Besi and Machang Setahun), Johor (Bukit Medan and Pelepah Kanan), Kedah (Kg. Merbok and Gunung Jerai), Kelantan (Bukit Kuang and Temangan) and Perak (Gunung Panjang). In Sabah, limonite and lateritic clay containing iron and a small percentage of nickel form residual deposits over the ultrabasic masses. The largest known limonite deposit of this type underlies the Tavai Plateau in the Telupid area. ■

# MANGANESE

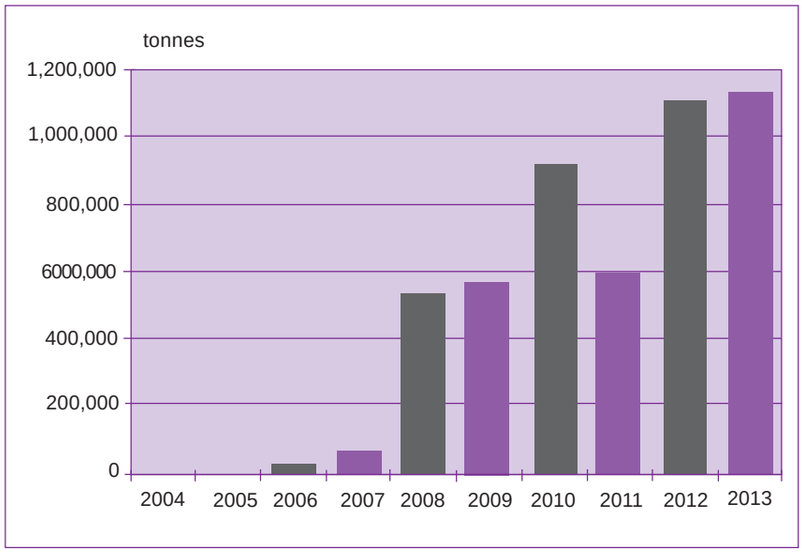
**Malaysia's production of manganese ore**

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Kelantan | 899,703 | 9 | 488,195 | 8 | 789,857 | 9 | 846,255 | 10 |
| Pahang | – | – | 109,722 | 5 | 309,728 | 8 | 278,872 | 8 |
| **Total** | **899,703** | **9** | **597,917** | **13** | **1,099,585** | **17** | **1,125,127** | **18** |

**Malaysia's historic production of manganese ore**

| Year | tonnes |
|---|---|
| 2004 | – |
| 2005 | – |
| 2006 | 6,500 |
| 2007 | 56,500 |
| 2008 | 536,675 |
| 2009 | 567,963 |
| 2010 | 899,703 |
| 2011 | 597,917 |
| 2012 | 1,099,585 |
| 2013 | 1,125,127 |

**Malaysia's production of manganese ore (2004 - 2013)**




## External Trade

**Exports**

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2011 | 2013p |
| 2602.00 | Ores & concentrates | 417,042 | 1,070,499 | 1,110,406 | 93,912 | 141,240 | 174,028 |
| 2820.10 | Manganese dioxide | 87 | 1,695 | 3,832 | 384 | 6,999 | 16,663 |
| 2820.90 | Other manganese dioxide | 160 | 68 | 1,053 | 1,261 | 377 | 40,801 |

**Imports**

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2602.00 | Ores & concentrates | 1,075 | 124 | 50 | 4,731 | 2,396 | 286 |
| 2820.10 | Manganese dioxide | 3,416 | 2,757 | 3,654 | 10,978 | 12,396 | 16,864 |
| 2820.90 | Other manganese dioxide | 1,779 | 2,410 | 4,280 | 7,548 | 7,070 | 10,216 |

Source: Department of Statistics

**Malaysia's exports of manganese ore, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Manganese ore (HS: 2602.00)* | | | | | | |
| China | 415,368 | 93,033,000 | 1,055,639 | 93,033,000 | 1,090,465 | 170,048,000 |
| Indonesia | – | – | 8,100 | 1,211,000 | 15,740 | 3,323,000 |
| India | 924 | 87,000 | – | – | 4,200 | 657,000 |
| Hong Kong | – | – | 1,160 | 183,000 | – | – |
| Vietnam | 504 | 475,000 | 5,600 | 504,000 | – | – |
| Taiwan | – | – | – | – | – | – |
| Others | 246 | 154,000 | – | – | – | – |
| **Total** | **417,042** | **93,912,000** | **1,070,499** | **141,240,000** | **1,110,405** | **174,028,000** |

**Malaysia's imports of manganese ore, by country**

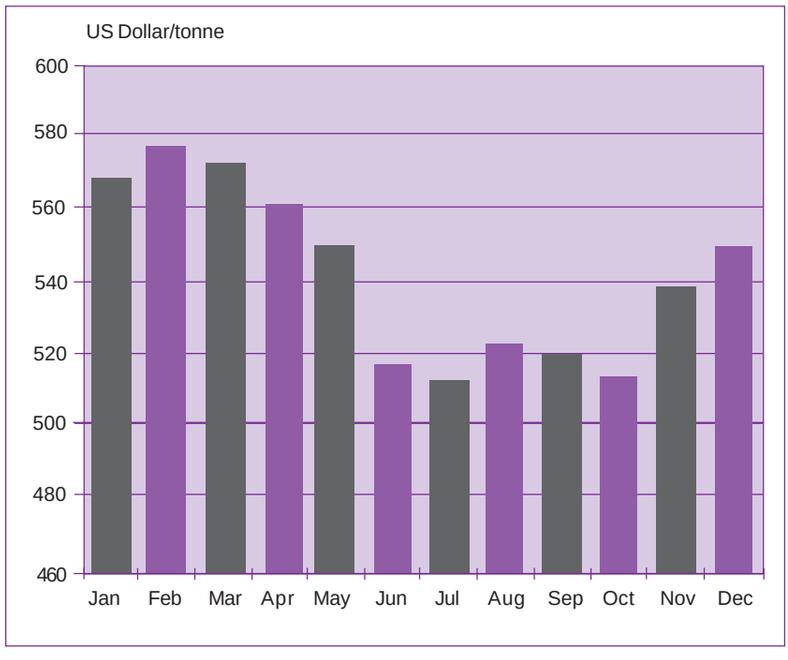
| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Manganese ore (HS: 2602.00)* | | | | | | |
| China | 22 | 207,000 | 37 | 313,000 | 35 | 247,000 |
| Singapore | – | – | 36 | 97,000 | 6 | 11,000 |
| Nigeria | 667 | 4,160,000 | 25 | 1,847,000 | – | – |
| Taiwan | 5 | 49,000 | 5 | 42,000 | – | – |
| India | 25 | 27,000 | 7 | 10,000 | – | – |
| Others | 356 | 288,000 | 13 | 87,000 | 9 | 28,000 |
| **Total** | **1,075** | **4,732,000** | **124** | **2,396,000** | **50** | **286,000** |

## Price

### Average monthly price in 2013

| 2013 | US$/tonne |
|---|---|
| January | 569.00 |
| February | 578.00 |
| March | 573.00 |
| April | 561.00 |
| May | 549.00 |
| June | 517.00 |
| July | 512.00 |
| August | 522.00 |
| September | 520.00 |
| October | 513.00 |
| November | 539.00 |
| December | 550.00 |
| **Annual Avg** | **541.92** |

### Average monthly manganese ore price in 2013



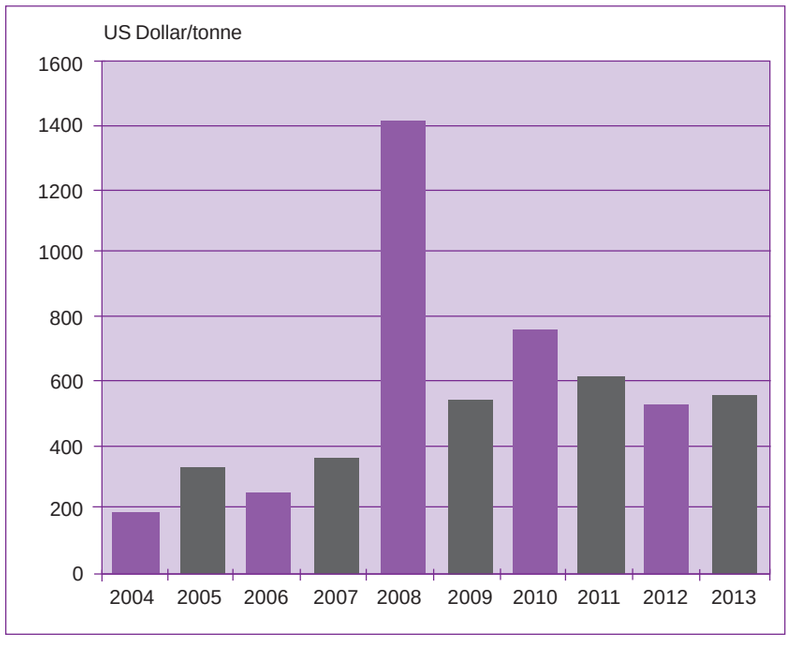



### Average annual manganese ore price (2004 - 2013)

| Year | US$/tonne |
|---|---|
| 2004 | 198.50 |
| 2005 | 327.06 |
| 2006 | 259.79 |
| 2007 | 356.94 |
| 2008 | 1,410.49 |
| 2009 | 546.36 |
| 2010 | 771.58 |
| 2011 | 603.33 |
| 2012 | 487.00 |
| 2013 | 541.92 |

Source: UNCTAD

### Average annual manganese ore price (2004 - 2013)



**World mine production of manganese ore**

| Country | tonnes | | | % of 2013 |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| South Africa | 3,400,000 | 3,600,000 | 3,800,000 | 21.9 |
| Australia | 3,200,000 | 3,080,000 | 3,100,000 | 17.8 |
| China | 2,800,000 | 2,900,000 | 3,100,000 | 17.8 |
| Gabon | 1,860,000 | 1,650,000 | 2,000,000 | 11.5 |
| Brazil | 11,210,000 | 1,330,000 | 1,400,000 | 8.1 |
| **Malaysia*** | **597,917** | **1,099,585** | **1,125,127** | **6.5** |
| India | 895,000 | 800,000 | 850,000 | 4.9 |
| Ukraine | 330,000 | 416,000 | 350,000 | 2.0 |
| Mexico | 171,000 | 188,000 | 200,000 | 1.2 |
| Other countries | 1,991,083 | 1,415,000 | 1,460,000 | 8.4 |
| **World total (rounded)** | **16,455,000** | **16,478,000** | **17,385,000** | |

Source: United States Geological Survey

## Review

Manganese ore is an important raw material in iron and steel production. It is essential by virtue of its sulphur-fixing, deoxidizing and alloying properties. Besides a variety of other uses, manganese is also used in producing aluminium alloys and dry cell batteries.

After a long period of inactivity, manganese mining was revived in 1978 with Kelantan producing 78,329 tonnes of manganese ores. For the period 1980 to 1995, no manganese mining activities were recorded until 1996 when a total of 13,000 tonnes of manganese was produced from Bukit Penchuri, Kelantan. The volume of manganese output from Malaysia depended on prices of manganese in the world markets. Since 2005, with an increase in manganese prices in the world, Malaysia's manganese output gradually increased during the past several years.

Malaysia's production of manganese ore in 2013 increased by 3% to 1,125,127 tonnes compared with 1,099,585 tonnes from the previous year. The manganese was produced from 10 operating mines in Kelantan and 8 mines in Pahang. Manganese resources were located in Kelantan, Terengganu, Pahang and Johor with total estimated resources of 3.7 million tonnes with grades of mostly less than 50% Mn.

The manganese produced was mainly exported to China. In 2013, Malaysia exported a total of 1,110,405 tonnes or 98% of manganese ore to China and the rest to Indonesia and India. Export of the mineral ore increased by 4% from 1.07 Mt in 2012 to 1.11 Mt the following year. Malaysia also imported small amounts of manganese ore. In 2013, the imports of manganese ore decreased compared with 2012. A total of 50 tonnes valued at RM286,000 of manganese was imported in which 35 tonnes of manganese was imported from China, 6 tonnes from Singapore and others made up the rest.

OM Materials (Sarawak) Sdn. Bhd. a joint venture between OM Holding Groups (80%) and Cahaya Mata Sarawak (20%) scheduled to commence production of ferro-alloy material in the first quarter of 2014 in its 600,000 tonnes installed capacity plant in Samalaju Industrial Park, Bintulu, Sarawak. ■

# RARE EARTH MINERALS

**Malaysia's production of rare earth minerals**

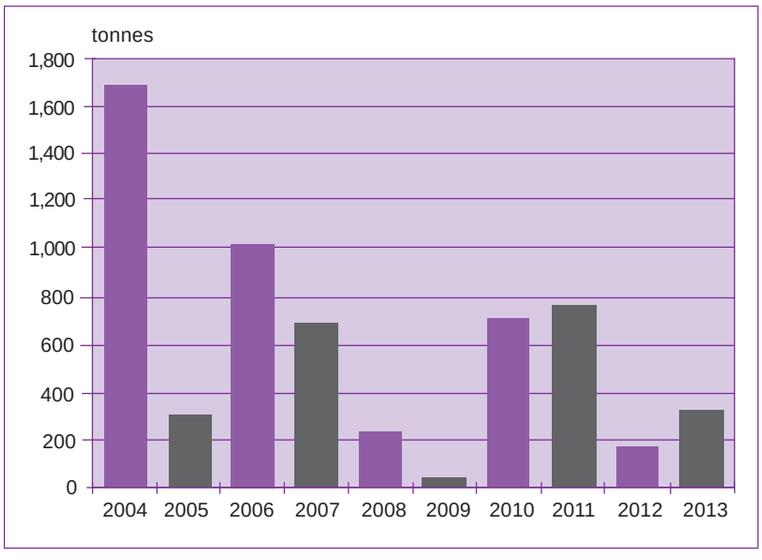
| Minerals | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Monazite | 622 | – | 571 | – | 113 | – | 261 | – |
| Xenotime | 110 | – | 208 | – | 66 | – | 97 | – |
| **Total** | **732** | – | **779** | – | **179** | – | **358** | – |

Both monazite and xenotime are by-products of tin mining

**Malaysia's historic production of rare earth minerals**

| Year | tonnes |
|---|---|
| 2004 | 1,683 |
| 2005 | 320 |
| 2006 | 1,111 |
| 2007 | 682 |
| 2008 | 233 |
| 2009 | 25 |
| 2010 | 732 |
| 2011 | 779 |
| 2012 | 179 |
| 2013 | 358 |

**Malaysia's production of rare earth minerals (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2530.90.100 | Xenotime | 362 | – | 7,624 | 5,536 | – | 38,257 |
| 2612.20.100 | Monazite | 2,107 | 144 | 184 | 7,506 | 2,343 | 1,594 |
| 2805.30.000 | Rare earth metals | 175 | – | – | 116 | – | – |
| 2846 | Cerium other compounds* | 859 | 341 | 2,325 | 28,240 | 3,028 | 54,680 |
| 3606.90 | Ferro-cerium | – | – | – | – | – | – |

* - sold in units other than tonnes

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2530.90.100 | Xenotime | 3,025 | 1,962 | 95 | 4,832 | 3,393 | 431 |
| 2612.20.100 | Monazite | 39 | – | – | 154 | – | – |
| 2805.30.000 | Rare earth metals | 6 | 2,118 | 7,447 | 643 | 19,167 | 80,185 |
| 2846 | Cerium and other compounds* | 1,039 | 2,214 | 63 | 118,048 | 70,428 | 7,143 |
| 3606.90 | Ferro-cerium | – | – | – | – | – | – |

* - sold in units other than tonnes

### Malaysia's exports of monazite, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Monazite (HS: 2612.20.100)* | | | | | | |
| China | 2,010 | 7,130,000 | 122 | 2,014,000 | 184 | 1,594,000 |
| India | 97 | 376,000 | – | – | – | – |
| Thailand | 61 | 829,000 | 22 | 829,000 | – | – |
| Others | 41 | 155,000 | – | – | – | – |
| **Total** | **2,209** | **8,490,000** | **144** | **2,343,000** | **184** | **1,594,000** |

Source: Department of Statistics

**World mine production of rare earth minerals**

| Country | tonnes | | | % of 2013 |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| China | 105,000 | 100,000 | 100,000 | 89.3 |
| United States | _ | 800 | 4,000 | 3.6 |
| India | 2,800 | 2,900 | 2,900 | 2.6 |
| Russia | _ | 2,400 | 2,400 | 2.1 |
| Australia | 2,200 | 3,200 | 2,000 | 1.8 |
| **Malaysia*** | **779** | **179** | **358** | **0.3** |
| Vietnam | _ | 220 | 220 | 0.2 |
| Brazil | 250 | 140 | 140 | 0.1 |
| **World total (rounded)** | **111,000** | **110,000** | **112,000** | |

Source: United States Geological Survey
*Minerals and Geoscience Department Malaysia



## Review

Rare earth minerals (REM) are a unique group of 15 chemical elements in the periodic table known as the Lanthanide series. They are essentially the backbone for the many hundreds of applications and devices that we use on a daily basis, as well as the technologies that contributes to the health of our planet.

The REM are used in a wide range of applications in improving energy efficiency, digital technology and enhancing environmental protection. It has becomed an indispensable part of modern life and are found in items such as computers, camera lenses, high efficiency light bulbs, flat panel displays, hybrid vehicles, wind turbines, compact discs and catalytic converters. The main economic minerals exploited for their rare earth contents are bastnasite, monazite and xenotime. However, in Malaysia only monazite and xenotime are produced from various amang retreatment plants located in Perak and Selangor as the REM are not mined domestically.

In 2013, the total production of REM increased 100% to 358 tonnes from 179 tonnes recorded in the previous year. These comprised of 261 tonnes of monazite and 97 tonnes of xenotime. During the year, a total of 7,624 tonnes of xenotime and 184 tonnes of monazite were exported mainly to China. However, Malaysia also imported a total of 95 tonnes of xenotime and 7,447 tonnes of rare earth metals during the same period.

In Malaysia, a rare earth processing plant was set up by Lynas Corp. Ltd. of Australia in Gebeng Industrial Park in Kuantan, Pahang that processes the rare earth concentrates brought from Australia. The plant, Lynas Advanced Materials Plant (LAMP), accounts for about 39% of the world supply outside of China. China continues to dominate global supply with 89% of rare earths production in 2013. The main mine in China is the Bayun Obo mine near Baotou in Inner Mongolia. The finished products that LAMP would produce are lanthanum-cerium carbonate, lanthanum carbonate, cerium carbonate, samarium, europium, gadolinium, heavy rare earths carbonate, neodymium and praseodymium (didymium) oxide, according to its original specifications. ■

# SILVER

**Malaysia's production of silver**

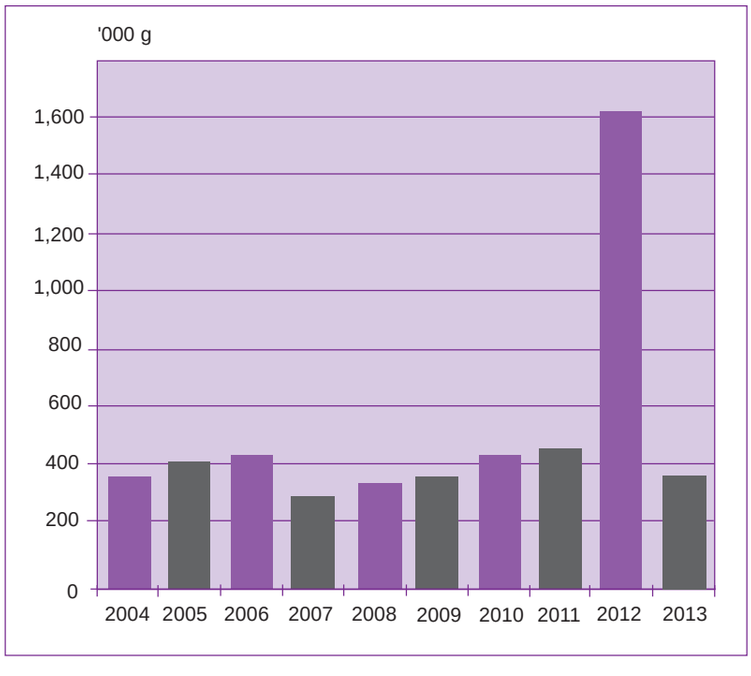
| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | grams | mines | grams | mines | grams | mines | grams | mines |
| Pahang (a) | 435,862 | – | 459,640 | – | 1,627,711 | – | 360,828 | – |
| **Total** | **435,862** | – | **459,640** | – | **1,627,711** | – | **360,828** | – |

(a) By-product of gold mining

**Malaysia's historic production of silver**

| Year | '000 g |
|---|---|
| 2004 | 363.7 |
| 2005 | 401.5 |
| 2006 | 410.6 |
| 2007 | 295.6 |
| 2008 | 349.2 |
| 2009 | 367.0 |
| 2010 | 436.0 |
| 2011 | 459.6 |
| 2012 | 1,627.7 |
| 2013 | 360.8 |

**Malaysia's production of silver (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | kg | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2616.10 | Ores & concentrates | – | 16 | – | – | 236 | – |
| 7106.10 | Powder | 71 | 10,349 | 3,451 | 325 | 35,600 | 9,942 |
| 7106.91 | Unwrought | – | 15 | 40 | – | 45 | 165 |
| 7106.92 | Semi-manufactures | 32 | 179 | 269 | 817 | 3,836 | 1,321 |

### Imports

| H.S. | Commodity | kg | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2616.10 | Ores & concentrates | 1,392 | 735 | 2,606 | 10,682 | 11,884 | 52,905 |
| 7106.10 | Powder | 1,812 | 10,205 | 7,140 | 72,946 | 37,826 | 20,942 |
| 7106.91 | Unwrought | 3,709 | 11,967 | 13,902 | 83,444 | 29,691 | 21,660 |
| 7106.92 | Semi-manufactures | 6,106 | 29,199 | 32,948 | 157,193 | 93,864 | 71,133 |

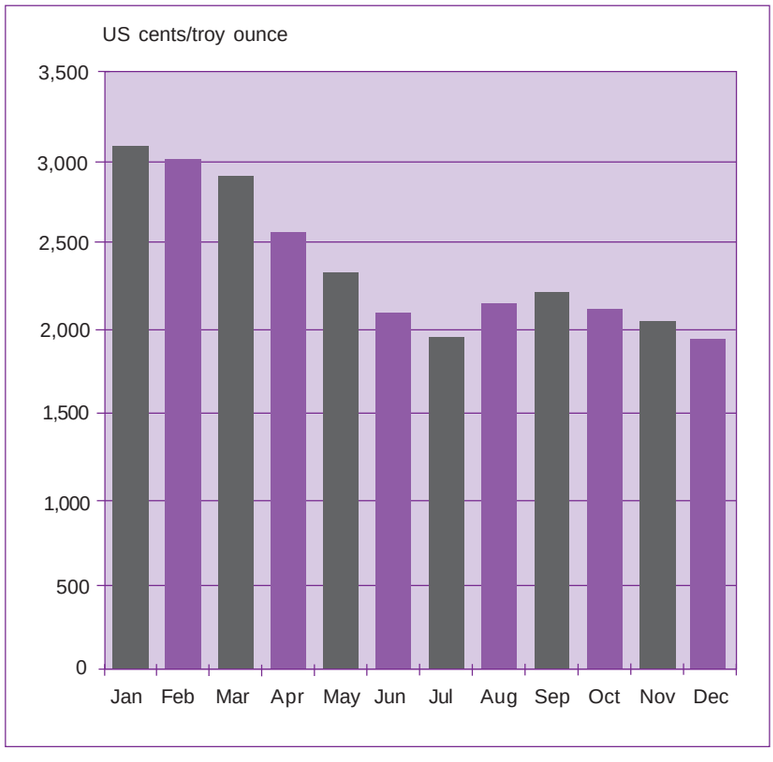
Source: Department of Statistics

## Price

### Average monthly silver price in 2013

| 2013 | US cents/ troy ounce |
|---|---|
| January | 3,112.05 |
| February | 3,027.53 |
| March | 2,878.90 |
| April | 2,525.25 |
| May | 2,301.96 |
| June | 2,111.53 |
| July | 1,968.66 |
| August | 2,208.02 |
| September | 2,249.40 |
| October | 2,201.87 |
| November | 2,077.97 |
| December | 1,967.00 |
| **Annual Avg** | **2385.85** |

### Average monthly silver price in 2013



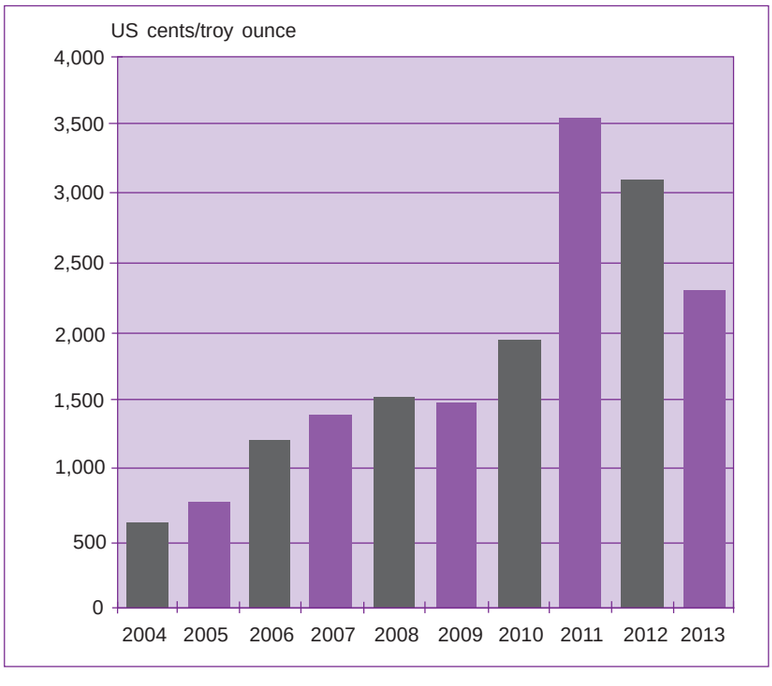



### Average annual silver price (2004 - 2013)

| Year | US cents/ troy ounce |
|---|---|
| 2004 | 666.55 |
| 2005 | 733.96 |
| 2006 | 1,156.97 |
| 2007 | 1,341.47 |
| 2008 | 1,500.34 |
| 2009 | 1,469.57 |
| 2010 | 1,913.98 |
| 2011 | 3,526.42 |
| 2012 | 3,121.17 |
| 2013 | 2,385.85 |

UNCTAD (Handy & Harman 99.9% Grade Refined, New York)

### Average annual silver price (2004 - 2013)



**World mine production of silver**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| Mexico | 4,150 | 5,360 | 5,400 | 20.8 |
| China | 3,700 | 3,900 | 4,000 | 15.4 |
| Peru | 3,410 | 3,480 | 3,500 | 13.5 |
| Australia | 1,730 | 1,730 | 1,700 | 6.5 |
| Russia | 1,350 | 1,500 | 1,700 | 6.5 |
| Bolivia | 1,210 | 1,210 | 1,200 | 4.6 |
| Chile | 1,290 | 1,190 | 1,200 | 4.6 |
| Poland | 1,170 | 1,150 | 1,150 | 4.4 |
| United States of America | 1,120 | 1,060 | 1,090 | 4.2 |
| Canada | 572 | 663 | 720 | 2.8 |
| Other countries | 3,600 | 4,230 | 4,300 | 16.6 |
| **World total (rounded)** | **23,300** | **25,500** | **26,000** | |

Source: United States Geological Survey



## Review

In Malaysia, silver ores and concentrates were produced as a by-product from gold mining activities in Pahang since 2004. In 2013, a total of 360.8 kg silver was produced and has decreased as much as 78% compared with 1,628 kg produced in 2012.

During the year, 3,451 kg of silver powder and 269 kg of silver semi-manufactures was exported whilst at the same time Malaysia imported a total of 2,606 kg of silver ores and concentrates to fulfill the local requirements. Imports of silver semi-manufactures increased to 32,948 kg from 29,199 kg recorded in 2012.

During the year, the average annual price of monthly silver price dropped to US cent 2,385.85 per troy ounce from US cent 3,121.17 per troy ounce in 2012.

In Malaysia, silver occurrence has been reported within the silicified volcanic rocks at Gunung Pock and Gunung Wullersdorf in Semporna, Sabah. ■

# TANTALUM/NIOBIUM MINERALS

**Malaysia's production of tantalum/niobium minerals**

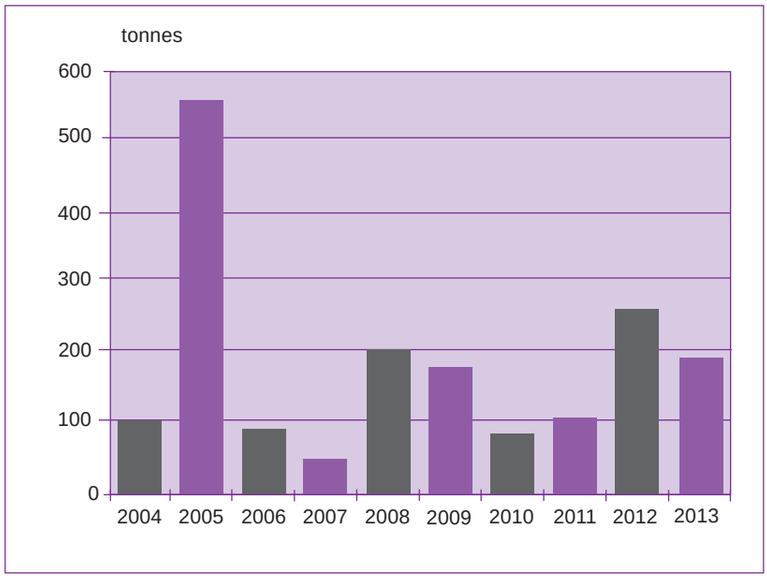
| Mineral | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Struverite | 84 | – | 110 | – | 262 | – | 190 | – |

Struverite is a by-product of tin mining

**Malaysia's historic production of struverite**

| Year | tonnes |
|---|---|
| 2004 | 121 |
| 2005 | 552 |
| 2006 | 93 |
| 2007 | 52 |
| 2008 | 216 |
| 2009 | 176 |
| 2010 | 84 |
| 2011 | 110 |
| 2012 | 262 |
| 2013 | 190 |

**Malaysia's production of struverite (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2615.90.110 | Columbite concentrates | – | – | – | – | – | – |
| 2615.90.190 | Other niobium & tantalum concs. | 40 | – | – | 2,555 | – | – |
| 2620.90.10 | Ashes & residues | – | – | – | – | – | – |
| 8103.90.000 | Other tantalum & arts. thereof | 17 | 1 | 22 | 351 | 8 | 1,479 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2615.90.110 | Columbite concentrates | – | 528 | – | – | 9,258 | – |
| 2615.90.190 | Other niobium & tantalum concs. | 233 | 171 | 37 | 540 | 3,343 | 273 |
| 2620.90.100 | Ashes & residues | – | – | – | – | – | – |
| 8103.90.000 | Other articles of tantalum | 68 | 27 | 17 | 1,252 | 1,051 | 617 |



### Malaysia's exports of tantalum/niobium minerals, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Columbite concentrates (HS: 2615.90.11)* | | | | | | |
| China | – | – | – | – | – | – |
| **Total** | – | – | – | – | – | – |

Source: Department of Statistics

**World mine production of tantalum and niobium minerals**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| **Niobium** | | | | |
| Brazil | 58,000 | 45,000 | 45,000 | 88.76 |
| Canada | 4,630 | 4,710 | 5,000 | 9.86 |
| Other countries | 732 | 375 | 700 | 1.38 |
| **World total (rounded)** | **63,400** | **50,100** | **51,000** | |
| **Tantalum** | | | | |
| Rwanda | 93 | 150 | 150 | 25.42 |
| Brazil | 180 | 140 | 140 | 23.73 |
| Congo (Kinshasa) | 95 | 100 | 110 | 18.64 |
| Nigeria | 50 | 63 | 60 | 10.17 |
| Canada | – | 50 | 50 | 8.47 |
| Mozambique | 260 | 39 | 40 | 6.78 |
| Burundi | 13 | 33 | 30 | 5.08 |
| Ethiopia | 76 | 95 | 10 | 1.69 |
| **World total (rounded)** | **767** | **670** | **590** | |

Source: United States Geological Survey



## Review

There was no tantalum-niobium mined domestically in Malaysia. However, tantalum-niobium mineral in the form of struverite is produced as a by-product of alluvial tin mining through the processing of tailing mines or 'amang'. The main occurrence of struverite is in the Salak North area in Perak.

Amang was processed at several amang processing plants located in Perak and Selangor. With the reduced mining operation of alluvial tin, the supply of amang was unstable and this resulted in the llowering of production of struverite since 2004. In the last ten years the highest struverite production was recorded in 2005 at 552 tonnes. During 2013, struverite production decreased 28% to 190 tonnes from 262 tonnes produced in the previous year.

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There were no export and import activities during 2013 for columbite concentratescompared with 528 tonnes of columbite concentrates valued at RM9,258 million wasimported in the previous year. ■

# TIN

## Malaysia's production of tin-in-concentrate

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Perak | 2,395+ | 5 | 2,917+ | 6 | 3,181+ | 5 | 3,213+ | 8 |
| Pahang | 201 | 3 | 320 | 4 | 276 | 4 | 263 | 5 |
| Johor | 50 | 1 | 46 | 1 | 49 | 2 | 65 | 1 |
| Selangor | 9* | – | 42** | – | 119** | – | 40** | – |
| K. Lumpur | 8* | – | 10* | – | 24* | – | 2* | – |
| Terengganu | 5 | 2 | 5 | 2 | 30 | 1 | 32 | 1 |
| Kedah | – | 1 | – | 1 | 46 | 1 | 82 | 2 |
| **Total** | **2,668** | **12** | **3,340** | **13** | **3,725** | **13** | **3,697** | **17** |

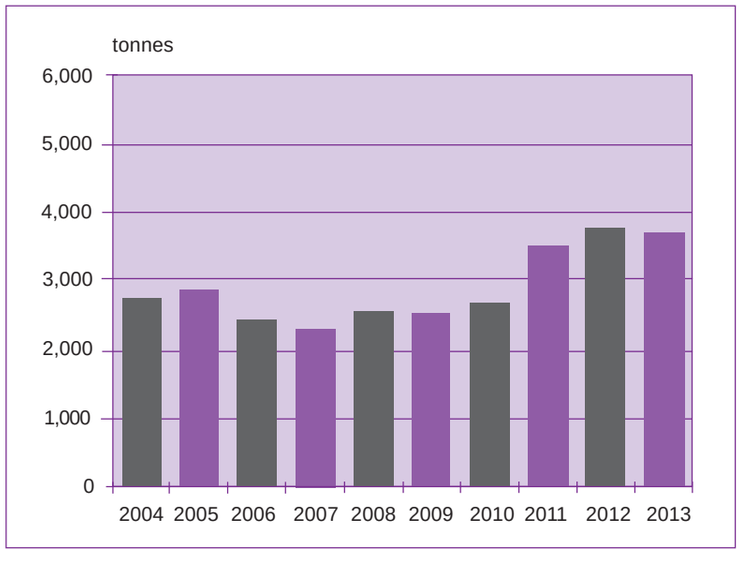
mines = indicates highest number of mines operating in a month during the year
* = production from panning activity
** = production from amang retreatment plant
+ = production from amang retreatment plant and mining activity



## Malaysia's historic production of tin-in-concentrates

| Year | tonnes |
|---|---|
| 2004 | 2,745 |
| 2005 | 2,858 |
| 2006 | 2,398 |
| 2007 | 2,263 |
| 2008 | 2,605 |
| 2009 | 2,410 |
| 2010 | 2,668 |
| 2011 | 3,340 |
| 2012 | 3,725 |
| 2013 | 3,697 |

## Malaysia's production of tin-in-concentrates (2004 - 2013)



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2609.00 | Ores & concentrates | – | 0.18 | 67 | – | 2,533 | 1,129 |
| 8001.10 | Unwrought, not alloyed | 42,302 | 37,191 | 36,365 | 3,234,420 | 2,409,791 | 2,525,691 |
| 8001.20 | Unwrought, alloyed | 818 | 1,025 | 1,022 | 61,142 | 74,217 | 68,319 |
| 8002.00 | Waste & scrap | 1,323 | 2,267 | 11,452 | 1,978 | 1,878 | 7,841 |
| 8003.00 | Bars, rods, profile & wire | 3,423 | 1,209 | 188 | 69,925 | 36,879 | 10,945 |
| 8004.00 | Plates, sheet & strip | – | – | – | – | – | – |
| 8005.00 | Foil, powders & flakes | – | – | – | – | – | – |
| 8006.00 | Tubes, pipes & fitting | – | – | – | – | – | – |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2609.00 | Ores & concentrates | 30,031 | 26,536 | 30,274 | 1,327,581 | 927,973 | 1,138,959 |
| 8001.10 | Unwrought, not alloyed | 12,589 | 15,262 | 12,063 | 969,345 | 980,950 | 818,064 |
| 8001.20 | Unwrought, alloyed | 2,034 | 2,151 | 2,431 | 137,920 | 131,880 | 131,366 |
| 8002.00 | Waste & scrap | 5,137 | 254 | 44 | 45,081 | 1,304 | 1,093 |
| 8003.00 | Bars, rods, profile & wire | 16,605 | 11,154 | 343 | 1,066,845 | 661,322 | 16,668 |
| 8004.00 | Plates, sheet & strip | – | – | – | – | – | – |
| 8005.00 | Foil, powders & flakes | – | – | – | – | – | – |
| 8006.00 | Tubes, pipes & fitting | – | – | – | – | – | – |



### Malaysia's exports of tin ore and concentrates by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Tin ore & concentrates (HS: 2609.00.000)* | | | | | | |
| China | – | – | – | – | 24 | 1,115,000 |
| Vietnam | – | – | – | – | 43 | 13,000 |
| Singapore | – | – | 0.18 | 2,533 | – | – |
| **Total** | **–** | **–** | **0.18** | **2,533** | **67** | **1,128,000** |

Source: Department of Statistics

**Malaysia's imports of tin ore and concentrates, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Tin ore & concentrates (HS: 2609.00.000)* | | | | | | |
| Australia | 8,224 | 309,289,000 | 10,985 | 323,013,000 | 12,031 | 391,069,000 |
| Rwanda | 5,716 | 293,516,000 | 4,653 | 194,657,000 | 4,454 | 183,137,000 |
| Nigeria | 1,873 | 101,008,000 | 3,063 | 128,625,000 | 3,122 | 136,554,000 |
| Congo | 2,457 | 120,991,000 | 3,486 | 125,509,000 | 1,831 | 75,666,000 |
| Brazil | 1,057 | 55,686,000 | 910 | 38,988,000 | 1,504 | 70,645,000 |
| Others | 10,704 | 447,091,000 | 4,533 | 117,182,000 | 7,330 | 281,888,000 |
| **Total** | **30,031** | **1,327,581,000** | **27,629** | **927,973,000** | **30,273** | **1,138,959,000** |

Source: Department of Statistics

## Price



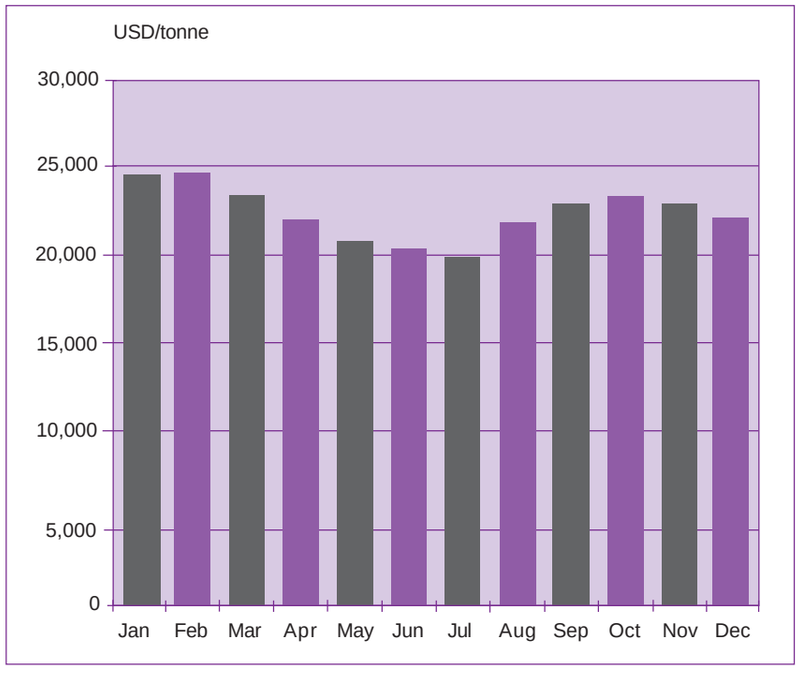
**Average monthly tin price in 2013**

| 2013 | USD/tonne |
|---|---|
| January | 24,554 |
| February | 24,316 |
| March | 23,360 |
| April | 21,777 |
| May | 20,971 |
| June | 20,335 |
| July | 19,572 |
| August | 21,564 |
| September | 22,648 |
| October | 22,920 |
| November | 22,874 |
| December | 21,956 |
| **Annual Avg** | **22,237** |

** As from 1 Feb. 2001, KLTM price is quoted in U.S. Dollar.

Source: KLTM

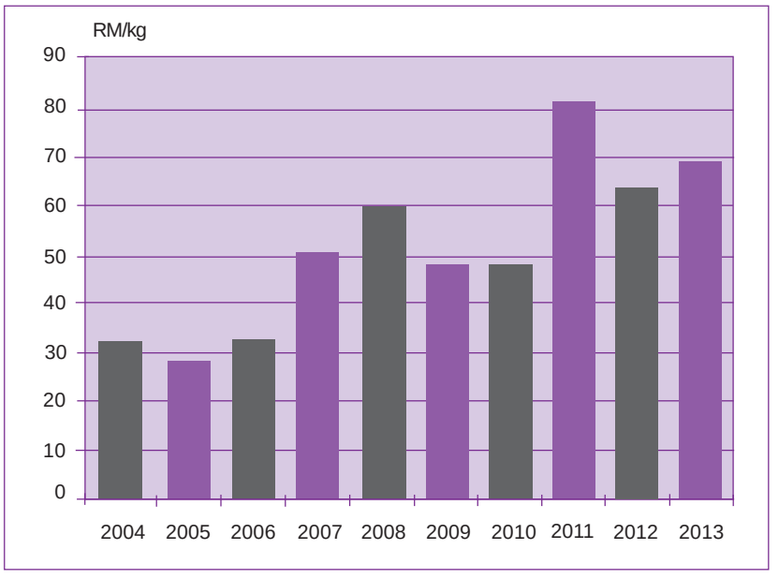
**Average monthly tin price in 2013**



**Average annual tin price 2004 - 2013**

| Year | RM/kg |
|---|---|
| 2004 | 32.27 |
| 2005 | 27.87 |
| 2006 | 32.10 |
| 2007 | 49.85 |
| 2008 | 60.42 |
| 2009 | 47.64 |
| 2010 | 47.64 |
| 2011 | 78.72 |
| 2012 | 63.97 |
| 2013 | 69.07 |

**Average annual tin price (2004 - 2013)**




* From 1995 to 2000, KLTM average price is based on turnover. From 2001, average price is weighted average against total tonnage.

Source: UNCTAD, KLTM, ex-smelter



**World mine production of tin 2011 - 2013p**

| Country | tonnes (metal content) | | | % of 2013 |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| China | 120,000 | 110,000 | 100,000 | 43.49 |
| Indonesia | 42,000 | 41,000 | 40,000 | 17.40 |
| Peru | 28,900 | 26,100 | 26,100 | 11.35 |
| Bolivia | 20,300 | 19,700 | 18,000 | 7.83 |
| Brazil | 11,000 | 10,800 | 11,900 | 5.18 |
| Australia | 6,500 | 5,000 | 5,900 | 2.57 |
| Vietnam | 5,400 | 5,400 | 5,400 | 2.35 |
| Congo (Kinshasa) | 2,900 | 4,000 | 4,000 | 1.74 |
| **Malaysia*** | **3,339** | **3,725** | **4,000** | **1.74** |
| Russia | 160 | 280 | 300 | 0.13 |
| Other countries | 2,461 | 15,043 | 14,340 | 6.24 |
| **World total (rounded)** | **243,000** | **241,000** | **230,000** | |

Source: United States Geological Survey
* Minerals and Geoscience Department Malaysia

## Review

In 2013, the total tin-in-concentrates production of Malaysia registered a slight decreased of one percent to 3,697 tonnes compared to 3,725 tonnes produced in 2012. As before, Perak is the highest producer of tin whereby in 2013 a total of 3,212 tonnes was produced from the state.

During the year, there were 17 active tin mines and 20 amang retreatment plants in Malaysia. These mines consisting of 15 open cast mines, one dredging and one underground mine respectively. These open cast mines, seven are in Perak, five in Pahang, two in Kedah and one in Johor. The dredging and underground mines are operating in Perak and Terengganu respectively. There are 18 amang retreatment plants in Perak and two in Selangor.

Currently, the Rahman Hydraulics tin mine located in North Perak is the largest opencast tin mine in Malaysia. The produced and imported tin ore and concentrates were processed by the Malaysia Smelting Corporation Bhd. (MSC). The MSC, located in Pulau Pinang is the country's sole tin smelter and the largest refined tin producer in this region. Malaysia exported a total of 36,365 tonnes worth RM2.5 billion of refined tin metal in 2013 compared with 37,191 tonnes worth RM2.4 billion recorded in the previous year. During the year, to fulfill the smelter demand Malaysia imports a total of 30,273 tonnes tin ores and concentrates valued at RM1.14 billion compared with 27,629 tonnes valued at RM928.0 million in the previous year. The imported tin ores were mainly from Australia, Rwanda, Nigeria, Congo and Brazil.



The annual average London Metal Exchange (LME) tin cash settlement price in 2013 was USD22,304/tonne, up by just under 6% compared to the annual average for 2012. During the year, the local physical tin market recorded the average monthly lowest price level at US$19,572 per tonne in July and the highest price at US$24,554 per tonne in January. Tin prices went down in the first six months and the price trend increased after July.

Tin's performance was mainly based on a strong first quarter and a sharp recovery from August to early October due to the disruption of Indonesian supplies. From October tin prices have tended to drift downwards. After a significant decline in the second half of 2011 as world economic prospects deteriorated, prices have now been in a range of USD18,000 – USD25,000/tonne for over two years. Price fluctuations are caused by a variety of factors, including actual and anticipated changes in supply and demand, investor behaviour and financial market performance.

The Economist Intelligence Unit expects growth in global tin consumption to slow to an average of 1.3% a year in 2014-16, after gaining 2.2% in 2013. Growing demand for consumer electronics in both emerging and high-income markets, along with an increasing number of tin-containing electronics components in motor vehicles, are key trends expected to support tin consumption over the next couple of years. In volume terms, we expect global tin consumption to reach 352,500 tonnes by 2016, which would mark a five-year high, but still 5% below its most recent peak, in 2007. Refined tin production is set to rise by 2.4% in 2014, before slowing to 1.7% in 2015 and then contracting in 2016 as a result of an anticipated decline in tin mine output. Higher refined tin production has pushed the market into surplus this year but it is expected to rebalance by 2016 as the rate of increase in refined metal output slows. However, there is also the possibility of stronger mine supply in countries where it is difficult to define production potential, notably Myanmar (The Economist 2013).

During the year, the total domestic consumption of tin metal by the tin based industries decreased by 10% from 2,083 tonnes in 2012 to 1,872 tonnes. The consumption of tin by users in Malaysia was the solder (57%), tin plate (30%), pewter (5%) and other manufacturing tin-based industries (8%). The tin consumption by the solder industry decreased to 1,074 tonnes from 1,333 tonnes, tin plate industry decreased to 561 tonnes from 573 tonnes, pewter industry decreased marginally to 96 tonnes from 104 tonnes whereas tin metal consumption in other domestic manufacturing industry increased to 141 tonnes from 73 tonnes recorded in 2012. ■

# TITANIUM

**Malaysia's production of titanium minerals**

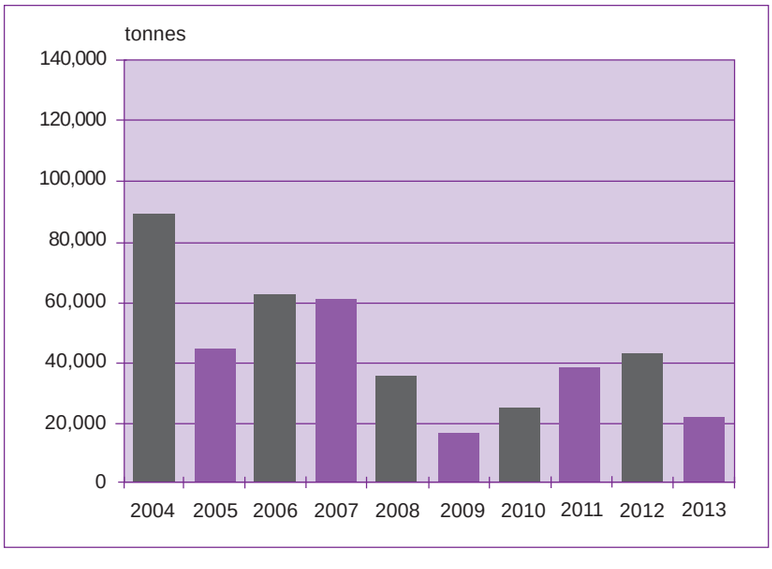
| Mineral | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Ilmenite | 19,036 | – | 28,782 | – | 22,275 | – | 16,043 | – |
| Rutile | 7,567 | – | 10,810 | – | 20,008 | – | 5,983 | – |
| **Total** | **26,603** | – | **39,592** | – | **42,283** | – | **22,026** | – |

Both ilmenite and rutile are by-product of tin mining

**Malaysia's historic production of ilmenite & rutile**

| Year | tonnes |
|---|---|
| 2004 | 88,779 |
| 2005 | 43,704 |
| 2006 | 62,570 |
| 2007 | 60,760 |
| 2008 | 38,613 |
| 2009 | 17,485 |
| 2010 | 26,603 |
| 2011 | 39,592 |
| 2012 | 42,283 |
| 2013 | 22,026 |

**Malaysia's production of ilmenite and rutile (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2614.00.100 | Ilmenite concentrates | 21,649 | 7,090 | 6,719 | 9,175 | 7,829 | 4,142 |
| 2614.00.900 | Other titanium concentrates | 765 | 754 | 621 | 4,231 | 7,251 | 7,245 |
| 2823.00.000 | Titanium oxides | 6,320 | 3,501 | 3,392 | 24,908 | 30,262 | 22,505 |
| 8108.90.000 | Other articles of titanium (a) | 119 | 207 | 28 | 4,179 | 3,659 | 999 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2614.00.100 | Ilmenite concentrates | 71,227 | 44,437 | 70,449 | 69,875 | 90,130 | 66,947 |
| 2614.00.900 | Other titanium concentrates | 3,610 | 2,803 | 2,082 | 14,126 | 19,817 | 13,418 |
| 2823.00.000 | Titanium oxides | 10,406 | 7,575 | 7,488 | 100,630 | 80,558 | 65,482 |
| 7202.91.000 | Ferro-titanium | 245 | 170 | 225 | 4,474 | 3,111 | 3,479 |
| 8108.90.000 | Other articles of titanium (a) | 633 | 497 | 1,465 | 19,735 | 21,016 | 35,225 |



(a) = including waste and scrap

### Malaysia's exports of ilmenite, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Ilmenite (HS: 2614.00.100)* | | | | | | |
| China | – | – | 500 | 3,506,000 | 6,310 | 3,677,000 |
| India | 20,894 | 8,636,000 | 5,851 | 3,407,000 | 399 | 451,000 |
| Japan | 755 | 539,000 | 740 | 916,000 | 10 | 13,700 |
| Others | – | – | – | – | – | – |
| **Total** | **21,649** | **9,175,000** | **7,090** | **7,829,000** | **6,719** | **4,142,000** |

Source: Department of Statistics

**Malaysia's imports of ilmenite, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Ilmenite (HS: 2614.00.100)* | | | | | | |
| India | – | – | 8,176 | 36,782,000 | 42,588 | 46,128,000 |
| Australia | 20 | 48,000 | 16,576 | 16,910,000 | 27,687 | 19,998,000 |
| UK | – | – | – | – | 108 | 640,000 |
| China | – | – | – | – | 39 | 118,000 |
| Thailand | – | – | – | – | 27 | 63,000 |
| Others | – | – | 19,686 | 36,439 | – | – |
| **Total** | **71,227** | **69,875,000** | **44,437** | **90,130,000** | **70,449** | **66,947,000** |

Source: Department of Statistics

**Price**



| Titanium | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Ilmenite**<br>**Australian, min. 54% $TiO_2$, FOB** | | | | |
| Bulk concentrates | US$65 - 85 | US$140 - 250 | US$250 - 350 | US$230 - 350 |
| Spot prices | US$110 - 130 | US$140 - 250 | US$250 - 350 | US$230 - 350 |
| **Rutile**<br>**Australian concentrate, min. 95% $TiO_2$, FOB** | | | | |
| Bulk (large volume, pigment grade) | US$530 - 550 | US$1300 - 1400 | US$2500 - 2800 | US$1200 - 2800 |
| Bagged (small parcel, welding grade) | US$760 - 805 | US$1348 - 1600 | US$2050 - 2400 | US$1100 - 1400 |

Source: Industrial Minerals, December 2013

## World production of titanium minerals

### Ilmenite

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| South Africa[a] | 1,110,000 | 1,100,000 | 1,100,000 | 16.21 |
| China | 660,000 | 960,000 | 960,000 | 14.00 |
| Australia | 960,000 | 940,000 | 940,000 | 13.85 |
| Canada[a] | 750,000 | 750,000 | 770,000 | 11.35 |
| Vietnam | 550,000 | 510,000 | 500,000 | 7.37 |
| Mozambique | 380,000 | 350,000 | 480,000 | 7.07 |
| Madagascar | 280,000 | 380,000 | 430,000 | 6.34 |
| Ukraine | 300,000 | 360,000 | 410,000 | 6.04 |
| Norway[a] | 360,000 | 360,000 | 400,000 | 5.89 |
| India | 330,000 | 340,000 | 340,000 | 5.01 |
| United States[b] | 300,000 | 300,000 | 300,000 | 4.42 |
| Brazil | 45,000 | 45,000 | 45,000 | 0.66 |
| Sri Lanka | 31,000 | 32,000 | 32,000 | 0.47 |
| **Malaysia*** | **28,782** | **22,275** | **16,043** | **0.24** |
| Other countries | 107,218 | 51,725 | 73,957 | 1.09 |
| **World total (rounded)** | **6,000,000** | **6,500,000** | **6,790,000** | |



### Rutile

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| Australia | 410,000 | 410,000 | 450,000 | 58.14 |
| South Africa | 120,000 | 120,000 | 120,000 | 15.50 |
| Sierra Leone | 89,000 | 89,000 | 900,000 | 11.63 |
| Ukraine | 56,000 | 56,000 | 60,000 | 7.75 |
| India | 24,000 | 24,000 | 26,000 | 3.36 |
| Mozambique | 7,000 | 7,000 | 9,000 | 1.16 |
| **Malaysia*** | **10,810** | **20,008** | **5,983** | **0.77** |
| Brazil | 2,000 | 2,000 | 2,000 | 0.26 |
| Other countries | 7,190 | 3,992 | 11,017 | 1.42 |
| **World total (rounded)[c]** | **730,000** | **730,000** | **770,000** | |

| | | | |
|---|---|---|---|
| **World total** (ilmenite and rutile, rounded) | **6,730,000** | **7,230,000** | **7,560,000** |

[a] Mine production is primarily used to produce titaniferous slag.
[b] Includes rutile.
[c] Excludes U.S production.

Source: United States Geological Survey
* Minerals and Geoscience Department Malaysia

## Review

Titanium mineral concentrates of economic importance include ilmenite, leucoxene, rutile, titaniferous slag, and synthetic rutile. The consumption of titanium mineral concentrates is tied to the consumption of TiO2 pigments primarily used in the making of industrial paint, paper, and plastics. It is also used in welding rod coatings and for manufacturing carbides, chemicals, and metal.

In Malaysia, only ilmenite and rutile are produced which comes from the mining and processing of amang alluvial tin mining tailings. Since 2003, no ilmenite is produced from mining operations as the country's only ilmenite mine located in Ajil, Terengganu ceased operations due to the depletion of high-grade reserves within their lease area. Since then, the production of titanium minerals in Malaysia are from amang retreatment plants which are located in Perak and Selangor.

In 2013, the total titanium mineral production decreased by 48% to 22,026 tonnes compared with 42,283 tonnes produced in 2012. The mineral was consumed locally and exported. During the year, Malaysia's exports of ilmenite dropped to 6,719 tonnes valued at RM4.1 million from 7,090 tonnes valued at RM7.8 million as recorded in 2012. The ilmenite export destinations were mainly to China, India and Japan.

For 2013, total imports of ilmenite had more or less maintained at 70,449 tonnes valued at RM66.9 million as was recorded in 2012. The main source of imported ilmenite and other titanium concentrates for the year were from India, Australia, UK, China and Thailand.

In Malaysia, the main downstream titanium industry is the beneficiation of synthetic rutile and manufacture of titanium dioxide (TiO2) pigments. Synthetic rutile, the raw material used in titanium dioxide pigments is being produced by TOR Minerals Malaysia Sdn. Bhd. located in Ipoh, in which the raw ilmenite feedstock is obtained locally. Tioxide (Malaysia) Sdn. Bhd. is a company which manufactures titanium dioxide and the biggest consumer of ilmenite in Malaysia. The total volume of ilmenite ore consumed by Tioxide (Malaysia) Sdn. Bhd. is about 130,000 tonnes annually. ■

# ZIRCON

**Malaysia's production of zircon**

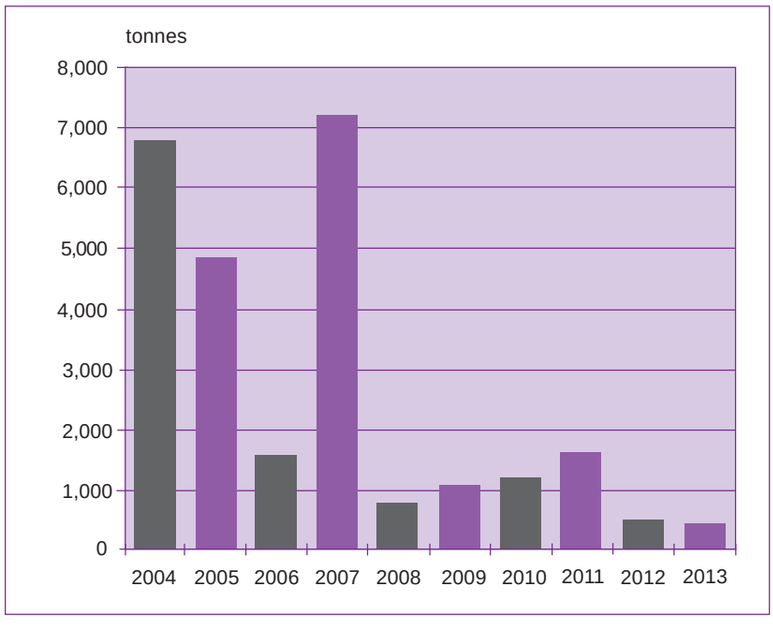
| Mineral | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Zircon | 1,261 | – | 1,685 | – | 442 | – | 379 | – |

Zircon is by-product of tin mining

**Malaysia's historic production of zircon**

| Year | tonnes |
|---|---|
| 2004 | 6,686 |
| 2005 | 4,953 |
| 2006 | 1,690 |
| 2007 | 7,393 |
| 2008 | 984 |
| 2009 | 1,145 |
| 2010 | 1,261 |
| 2011 | 1,685 |
| 2012 | 442 |
| 2013 | 379 |

**Malaysia's production of zircon (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2615.10.100 | Zirconium ore & concs. | 2,007 | 2,760 | 23,881 | 5,640 | 18,407 | 141,494 |
| 2615.10.900 | Other zirconium ore & concentrates | 11 | 1,400 | – | 78 | 4,878 | – |
| 8109.30.100 | Unwrought zirconium | – | – | – | – | – | – |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2615.10.100 | Zircon & concentrate | 40,980 | 31,153 | 49,430 | 157,758 | 204,561 | 201,972 |
| 2615.10.900 | Other zirconium ore & concentrate | 4,036 | 3,536 | 37 | 18,977 | 22,675 | 273 |
| 8109.30.100 | Unwrought zirconium | 0.2 | 0.5 | 16 | 9 | 48 | 133 |

Source: Department of Statistics



### Malaysia's exports of zircon, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Zircon & concentrate (HS: 2615.10.100)* | | | | | | |
| India | 319 | 980,000 | 1,500 | 10,215,000 | 12,893 | 75,260,000 |
| UAE | – | – | 607 | 4,489,000 | 8,555 | 50,914,000 |
| Italy | – | – | 265 | 1,982,000 | 1,184 | 7,395,000 |
| China | 1,424 | 2,754,000 | 344 | 1,434,000 | 511 | 3,719,000 |
| Taiwan | 264 | 1,726,000 | 44 | 286,000 | 442 | 2,723,000 |
| Others | 196 | 148,000 | – | – | 296 | 1,484,000 |
| **Total** | **2,203** | **5,608,000** | **2,760** | **18,407,000** | **23,881** | **141,494,000** |

Source: Department of Statistics

**Malaysia's imports of zircon, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Zircon & concentrate (HS: 2615.10.100)* | | | | | | |
| Australia | 40,340 | 153,552,000 | 29,992 | 199,133,000 | 48,300 | 195,543,000 |
| ROK | 0.4 | 12,000 | 41 | 359,000 | 423 | 2,673,000 |
| Japan | 190 | 909,000 | 111 | 289,000 | 326 | 1,614,000 |
| Taiwan | 122 | 967,000 | 30 | 277,000 | 125 | 625,000 |
| S. Africa | 104 | 629,000 | – | – | 106 | 507,000 |
| Others | 223 | 1,690,000 | 978 | 4,504,000 | 150 | 1,010,000 |
| **Total** | **40,980** | **157,758,000** | **31,152** | **204,560,000** | **49,430** | **201,972,000** |

Source: Department of Statistics

**Price**

| Zircon | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **FOB Australian, bulk shipment, per tonne** | | | | |
| Premium | US$900 - 950 | US$1,000 - 1,050 | US$2,500 - 2,640 | US$2,100 - 3,000 |
| Standard | US$880 - 900 | US$850 - 890 | US$2,400 - 2,600 | US$2,000 - 2,150 |
| **FOB USA, bulk shipment, per tonne** | | | | |
| Ceramic grade | – | – | – | – |
| Refractory applications | – | – | – | – |
| Foundry sand applications | – | – | – | – |
| Premium | US$880 - 900 | US$880 - 900 | US$2,600 - 3,000 | US$2,600 - 3,000 |
| Standard | – | US$830 - 890 | US$2,550 - 2,750 | US$2,550 - 2,750 |
| **FOB South Africa, bulk shipment, per tonne** | | | | |
| Ceramic grade | – | – | US$2,300 - 2,650 | US$2,300 - 2,650 |

Source: Industrial Minerals, December 2013

**World mine production of zirconium minerals**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| Australia | 762,000 | 605,000 | 600,000 | 41.8 |
| South Africa | 383,000 | 380,000 | 360,000 | 25.1 |
| China | 150,000 | 140,000 | 140,000 | 9.8 |
| Indonesia | 130,000 | 120,000 | 120,000 | 8.4 |
| Mozambique | 44,000 | 47,000 | 65,000 | 4.5 |
| India | 39,000 | 40,000 | 40,000 | 2.8 |
| **Malaysia*** | **1,685** | **442** | **379** | **0.02** |
| Other countries | 55,315 | 129,558 | 109,621 | 7.6 |
| **World total (rounded)** | **1,620,000** | **1,460,000** | **1,420,000** | |

Source: United States Geological Survey
Minerals and Geoscience Department Malaysia

## Review

Zircon is produced as a by-product from tin mining and processing of 'amang'. Zircon is widely used locally in ceramics, refractories and foundry applications. Since there is no local zircon mine, zircon is recovered only from the processing of 'amang' from alluvial tin mining by amang retreatment plants. In 2013, there were 20 amang retreatment plants and they are located in Perak (18) and Selangor (2).

During the year, the production of zircon dropped to 379 tonnes from 442 tonnes in 2012. Exports of zircon has increased to 23,881 tonnes from 2,760 tonnes where India, China, Thailand and Taiwan were the major destinations. During 2013, Malaysia imported a total of 61,952 tonnes zircon and concentrates mostly from Australia and China.

During the year, the production of zircon and concentrates dropped to 379 tonnes compared with 442 tonnes in 2012. Malaysia's zircon production in 2013 constitutes about 0.02% of the world's total production.

In 2013, the exports value of zircon and concentrates has increased to RM141.5 million compared to RM18.4 million in 2012. Most of the produced zircon were for exports mainly to India, China, Thailand and Taiwan. Malaysia also imported zircon and concentrates. During 2013, a total of 61,952 tonnes was imported and maintained at 61,952 tonnes as in the previous year. The zircon and concentrates was imported mostly from Australia and China. Similarly, imports value was also maintained more or less at RM406.54 million in 2013 as was recorded also in 2012. ■

# Non-Metallic Minerals

# AGGREGATES

**Malaysia's production of aggregates**

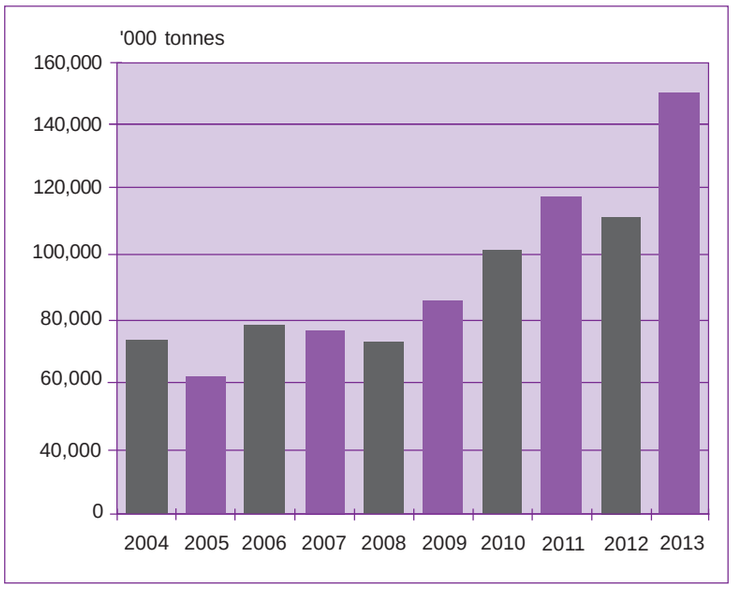
| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | '000 tonnes | quarries | '000 tonnes | quarries | '000 tonnes | quarries | '000 tonnes | quarries |
| Perak | 13,691 | 57 | 15,273 | 54 | 15,285 | 54 | 24,607 | 63 |
| Sarawak | 9,478 | 39 | 10,120 | 43 | 11,965 | 46 | 10,587 | 48 |
| Johor | 26,704 | 43 | 29,595 | 44 | 23,704 | 47 | 41,747 | 47 |
| Sabah | 1,934 | 17 | 2,446 | 17 | 3,215 | 17 | 5,263 | 41 |
| Selangor & KL | 121,612 | 32 | 25,454 | 32 | 23,244 | 28 | 25,522 | 30 |
| Pahang | 3,889 | 25 | 4,216 | 27 | 3,710 | 30 | 3,859 | 30 |
| Kedah | 4,165 | 18 | 4,984 | 18 | 5,173 | 18 | 10,073 | 20 |
| Negeri Sembilan | 3,783 | 16 | 7,562 | 17 | 6,252 | 17 | 11,336 | 18 |
| Pulau Pinang | 5,098 | 14 | 6,414 | 14 | 7,079 | 14 | 6,776 | 17 |
| Terengganu | 3,988 | 16 | 3,684 | 15 | 4,807 | 15 | 5,581 | 15 |
| Kelantan | 2,544 | 11 | 2,809 | 11 | 2,681 | 12 | 2,750 | 13 |
| Melaka | 4,139 | 8 | 5,160 | 8 | 2,449 | 9 | 2,158 | 8 |
| Perlis | 784 | 2 | 793 | 2 | 774 | 14 | 2,916 | 6 |
| **Total** | **101,809** | **298** | **118,510** | **302** | **110,339** | **312** | **153,173** | **356** |



**Malaysia's historic production of aggregates**

| Year | 000 tonnes |
|---|---|
| 2004 | 73,006 |
| 2005 | 62,762 |
| 2006 | 79,913 |
| 2007 | 77,674 |
| 2008 | 75,883 |
| 2009 | 86,497 |
| 2010 | 101,809 |
| 2011 | 118,510 |
| 2012 | 110,339 |
| 2013 | 153,173 |

**Malaysia's production of aggregates (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2517 | Aggregates | 9,470,317 | 10,443,174 | 4,371,421 | 368,237 | 396,604 | 144,510 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2517 | Aggregates | 81,715 | 48,954 | 43,871 | 31,070 | 25,539 | 29,372 |

### Malaysia's exports of aggregates, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Aggregates (HS: 2517)* | | | | | | |
| Singapore | 8,401,383 | 344,941,000 | 9,305,497 | 366,141,000 | 3,626,868 | 123,867,000 |
| Indonesia | 524,672 | 8,902,000 | 564,871 | 11,388,000 | 473,035 | 10,593,000 |
| Brunei Darussalam | 519,590 | 13,768,000 | 561,171 | 15,679,000 | 253,053 | 7,726,000 |
| Maldives | - | - | 24 | 17,000 | 17,483 | 1,410,000 |
| Myanmar | - | - | 1,735 | 926,000 | 840 | 789,000 |
| Others | 15,672 | 626,000 | 9,876 | 2,454,000 | 142 | 124,000 |
| **Total** | **9,470,317** | **368,237,000** | **10,443,174** | **396,604,000** | **4,371,421** | **144,510,000** |

Source: Department of Statistics

**Malaysia's imports of aggregates, by country**

| Mineral | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Aggregates (HS: 2517)* | | | | | | |
| China | 47,582 | 11,318,000 | 14,574 | 7,174,000 | 8,363 | 4,961,000 |
| New Zealand | 2,797 | 3,427,000 | 2,410 | 3,288,000 | 3,683 | 4,823,000 |
| Vietnam | 9,162 | 2,642,000 | 15,404 | 4,732,000 | 14,731 | 4,346,000 |
| Philipines | 9,948 | 4,653,000 | 9,551 | 3,722,000 | 5,681 | 3,562,000 |
| Thailand | 329 | 701,000 | 748 | 221,000 | 629 | 1,125,000 |
| Others | 11,918 | 8,330,000 | 6,267 | 6,412,000 | 10,884 | 7,591,000 |
| **Total** | **81,735** | **31,070,000** | **48,954** | **25,539,000** | **43,871** | **29,372,000** |

Source: Department of Statistics

## Review

Aggregates refer to rock fragments that may be used in their natural state or after mechanical processing, such as crushing, washing, or sizing. Rock aggregates form a major raw material for the construction industry as well as for the manufacturing of cement, agriculture application, chemical and metallurgical industries.

In 2013, there were 356 quarries producing various types of rock aggregates in Malaysia compared to 312 in the previous year. There were 12 types of rock being quarried with granite and limestone being the most common. Out of the 356 quarries, 201 are granite quarries, 80 limestone quarries, 44 sandstone quarries and 31 other rock type quarries. The state with the most number of quarries is Perak (63), followed by Sarawak (48), Johor (47), Sabah (41), Pahang (30) and Selangor/Kuala Lumpur (30).

The country's rock aggregate production for 2013 showed an increase of 39% to 153.2 Mt from 110.3 Mt in the previous year. This was due to a rise in production from Johor followed by Perak and Selangor/Kuala Lumpur. Most of the country's aggregates were produced by quarries in Johor, which accounted for over 27% of the country's total rock aggregate production.

The bulk of the production was for domestic use and some for export. In 2013, a total of 4.4 Mt of aggregates valued at RM144.5 million was exported to neighbouring countries, mainly to Singapore, Indonesia and Brunei compared to 10.5 Mt valued at RM391.92 million in previous the year. The quantity of rock aggregates exported had decreased by 58% in 2013 compared to 2012. Malaysia also imported aggregates amounting to 43,871 tonnes, a decrease by 10% from 48,954 recorded in 2012. ■

# BARYTES

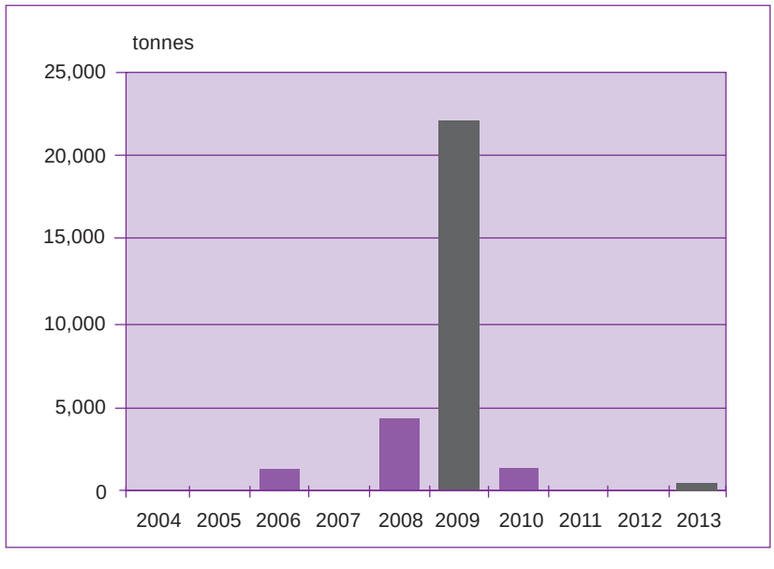
**Malaysia's production of barytes, by state, 2010 - 2013**

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Kelantan | – | – | – | – | – | – | 500 | 1 |
| Pahang | 1,000 | 1 | – | 3 | – | – | – | – |
| **Total** | **1,000** | **1** | **–** | **3** | **–** | **–** | **500** | **1** |

**Malaysia's historic production of barytes**

| Year | tonnes |
|---|---|
| 2004 | – |
| 2005 | – |
| 2006 | 910 |
| 2007 | – |
| 2008 | 4,372 |
| 2009 | 22,390 |
| 2010 | 1,000 |
| 2011 | – |
| 2012 | – |
| 2013 | 500 |

**Malaysia's production of barytes (2004 - 2013)**




Source: Minerals and Geoscience Department Malaysia

## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2013 | 2013p |
| 2511.10 | Barytes | 2,082 | 3,070 | 2,903 | 1,891 | 2,280 | 2,534 |
| 2511.20 | Witherite | 78 | – | – | 33 | – | – |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2511.10 | Barytes | 94,799 | 137,747 | 157,074 | 44,615 | 69,816 | 133,993 |
| 2511.20 | Witherite | 406 | 830 | 851 | 97 | 171 | 177 |

Source: Department of Statistics



### Malaysia's imports of barytes, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Barytes (HS: 2511.10 & 2511.20)* | | | | | | |
| India | 19,796 | 8,517,000 | 53,560 | 27,929,000 | 101,850 | 91,005,000 |
| China | 52,408 | 21,223,000 | 65,728 | 31,002,000 | 25,606 | 17,978,000 |
| Vietnam | 15,973 | 5,204,000 | 14,499 | 7,277,000 | 21,446 | 13,659,000 |
| Thailand | 5,056 | 3,648,000 | 2,658 | 2,301,000 | 5,804 | 5,696,000 |
| USA | 17 | 11,000 | 5.76 | 29,000 | 932 | 3,522,000 |
| Others | 1,955 | 6,108,000 | 2,126 | 11,374,000 | 2,287 | 2,310,000 |
| **Total** | **95,205** | **44,711,000** | **138,577** | **79,911,000** | **157,925** | **134,170,000** |

Source: Department of Statistics

**Price (per tonne)**

| Grade | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Paint grade**, Ground white 96-98% $BaSO_4$, 350 mesh, 1-5 lots, del. UK, per tonnes | £195-220 | £195-220 | £195-220 | £195-220 |
| **Paint grade,** Chinese lump, CIF Gulf Coast | $230-240 | $240-260 | $235-290 | $235-275 |
| **Drilling grade**, Unground lump, OCMA/API bulk, SG 4.2 FOB Chennai | $72-74 | $142-146 | $140-145 | $140-155 |
| **Drilling grade**, Ground, OCMA/API big bags (1.5 tonnes)<br>SG 4.22, bagged, FOB Morocco<br>FOB S.Turkey<br>OCMA bulk, del. Aberdeen<br>OCMA bulk, del. Gt Yarmouth | <br>$135-147<br>$125-135<br>£88-98<br>£111-114 | <br>$135-147<br>$130-135<br>£95-105<br>£110-120 | <br>$135-147<br>$150-155<br>£95-105<br>£110-120 | <br>$110-170<br>$150-155<br>£95-105<br>£110-120 |
| **Drilling grade**, API, CIF Gulf Coast,<br>Chinese<br>Indian | <br>$100-108<br>$107-112 | <br>$136-150<br>$165-170 | <br>$158-162<br>$157-171 | <br>$147-154<br>$157-171 |

Source: Industrial Minerals December 2013

**World mine production of barytes**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| China | 4,100,000 | 4,200,000 | 3,800,000 | 44.9 |
| India | 1,350,000 | 1,700,000 | 1,500,000 | 17.7 |
| Morocco | 600,000 | 1,000,000 | 850,000 | 10.0 |
| United States | 710,000 | 666,000 | 650,000 | 7.7 |
| Iran | 350,000 | 330,000 | 330,000 | 3.9 |
| Turkey | 230,000 | 260,000 | 260,000 | 3.1 |
| Kazakhstan | 200,000 | 250,000 | 250,000 | 3.0 |
| Mexico | 157,000 | 140,000 | 125,000 | 1.5 |
| Vietnam | 85,000 | 85,000 | 90,000 | 1.1 |
| Russia | 62,000 | 63,000 | 65,000 | 0.8 |
| Germany | 70,000 | 55,000 | 55,000 | 0.7 |
| Pakistan | 58,000 | 52,000 | 50,000 | 0.6 |
| Other countries | 397,000 | 396,000 | 445,000 | 5.3 |
| **World total (rounded)** | **8,370,000** | **9,200,000** | **8,500,000** | |

Source: United States Geological Survey

## Review

The principal ores of barium are barytes ($BaSO_4$) and witherite ($BaCO_3$). However, only barytes mined in Malaysia. Barytes is a soft and inert mineral with a high density. Its physical character is suitable as a weighing agent in oil and gas exploration for drilling muds to help confine high oil and gas pressures. Approximately about 80% to 85% of the world's barytes is used in petroleum industry as one of the key ingredients in drilling mud for oil and gas wells. It is also used in the paint and coating industry as well as the automotive industry.

In 2013, the barytes production for the country was 500 tonnes from Kelantan. For domestic consumption, a total of 157,925 tonnes of barytes valued at RM134.2 million was imported in 2013 compared to 138,577 tonnes valued at RM79.9 million in the previous year. Most of the barytes was imported from India, China and Vietnam. The imported barytes were processed by Trenggo Minerals Sdn. Bhd. and Scomi Oil Tools Sdn. Bhd. located in Terengganu to produce crushed and ground barytes.

About 105,000 tonnes of barytes resources have been identified in Malaysia. These resources are located in Sungai Perdah, Bukit Penchuri, Ulu Sokor, and Sungai Mangkok in Kelantan; Tasik Chini, Sungai Mentiga and Bukit Ibam in Pahang; and in Gerik, Perak. ■

# BENTONITE/FULLER'S EARTH

## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2508.10 | Bentonite | 14,761 | 14,648 | 6,221 | 8,953 | 11,977 | 8,672 |
| 2508.20 | Fuller`s earth | 0.02 | 320 | 20 | 19 | 253 | 21 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2508.10 | Bentonite | 31,137 | 20,113 | 32,668 | 37,249 | 51,144 | 50,607 |
| 2508.20 | Fuller`s earth | 89,109 | 55,242 | 33,904 | 32,512 | 30,976 | 31,868 |

### Malaysia's exports of bentonite, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Bentonite (HS: 2508.10.000)* | | | | | | |
| Indonesia | 14,334 | 8,324,000 | 13,966 | 10,736,000 | 4,770 | 7,713,000 |
| Philippines | 93 | 168,000 | 50 | 21,000 | 690 | 333,000 |
| Singapore | – | – | 110 | 100,000 | 377 | 270,000 |
| Australia | – | – | – | – | 122 | 150,000 |
| Thailand | 118 | 73,000 | 159 | 338,000 | 224 | 128,000 |
| Others | 216 | 388,000 | 362 | 783,000 | 38 | 78,000 |
| **Total** | **14,761** | **8,953,000** | **14,648** | **11,977,000** | **6,221** | **8,672,000** |

### Malaysia's imports of bentonite, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Bentonite (HS: 2508.10.000)* | | | | | | |
| India | 15,131 | 14,447,000 | 7,280 | 21,085,000 | 18,128 | 21,682,000 |
| China | 7,222 | 8,516,000 | 4,807 | 10,599,000 | 4,130 | 9,555,000 |
| Australia | 1,675 | 5,196,000 | 556 | 6,876,000 | 904 | 5,334,000 |
| United States of America | 2,804 | 3,908,000 | 3,129 | 5,827,000 | 3,860 | 6,408,000 |
| Indonesia | 1,731 | 977,000 | 2,316 | 2,031,000 | 2,625 | 1,546,000 |
| Others | 2,573 | 4,204,000 | 2,025 | 4,727,000 | 3,021 | 6,081,000 |
| **Total** | **31,137** | **37,249,000** | **20,113** | **51,144,000** | **32,668** | **50,607,000** |

Source: Department of Statistics

**Malaysia's exports of Fuller's earth, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Fuller's earth (HS: 2508.20.100)* | | | | | | |
| Taiwan | 0.02 | 19,000 | 40 | 38,000 | 20 | 21,000 |
| Vietnam | – | – | 240 | 184,000 | – | – |
| Papua New Guinea | – | – | 20 | 17,000 | – | – |
| Mauritius | – | – | 20 | 13,000 | – | – |
| **Total** | **0.02** | **19,000** | **320** | **253,000** | **20** | **21,000** |

**Malaysia's imports of Fuller's earth, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Fuller's earth (HS: 2508.20.100)* | | | | | | |
| India | 50,450 | 17,921,000 | 22,268 | 14,696,000 | 18,574 | 22,647,000 |
| China | 46,344 | 18,702,000 | 32,974 | 16,280,000 | 15,329 | 9,215,000 |
| Japan | – | – | – | – | 1.0 | 6,000 |
| **Total** | **89,106** | **32,512,000** | **55,242** | **30,976,000** | **33,904** | **31,868,000** |

Source: Department of Statistics

**Price (per tonne unless indicated)**

| Grade | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Bentonite** | | | | |
| Foundry grade, bagged, railcars, ex-works Wyoming, per s.ton | $90 - 115 | $90 - 115 | $97 - 124 | $97 - 124 |
| API grade, bagged rail-cars, ex-works Wyoming, per s.ton | $70 - 100 | $78 - 120 | $90 - 130 | $90 - 130 |
| Cat litter, grade 1-5 mm, bulk, FOB main European port | EUR42 - 60 | EUR42 - 60 | EUR42 - 60 | EUR42 - 60 |
| Indian, cat litter grade, crushed, dried, loose in bulk, FOB Kandla | $34 - 38 | $34 - 38 | $34 - 38 | $34 - 38 |
| OCMA/Foundry grade, crude & dried bulk, FOB Milos | EUR50 - 75 | EUR50 - 75 | EUR60 - 80 | EUR60 - 80 |

Source: Industrial Minerals December 2013

**World mine production of bentonite**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| United States (sales) | 4,810,000 | 4,980,000 | 4,950,000 | 48.2 |
| Greece (crude) | 850,000 | 800,000 | 1,200,000 | 11.7 |
| Brazil (beneficiated) | 532,000 | 567,000 | 570,000 | 5.5 |
| Turkey | 1,000,000 | 400 ,000 | 400 ,000 | 3.9 |
| Germany (sales) | 3 50,000 | 375,000 | 350,000 | 3.4 |
| Ukraine (crude) | 185,000 | 210,000 | 210,000 | 2.0 |
| Czech Republic (crude) | 160,000 | 221,000 | 220,000 | 2.1 |
| Spain | 155,000 | 115,000 | 110,000 | 1.1 |
| Italy | 110,000 | 110,000 | 100,000 | 1.0 |
| Mexico | 54,000 | 54,000 | 50,000 | 0.5 |
| Other countries | 2,100,000 | 2,100,000 | 2,100,000 | 20.4 |
| **World total (rounded)** | **10,300,000** | **11,300,000** | **4,800,000** | |

Source: United States Geological Survey

**World mine production of Fuller's earth**



| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| United States (sales) | 1,950,000 | 1,980,000 | 2,040,000 | 67.9 |
| Spain | 820,000 | 591,000 | 590,000 | 19.6 |
| Mexico | 107,000 | 108,000 | 100,000 | 3.3 |
| Italy (kaolinitic earth) | 3,000 | 3,000 | 3,000 | 0.1 |
| Other countries | 330,000 | 299,000 | 270,000 | 9.0 |
| **World total (rounded)** | **3,210,000** | **2,980,000** | **3,000,000** | |

Source: United States Geological Survey

## Review

Bentonite is a soft, plastic, porous, light-coloured rock composed essentially of clay minerals of the montmorillonite (smectite) group and colloidal silica. It is produced by the devitrification and accompanying chemical alteration of a glassy igneous material, usually a tuff or volcanic ash. It varies in composition and is usually highly colloidal and plastic.

Generally, it is graded by the following properties: the cation exchange capacities (C.E.C); the ratio of individual cations such as sodium, calcium and magnesium; the potential for this ratio to be altered; and the ratio of ferrous to ferric iron composition.

Bentonite has many uses, which depends upon its mineralogical composition and technological properties. It is mostly used in the foundry industry, for pelletizing of iron ores, as adsorbents in drilling muds, as fillers and suspension in the building industry, in agriculture, pet waste absorbents and as food binders.

Fuller's earth is a collective term for clay and fine-grained earthy material characterised mainly by their adsorbent properties. The principal clay minerals are attapulgite and sepiolite. It is used for decolourising and purifying mineral, vegetable and animal oils.

Currently, there is no production of bentonite and fuller's earth in Malaysia. Hence, Malaysia imports both bentonite and fuller's earth to cater for local demands used mainly for the drilling muds, oil bleaches and palm oil refining industries.

In 2013, Malaysia imports increased to 32,668 tonnes of bentonite valued at RM50.61 million compared to 20,113 tonnes valued at RM51.14 million in 2012. Imports of fuller's earth decreased to 33,904 tonnes valued at RM31.87 million compared to 55,242 tonnes valued at RM31.0 million in the previous year. Most of the bentonite and fuller's earth were imported from India and China. The imported bentonite was processed to produce activated clay by five processing plants located two in Selangor and one each in Perak, Johor and Sabah. Although no bentonite and fuller's earth being produced in Malaysia, a total of 6,346 tonnes of bentonite was exported mostly to Indonesia in 2013. ■

# CLAYS

### Malaysia's production of clays

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | producers | tonnes | producers | tonnes | producers | tonnes | producers |
| Perak | 6,361,050 | 1927 | 6,583,650 | 194 | 6,009,222 | 196 | 6,388,740 | 180 |
| Johor | 2,998,167 | 188 | 5,273,097 | 185 | 5,812,005 | 203 | 6,176,076 | 203 |
| Terengganu | 2,542,808 | 305 | 2,865,341 | 303 | 4,184,807 | 371 | 3,206,454 | 333 |
| Kedah | 3,996,551 | 171 | 2,799,617 | 160 | 3,139,414 | 149 | 3,188,546 | 127 |
| Selangor / KL | 1,726,846 | 93 | 2,915,053 | 93 | 4,073,695 | 119 | 2,785,982 | 116 |
| Sarawak | 1,321,500 | 115 | 2,916,091 | 134 | 1,531,567 | 119 | 1,837,484 | 131 |
| Perlis | 2,418,384 | 21 | 1,506,557 | 17 | 1,830,316 | 18 | 1,739,273 | 13 |
| Negeri Sembilan | 1,612,947 | 130 | 1,036,335 | 121 | 1,104,138 | 126 | 1,546,970 | 153 |
| Pahang | 949,311* | 96 | 1,198,094 | 94 | 1,191,588 | 112 | 1,430,415 | 136 |
| Melaka | 623,493 | 150 | 750,630 | 184 | 1,092,529 | 188 | 737,842 | 150 |
| Sabah | 298,158+ | N.A | 365,636 | 12 | 452,929 | 13 | 561,061 | 15 |
| Kelantan | 187,732 | 104 | 135,018 | 56 | 224,361 | 61 | 197,642 | 66 |
| Pulau Pinang | 65,584 | 5 | 38,600 | 4 | 43,380 | 3 | 34,420 | 3 |
| **Total** | **27,543,322** | **1,532** | **28,383,719** | **1,557** | **30,689,951** | **1,678** | **29,830,904** | **1,626** |

Source: Minerals and Geoscience Department Malaysia

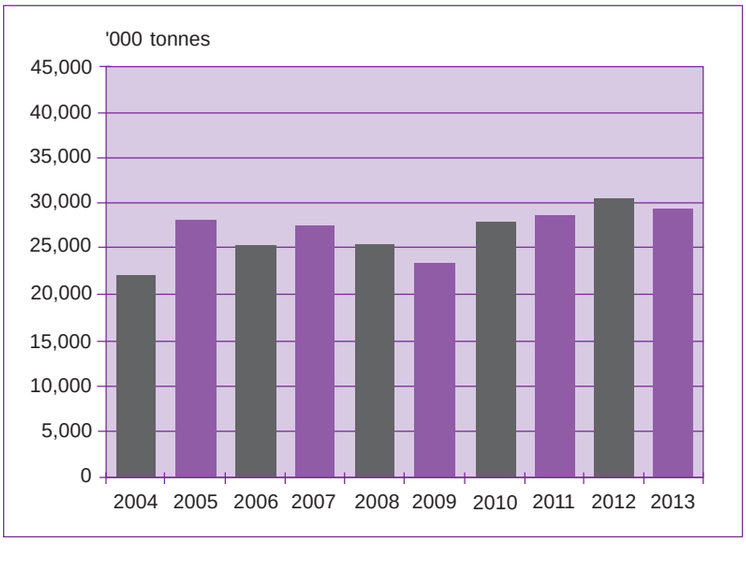


+ Estimated

### Malaysia's historic production of clays and earth materials

| Year | '000 tonnes |
|---|---|
| 2004 | 22,109 |
| 2005 | 28,758 |
| 2006 | 25,081 |
| 2007 | 28,292 |
| 2008 | 25,065 |
| 2009 | 22,966 |
| 2010 | 27,543 |
| 2011 | 28,384 |
| 2012 | 30,690 |
| 2013 | 29,831 |

### Malaysia's production of clays and earth materials (2004 - 2013)



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013 | 2011 | 2012 | 2013p |
| 2508.30 | Fire-clay | 30 | 860 | 21,963 | 17 | 286 | 7,453 |
| 2508.40 | Other clays | 115,849 | 138,306 | 158,757 | 12,896 | 9,760 | 25,768 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2508.30 | Fire-clay | 3,257 | 1,839 | 8,379 | 3,536 | 2,195 | 5,375 |
| 2508.40 | Other clays | 116,974 | 77,646 | 59,398 | 60,620 | 56,462 | 64,097 |

### Malaysia's exports of clays by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Clays & others refractory minerals (HS: 2508)* | | | | | | |
| Bangladesh | 89,434 | 14,257,000 | 102,095 | 10,637,000 | 115,970 | 21,989,000 |
| Indonesia | 53,668 | 21,788,000 | 43,249 | 20,116,000 | 36,824 | 18,527,000 |
| Thailand | 14,732 | 4,958,0000 | 14,238 | 7,919,000 | 14,633 | 7,668,000 |
| UAE | 21,936 | 21,936,000 | 28,759 | 932,000 | 35,830 | 2,731,000 |
| Vietnam | 5,594 | 3,390,000 | 4,267 | 2,696,000 | 3,537 | 2,550,000 |
| Others | 31,842 | 7,511,000 | 40,283 | 14,156,000 | 30,039 | 15,046,000 |
| **Total** | **217,209** | **58,819,000** | **232,890** | **56,456,000** | **236,868** | **68,510,000** |

### Malaysia's imports of clays by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Clays & others refractory minerals (HS: 2508)* | | | | | | |
| China | 91,698 | 63,438,000 | 43,253 | 76,197,000 | 86,140 | 67,499,000 |
| India | 68,654 | 34,574,000 | 36,441 | 39,932,000 | 39,740 | 48,632,000 |
| United States of America | 27,415 | 26,212,000 | 21,7645 | 22,187,000 | 30,027 | 28,558,000 |
| Thailand | 19,267 | 13,069,000 | 16,991 | 12,444,000 | 14,084 | 12,717,000 |
| United Kingdom | 6,345 | 5,950,000 | 5,539 | 5,431,000 | 5,164 | 6,098,000 |
| Others | 127,925 | 29,569,000 | 74,766 | 36,967,000 | 19,422 | 27,256,000 |
| **Total** | **249,608** | **172,811,000** | **198,756** | **193,159,00** | **194,577** | **190,761,000** |

Source: Department of Statistics

**Price (per tonne)**

| Grade | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Refractory Clays/Mullite** | | | | |
| Chinese flintclay, 45% $Al_2O_3$, per tonne FOB China | N.A | N.A | N.A | N.A |
| European calcined kaolinitic clay, 47% $Al_2O_3$, FOB, per tonne | N.A | N.A | N.A | N.A |
| Mulcoa products, 47% (sized in bulk bags) for coarse sizing, FOB USA, short tonne | $198 | $198 | $198 | $198 |

Source: Industrial Minerals December 2013

## Review

The term 'clays' is used in various ways. Clays include common clay, ball clay, fire clay, shale and earth materials such as laterite, earth and red earth. The ceramics industry is the largest consumer of clay. Locally produced clays are primarily used in making bricks, ceramics, cement, as well as for landfill. The main ball clay products are floor and wall tiles, pottery and sanitary ware. In addition, common clay is usually used in the manufacture of heavy clay products such as building bricks, sewer pipes, structural tiles and terra cotta. Shale and common clay are used in the making of Portland cement clinker. Fire clay is used in refractory products such as firebrick and blocks and high alumina bricks.

Malaysia has abundant clay resources estimated at 685 million tonnes (Mt) which includes ball clay reserves of about 377 Mt. Major deposits of ball clay are found in the eastern part of the Malay Peninsula located mostly in Terengganu (151 Mt), Johor (128 Mt), Kelantan (103 Mt) and Pahang (94 Mt). The rest are in Selangor, Sarawak, Pulau Pinang, Negeri Sembilan, Kedah and Perak.

In 2013, there were 1,626 clays and earth materials producers operating during the year, of which 1,421 were earth materials, 160 clays and four shale. The highest number of producers were reported in the state of Terengganu with 333 producers, followed by Johor (203), Negeri Sembilan (153), Melaka (150), Perak (139), Pahang (136) and Kedah (127).

During the year, the total production of clays and earth materials was slightly decreased by 5% to 29.8 Mt valued at RM254 million compared to 30.7Mt in the previous year. The largest production was in Perak with amount of 6.4 Mt followed by Johor (6.2 Mt), Terengganu (3.2 Mt), Kedah (3.1 Mt) and Selangor (2.8 Mt).

Clays production in 2013 recorded a decrease amounted to 5.9 Mt valued at RM59.1 million compared to 8.1 Mt worth RM65.4 million in the previous year. Johor contributed the highest total clays production with 41% totalled 2.4 Mt, followed by Sabah (0.56 Mt), Kedah (0.53 Mt), Sarawak (0.51 Mt), Negeri Sembilan (0.49 Mt), Pahang (0.41 Mt) and Selangor (0.31 Mt).

The extraction of earth materials during 2013 increased slightly by 5% to 23.8 Mt valued at RM195.2 million from 22.6 Mt recorded in the previous year. The leading earth materials producing states, in decreasing order of tonnage were Perak (6.18 Mt), Johor (3.8 Mt), Terengganu (3.2 Mt), Kedah (2.7 Mt), Perlis (1.6 Mt), Sarawak (1.3 Mt) and Selangor (1.2 Mt). ■

# FELDSPAR

**Malaysia's production of feldspar**

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Kelantan | 379,657 | 3 | 322,029 | 3 | 456,746 | 3 | 277,061 | 3 |
| N. Sembilan | 75,840 | 6 | 57,600 | 6 | 26,160 | 6 | 37,338 | 2 |
| **Total** | **455,497** | **9** | **379,629** | **9** | **482,906** | **9** | **314,399** | **5** |

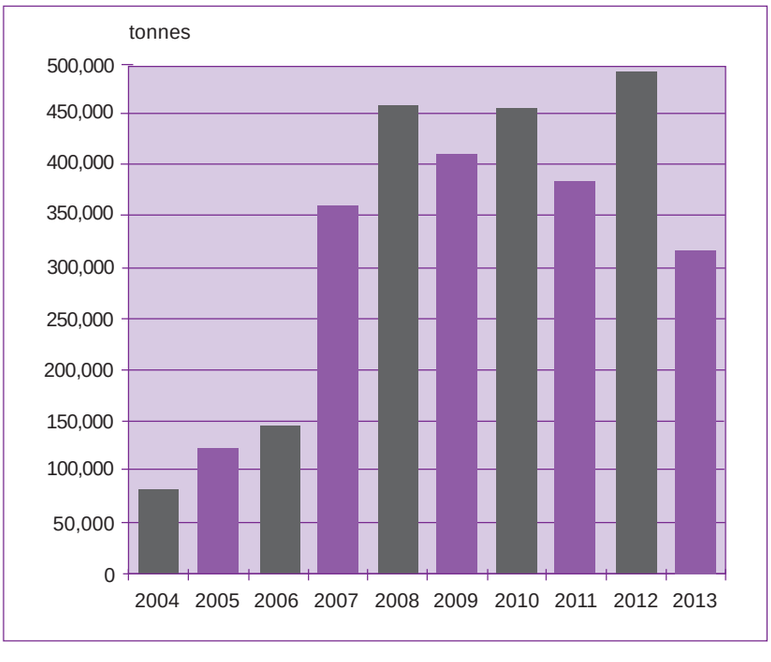
Source: Minerals and Geoscience Department Malaysia

**Malaysia's historic production (feldspar)**

| Year | tonnes |
|---|---|
| 2004 | 79,220 |
| 2005 | 117,180 |
| 2006 | 142,358 |
| 2007 | 358,585 |
| 2008 | 457,377 |
| 2009 | 410,053 |
| 2010 | 455,497 |
| 2011 | 379,629 |
| 2012 | 482,906 |
| 2013 | 314,399 |

Source: Minerals and Geoscience Department Malaysia

**Malaysia's production of feldspar (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2529.10.100 | Potash feldspar, Soda feldspar | 14,354 | 11,694 | 30,335 | 6,796 | 5,949 | 13,979 |
| 2529.10.900 | Other feldspar | – | – | 1,481 | – | – | 1,897 |
| 2529.30.000 | Leucite; Nepheline & Nepheline syenite | 1,484 | 285 | 214 | 1,892 | 379 | 256 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2529.10.100 | Potash feldspar, Soda feldspar | 93,062 | 58,880 | 53,854 | 30,022 | 24,975 | 26,638 |
| 2529.10.900 | Other feldspar | 24,031 | 9,373 | 7,385 | 8,510 | 4,919 | 3,829 |
| 2529.30.000 | Leucite: Nepheline & Nepheline syenite | 5,825 | 3,274 | 3,109 | 19,106 | 10,978 | 13,899 |



### Malaysia's exports of feldspar, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Feldspar (HS: 2529)* | | | | | | |
| Indonesia | 18,254 | 4,990,000 | 15,388 | 4,794,000 | 11,377 | 4,219,000 |
| Japan | 2,920 | 3,471,000 | 3,769 | 4,485,000 | 3,182 | 4,082,000 |
| Thailand | 1,832 | 1,312,000 | 1,695 | 1,097,000 | 2,581 | 2,809,000 |
| Bangladesh | 10,383 | 2,346,000 | 7,430 | 973,000 | 9,934 | 1,577,000 |
| Singapore | 3,339 | 2,007,000 | 3,137 | 1,438,000 | 2,663 | 1,151,000 |
| Others | 6,094 | 4,339,000 | 3,286 | 1,668,000 | 2,293 | 1,935,000 |
| **Total** | **42,822** | **18,465,000** | **34,695** | **14,454,000** | **32,030** | **16,132,000** |

Source: Department of Statistics

**Malaysia's imports of feldspar, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Feldspar (HS: 2529)* | | | | | | |
| China | 36,391 | 13,051,000 | 20,352 | 14,777,000 | 29,359 | 13,820,000 |
| Norway | – | – | – | – | 2,347 | 10,773,000 |
| Thailand | 16,352 | 5,847,000 | 37,267 | 7,879,000 | 11,111 | 8,126,000 |
| India | 22,041 | 6,534,000 | 23,011 | 7,126,000 | 15,746 | 4,811,000 |
| Turkey | 6,594 | 2,884,000 | 8,926 | 4,477,000 | 5,142 | 2,718,000 |
| Others | 35,747 | 10,216,797 | 71,984 | 42,112,000 | 1,642 | 4,119,000 |
| **Total** | **117,093** | **38,531,000** | **161,540** | **76,371,000** | **64,348** | **44,366,000** |

Source: Department of Statistics

**Price (per tonne)**

| Grade | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Ex-works, USA, per s/ton, bulk** | | | | |
| Ceramic grade | | | | |
| 170-200 mesh, (Na) | N.A | N.A | $150 - 180 | $150 - 180 |
| 325 mesh, bagged (Na) | N.A | N.A | N.A | N.A |
| 200 mesh (K) | N.A | N.A | N.A | N.A |
| Glass grade | | | | |
| 30 mesh (Na) | N.A | N.A | N.A | N.A |
| 80 mesh (K) | N.A | N.A | N.A | N.A |
| Turkish, Na feldspar, Crude | | | | |
| - 10 mm size bulk, FOB Gulluk | $22 - 23 | $22 - 23 | $22 - 23 | $22 - 23 |
| Turkish, Na feldspar, Glass grade, | | | | |
| - 500 microns, bagged, FOB Gulluk, | $70 | $70 | $70 | $70 |
| **South Africa, FOB Durban,** bagged | | | | |
| Ceramic grade | N.A | N.A | $168 | $168 |
| Micronised (2, 5, 10 microns) | N.A | N.A | N.A | N.A |
| **Indian, FOB India** | | | | |
| Ceramic grade (K), bulk | N.A | N.A | N.A | N.A |
| Powder grade, 200 mesh | N.A | N.A | N.A | N.A |

Source: Industrial Minerals December 2013

**World mine production of feldspar**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| Turkey | 6,000,000 | 7,100,000 | 7,000,000 | 30.7 |
| Italy | 4,700,000 | 4,700,000 | 4,700,000 | 20.6 |
| China | 2,100,000 | 2,100,000 | 2,100,000 | 9.2 |
| Thailand | 600,000 | 1,100,000 | 1,100,000 | 4.8 |
| France | 650,000 | 650,000 | 650,000 | 2.8 |
| Iran | 500,000 | 500,000 | 650,000 | 2.8 |
| Japan | 650,000 | 600,000 | 600,000 | 2.6 |
| Spain | 590,000 | 510,000 | 600,000 | 2.6 |
| India | 420,000 | 500,000 | 520,000 | 2.3 |
| Poland | 450,000 | 510,000 | 510,000 | 2.2 |
| United States | 650,000 | 525,000 | 490,000 | 2.1 |
| Czech Republic | 407,000 | 445,000 | 440,000 | 1.9 |
| Egypt | 406,000 | 400,000 | 400,000 | 1.8 |
| Korea, Republic of | 500,000 | 400,000 | 360,000 | 1.6 |
| **Malaysia*** | **379,629** | **482,906** | **314,399** | **1.4** |
| Other countries | 2,746,000 | 2,287,000 | 2,384,000 | 10.4 |
| **World total (rounded)** | **21,700,000** | **22,700,000** | **23,000,000** | |



Source: United States Geological Survey
* Minerals and Geoscience Department Malaysia

## Review

Feldspar is the most abundant component mineral in igneous rocks, comprising of a group of aluminosilicate minerals combined in variable proportions with lime, soda, or potash. There are four types of feldspar, however only potassium and sodium feldspar have economic interest and are used in the glass and ceramic industries or used as mild abrasives. Feldspar is also used in plastics, paints, and rubber industries. In ceramics, feldspar is used as a flux to reduce vitrifying temperatures during firing and formation of glassy phases. In glass making, feldspar provides alumina for improving hardness, durability, and resistance to chemical corrosion.

The total feldspar productions during the year were 314,399 tonnes, decreasing as much as 35% from 482,906 tonnes produced in the previous year. The feldspar were produced from three feldspar-rich rock producers operating at Tanah Putih, Gua Musang, Kelantan and two pottery stone producers in Gemencheh, Negeri Sembilan.

Local demand for feldspar is largely met by import as local production is low and unsuitable for certain products. Domestic consumption for feldspar is dominated by the glass and ceramic industries. In 2013, imports of feldspar amounted to 64,348 tonnes valued at RM44.4 million. The imported feldspar mainly came from China, Norway, Thailand, India and Turkey. During the year, Malaysia also exported a total of 32,030 tonnes of feldspar worth RM16.1 million. The main export destinations were Indonesia, Japan, Singapore, Thailand and Bangladesh.

The Minerals and Geoscience Department has identified sodium rich feldspar deposits in Gua Musang, Kelantan and in Merapoh, Pahang and high potassium feldspar volcanic rocks in Gerik, Perak. Another local source of feldspar are the quartz-sericite rocks (locally known as pottery stone), which is quarried in Gemencheh, Negeri Sembilan. Besides these, the pegmatite and graphic granites at Bukit Mor in Johor and Tanjung Jaga in Kedah; leucogranites in Gunung Pulai, Johor are also possible new sources for feldspar. ■

# GYPSUM AND ANHYDRITE

**Exports**

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2520.10.000 | Gypsum: Anhydrite | 3,892 | 3,438 | 3,921 | 1,428 | 669 | 1,187 |
| 2520.20.100 | Plasters of dentistry | 16 | – | – | 11 | – | – |
| 2520.20.900 | Other plaster | 3,929 | 6,570 | 6,857 | 3,740 | 4,680 | 6,579 |

**Imports**

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2520.10.000 | Gypsum: Anhydrite | 218,457 | 507,199 | 257,015 | 83,506 | 105,235 | 103,684 |
| 2520.20.100 | Plasters of dentistry | 164 | 89 | 85 | 283 | 182 | 197 |
| 2520.20.900 | Other plaster | 192,911 | 217,396 | 86,441 | 48,548 | 52,978 | 53,949 |



**Malaysia's exports of gypsum, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Gypsum (HS: 2520.10.000)* | | | | | | |
| Indonesia | 2,610 | 299,000 | 3,000 | 297,000 | 3,690 | 824,000 |
| Egypt | 43 | 62,000 | 245 | 233,000 | 143 | 160,000 |
| Singapore | | | 47 | 22,000 | 25 | 126,000 |
| Botswana | 45 | 63,000 | 15 | 27,000 | 41 | 43,000 |
| India | 136 | 162,000 | 22 | 23,000 | 18 | 18,000 |
| Others | 1,058 | 841,000 | 109 | 77,000 | 4 | 16,000 |
| **Total** | **3,892** | **1,428,000** | **3,438** | **669,000** | **3,921** | **1,187,000** |

Source: Department of Statistics

**Malaysia's imports of gypsum, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Gypsum (HS: 2520.10.000)* | | | | | | |
| Thailand | 213,953 | 79,655,000 | 496,314 | 98,613,000 | 246,958 | 97,581,000 |
| Indonesia | | | 720 | 424,000 | 5,503 | 2,837,000 |
| China | 469 | 438,000 | 1,228 | 1,060,000 | 1,188 | 1,110,000 |
| Germany | 772 | 859,000 | 689 | 858,000 | 952 | 969,000 |
| Iran | 1,768 | 357,000 | 2,938 | 703,000 | 1,423 | 613,000 |
| Others | 1,495 | 2,197,000 | 5,311 | 3,577,000 | 991 | 574,000 |
| **Total** | **218,457** | **83,506,000** | **507,200** | **105,235,000** | **257,015** | **103,684,000** |

Source: Department of Statistics

**Price (per tonne)**

| Grade | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| Crude, ex-mine UK | N.A | N.A | N.A | N.A |

Source: Industrial Minerals December 2013

**World production of gypsum**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| China | 48,000,000 | 48,000,000 | 50,000,000 | 31.2 |
| United States | 8,900,000 | 15,800,000 | 16,300,000 | 10.2 |
| Iran | 13,000,000 | 13,000,000 | 14,000,000 | 8.7 |
| Thailand | 9,900,000 | 19,000,000 | 9,000,000 | 5.6 |
| Spain | 11,500,000 | 7,100,000 | 7,100,000 | 4.4 |
| Russia | 3,000,000 | 3,150,000 | 6,000,000 | 3.8 |
| Japan | 5,600,000 | 5,500,000 | 5,500,000 | 3.4 |
| Mexico | 3,840,000 | 4,690,000 | 5,000,000 | 3.1 |
| Italy | 4,130,000 | 4,130,000 | 4,100,000 | 2.6 |
| India | 2,700,000 | 2,750,000 | 3,600,000 | 2.2 |
| Brazil | 2,750,000 | 3,230,000 | 3,200,000 | 2.0 |
| Australia | 3,500,000 | 2,500,000 | 3,000,000 | 1.9 |
| Saudi Arabia | 2,100,000 | 2,500,000 | 2,500,000 | 1.6 |
| France | 2,300,000 | 2,300,000 | 2,300,000 | 1.4 |
| Turkey | 3,200,000 | 2,100,000 | 2,000,000 | 1.3 |
| Canada | 2,560,000 | 2,550,000 | 1,900,000 | 1.2 |
| Other countries | 22,410,000 | 23,350,000 | 24,300,000 | 15.2 |
| **World total (rounded)** | **149,000,000** | **152,000,000** | **160,000,000** | |

Source: United States Geological Survey



## Review

Gypsum and anhydrite are two naturally occurring forms of calcium sulphate compounds. Gypsum is in the hydrated form ($CaSO_4.2H_2O$) and anhydrite, as its name implies, is in an anhydrous form ($CaSO_4$). Beside its natural form, synthetic chemical or by-product gypsum is increasingly available. The main uses of gypsum are as plaster of paris, as additives in cement and glass manufacturing, soil conditioners, fillers, extenders, concrete and blocks.

Ground gypsum is used extensively in agriculture as fertilizers to improve calcium and sulphur deficiencies in soil, and as a conditioner to reduce soil salinity. Anhydrite is used in the manufacture of sulphuric acid and cement clinker. In Malaysia, gypsum is used for the manufacturing of Portland cement, wallboard, plaster products and ceramics. A large quantity of by-product gypsum (known as titanogypsum) in Malaysia is produced by Tioxide Malaysia, a titanium dioxide plant in Terengganu. It is also a by-product through the production of activated clay. However, it has not been used commercially. In some countries, titanogypsum has been used as a substitute for mined gypsum, principally for wallboard manufacture, agricultural purposes, highway construction and cement production.

Currently, there is no report on the occurrences of natural gypsum in Malaysia. The country's requirement is fully met through imports. In 2013, imports of gypsum and anhydrite amounted to 257,015 tonnes worth RM103.7 million which is a decrease of 49% from 507,200 tonnes worth RM105.2 million in the previous year imports. The source of the imported gypsum was mostly from Thailand, Indonesia, China, Germany and Iran. However, some of the imported gypsum is processed to be exported. During the year, Malaysia exported a total of 3,921 tonnes of gypsum worth RM1.19 million compared to 3,438 tonnes of gypsum worth RM669,000 in 2012. The gypsum was exported mainly to Indonesia, Egypt, Singapore, Botswana and India. ■

# KAOLIN

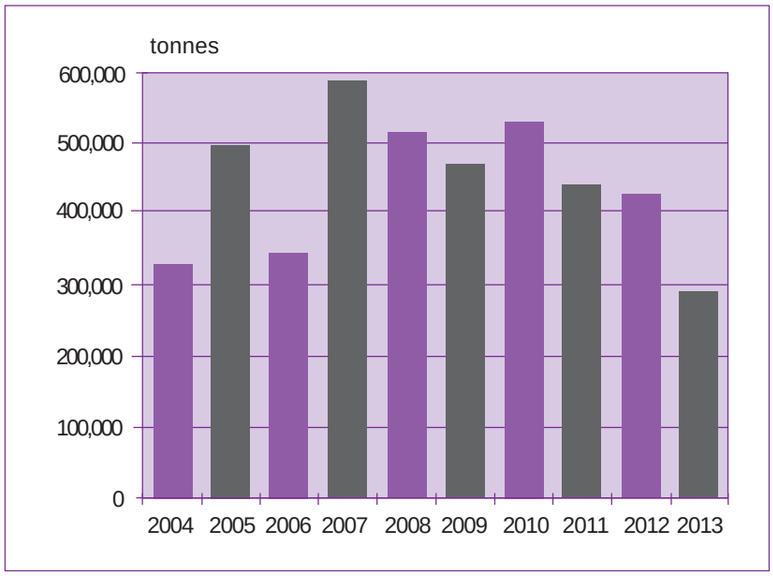
**Malaysia's production of kaolin**

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Perak | 273,153 | 17 | 297,237 | 18 | 301,038 | 18 | 205,979 | 14 |
| Johor | 62,878 | 7 | 38,413 | 8 | 21,385 | 5 | 28,651 | 6 |
| Pahang | 194,300 | 1 | 106,900 | 1 | 116,500 | 1 | 58,850 | 1 |
| **Total** | **530,331** | **25** | **442,550** | **27** | **438,923** | **24** | **293,480** | **21** |

**Malaysia's historic production (kaolin)**

| Year | tonnes |
|---|---|
| 2004 | 326,928 |
| 2005 | 494,511 |
| 2006 | 341,223 |
| 2007 | 587,508 |
| 2008 | 506,462 |
| 2009 | 487,632 |
| 2010 | 530,331 |
| 2011 | 442,550 |
| 2012 | 438,923 |
| 2013 | 293,480 |

**Malaysia's production of kaolin (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2507 | Kaolin & kaolinic clays | 44,038 | 49,882 | 49,840 | 23,640 | 26,620 | 26,461 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2507 | Kaolin & kaolinic clays | 76,294 | 64,461 | 90,679 | 56,606 | 58,355 | 66,480 |

Source: Department of Statistics

### Malaysia's exports of kaolin, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Kaolin (HS: 2507.00.000)* | | | | | | |
| Thailand | 9,845 | 4,632,000 | 13,536 | 7,309,000 | 13,549 | 7,043,000 |
| Bangladesh | 5,501 | 2,919,000 | 4,410 | 2,872,000 | 3,837 | 3,002,000 |
| Taiwan | 4,795 | 2,587,000 | 5,758 | 2,605,000 | 8,376 | 2,786,000 |
| Vietnam | 5,115 | 3,108,000 | 3,659 | 2,285,000 | 3,375 | 2,390,000 |
| Singapore | 3,609 | 2,119,000 | 3,715 | 2,115,000 | 2,482 | 2,032,000 |
| Others | 15,172 | 8,275,000 | 18,804 | 9,434,000 | 18,221 | 9,208,000 |
| **Total** | **44,038** | **23,640,000** | **49,882** | **26,620,000** | **49,840** | **26,461,000** |

Source: Department of Statistics

**Malaysia's imports of kaolin, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Kaolin (HS: 2507.00.000)* | | | | | | |
| China | 22,592 | 21,872,000 | 26,812 | 27,405,000 | 49,232 | 30,038,000 |
| U.S.A. | 18,898 | 14,060,000 | 16,212 | 12,603,000 | 24,139 | 18,820,000 |
| Thailand | 9,693 | 5,973,000 | 8,488 | 4,943,000 | 6,992 | 4,862,000 |
| United Kingdom | 3,988 | 3,699,000 | 823 | 3,802,000 | 4,513 | 5,310,000 |
| Turkey | | | 1,200 | 959,000 | 1,351 | 1,829,000 |
| Others | 21,122 | 11,001,000 | 7,926 | 8,643,000 | 4,452 | 5,620,000 |
| **Total** | **76,294** | **56,606,000** | **64,461** | **58,355,000** | **90,679** | **66,480,000** |

Source: Department of Statistics

**Price (per tonne unless indicated)**



| Kaolin | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Ex-Georgia plant, s/ton** | | | | |
| Filler, bulk | N.A | N.A | N.A | N.A |
| Paper coating grade | $95 - 147 | $100 - 195 | $161 - 209 | $167 - 217 |
| Sanitaryware grade, bagged | N.A | N.A | N.A | N.A |
| Tableware grade, bagged | N.A | N.A | N.A | N.A |
| Calcined, bulk | N.A | N.A | N.A | N.A |
| **Ceramic grade, bulk** | | | | |
| Refined, ex-works France | N.A | N.A | N.A | N.A |
| Refined, FOB Rotterdam | N.A | N.A | N.A | N.A |

Source: Industrial Minerals December 2013

**World mine production of kaolin**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| Uzbekistan[c] | 5,500,000 | 4,900,000 | 7,000,000 | 18.6 |
| United States[a] | 5,770,000 | 5,980,000 | 5,950,000 | 16.0 |
| Germany[a] | 4,900,000 | 4,900,000 | 4,500,000 | 12.1 |
| Czech Republic[c] | 3,610,000 | 3,320,000 | 3,300,000 | 8.8 |
| Brazil[b] | 2,200,000 | 1,950,000 | 2,050,000 | 5.5 |
| Turkey | 700,000 | 1,200,000 | 2,000,000 | 5.4 |
| Ukraine[c] | 1,100,000 | 1,300,000 | 1,600,000 | 4.3 |
| United Kingdom[a] | 900,000 | 900,000 | 900,000 | 2.4 |
| Italy | 640,000 | 640,000 | 640,000 | 1.7 |
| **Malaysia*** | **442,550** | **438,923** | **293,480** | **0.8** |
| Spain | 49,000 | 303000 | 300000 | 0.8 |
| Mexico | 120,000 | 163000 | 160000 | 0.4 |
| Other countries | 7,967,450 | 8,540,000 | 8,600,000 | 23.1 |
| **World total (rounded)** | **33,900,000** | **36,600,000** | **34,000,000** | |

[a] sales
[b] beneficiated
[c] crude

Source: United States Geological Survey Minerals
*Mineral and Geoscience Department Malaysia



## Review

Kaolin (china clay) is a white inert clay with a broad pH and low conductivity. It has excellent coating properties and is suitable for applications in the ceramics, paper, rubber, plastics and aluminium industry.

In Malaysia, kaolin is usually found in partly decomposed granite. Processed or refined kaolin is available in the form of white powder or granules and has natural whiteness and fineness properties. About 112 Mt of kaolin reserves have been identified throughout the country. The major deposits are located mainly in Perak, 59 Mt; Johor, 25 Mt; Sarawak, 23 Mt; Terengganu, 5.3 Mt; Pahang, 4.5 Mt; Sabah, 0.6 Mt; Pulau Pinang, 0.4 Mt; and Kelantan, 0.2 Mt.

In 2013, a total of 21 kaolin producers were recorded. During the year, Malaysia's kaolin production dropped by 33% to 293,480 tonnes (valued at RM28.8 million) from 438,923 tonnes (valued at RM41.9 million) in 2012. Perak continued to record the most number of producers (14), followed by Johor (6) and one in Pahang. Most of these mines are small-scale mines that operate by demand.

About 32% of the produced kaolin came from Perak but in 2013, the total kaolin production from Perak decreased to 205,978 tonnes compared with 301,038 tonnes in previous year. The country's largest kaolin producers located in Perak are namely, Greatpac Mineral Sdn. Bhd., Kaolin (M) Sdn. Bhd. and Tinex Corporation Sdn. Bhd. They produced various grades of processed kaolin for local as well as for export. The main uses of kaolin in Malaysia are for paper filler and for the manufacture of ceramics, cement, paint, rubber and chemical products.

During 2013, Malaysia exported a total of 49,840 tonnes of kaolin worth RM26.46 million compared with 49,882 tonnes in the previous year. The kaolin was exported mainly to Thailand, Bangladesh, Taiwan, Vietnam and Singapore. At the same time, Malaysia also imported a total of 90,679 tonnes of kaolin worth RM66.5 million compared to 64,461 tonnes worth RM58.4 million in 2012. The major sources of imported kaolin were China, USA, Thailand and United Kingdom. ■

# LIMESTONE

**Malaysia's production of limestone**
(exclude dimension stone)

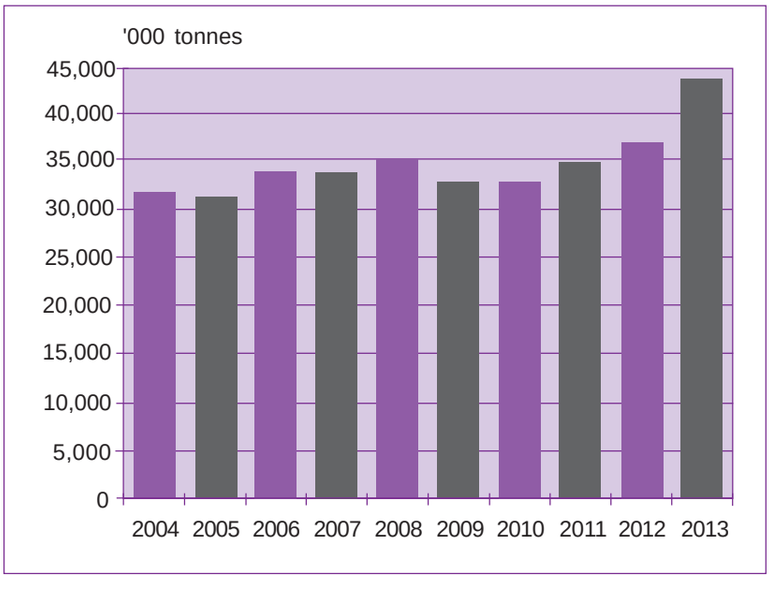
| State | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|
| | tonnes | quarries | tonnes | quarries | tonnes | quarries |
| Perak | 14,805,188 | 37 | 15,155,762 | 37 | 25,978,894 | 52 |
| Sarawak | 5,538,591 | 20 | 7,056,823 | 19 | 6,133,140 | 18 |
| Selangor | 2,368,977 | 1 | 2,106,581 | 4 | 2,106,581 | 1 |
| Pahang | 2,059,802 | 7 | 2,198,882 | 7 | 1,946,882 | 6 |
| Perlis | 2,738,968 | 5 | 2,821,271 | 6 | 3,113,243 | 10 |
| Sabah | 325,207 | 2 | 325,207 | 2 | 864,977 | 5 |
| Kedah | 4,134,382 | 4 | 4,582,918 | 3 | 883,194 | 6 |
| Kelantan | 240,639 | 2 | 257,732 | 3 | 226,101 | 3 |
| N.Sembilan | 2,088,049 | 1 | 1,905,459 | 1 | 2,475,636 | 1 |
| **Total** | **34,299,803** | **79** | **36,579,718** | **80** | **43,728,648** | **102** |



**Malaysia's historic production of limestone**

| Year | '000 tonnes |
|---|---|
| 2004 | 31,598 |
| 2005 | 30,868 |
| 2006 | 33,472 |
| 2007 | 33,689 |
| 2008 | 35,227 |
| 2009 | 32,808 |
| 2010 | 32,399 |
| 2011 | 34,300 |
| 2012 | 36,580 |
| 2013 | 43,729 |

**Malaysia's production of limestone (2004- 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2518 | Dolomite | 36 | 6 | 176 | 53 | 51 | 112 |
| 2521 | Limestone flux | 787,000 | 1,097,000 | 816,000 | 94,585 | 92,431 | 111,725 |
| 2522 | Lime | 364,582 | 366,785 | 373,921 | 129,604 | 132,592 | 140,052 |
| 2523 | Cement | 3,415,000 | 2,650,000 | 2,557,000 | 519,318 | 480,291 | 488,308 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2518 | Dolomite | 6,161 | 7,663 | 7,858 | 3,067 | 4,738 | 5,165 |
| 2521 | Limestone flux | 178 | 545 | 445 | 262 | 293 | 801 |
| 2522 | Lime | 7,197 | 9,483 | 2,081 | 6,594 | 6,311 | 2,469 |
| 2523 | Cement | 2,045,000 | 2,108,000 | 2,075,000 | 374,972 | 440,630 | 437,813 |

Source: Department of Statistics



### Malaysia's exports of limestone, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Limestone Flux (HS: 2521.00.000)* | | | | | | |
| India | 296,251 | 40,705,000 | 365,270 | 35,074,000 | 314,836 | 48,784,000 |
| Japan | 147,710 | 19,630,000 | 258,150 | 21,472,000 | 206,525 | 24,583,000 |
| Singapore | 105,158 | 13,651,000 | 135,929 | 14,657,000 | 124,275 | 19,162,000 |
| Indonesia | 149,300 | 8,528,000 | 282,081 | 14,625,000 | 118,177 | 11,756,000 |
| Taiwan | 46,800 | 3,700,000 | 41,080 | 3,270,000 | 36,750 | 3,520,000 |
| Others | 41,948 | 8,370,000 | 14,830 | 3,334,000 | 15,360 | 3,919,000 |
| **Total** | **787,168** | **94,585,000** | **1,097,340** | **92,431,000** | **815,923** | **111,725,000** |

**Malaysia's imports of limestone, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Limestone Flux (HS: 2521.00.000)* | | | | | | |
| Republic of Korea | – | – | 405 | 116,519 | 12 | 343,826 |
| China | 26 | 27,950 | 13 | 14,651 | 247 | 242,841 |
| Australia | 140 | 207,818 | 79 | 81,985 | 102 | 99,103 |
| India | – | – | – | – | 51 | 39,729 |
| Germany | 12 | 20,638 | 24 | 27,519 | 19 | 33,462 |
| Others | | 5,293 | 24 | 52,258 | 13 | 42,569 |
| **Total** | **178** | **261,699** | **544** | **292,932** | **444** | **801,530** |

## Review

Limestone is the most widely used of all industrial minerals and has the broadest range of applications related to its physical properties, chemical properties or both. Physical properties are important if the stone is used as it is, such as for aggregate and dimension stone. Chemical and brightness properties are important if the rock undergoes changes from one form of matter to another, such as in the manufacture of cement or fillers.

In Malaysia, limestone is quarried for use in the manufacture of aggregates (concrete, road, filter stone and terrazzo), dimension stone, agricultural and industrial applications, quicklime, hydrated lime, ground calcium carbonate, precipitated calcium carbonate, clinker, chemical and pharmaceutical. However, here only limestone that is used for rock aggregates, cement manufacture and agricultural applications are covered.

In 2013, about 43.70 Mt of limestone was produced, increased by 19% compared to 36.6 Mt of limestone produced in the previous year. From 102 quarries in 2013, there were 14 quarries producing limestone solely for cement making industries, 79 for aggregates, and 9 for agriculture and other uses. The limestone produced is largely consumed for rock aggregates (57.3%), cement making industries (41.3%) and for agriculture and other purposes (1.4%). Most of the limestone produced came from the state of Perak and it continued to be the major limestone producer in the country with a production of 26.0 Mt, which accounts for 59% of the total country's production. Perak also has the highest number of producers with 52 quarries from the total of 102 quarries in the country. The other states that recorded high limestone production in 2013 were Sarawak, Selangor, Negeri Sembilan and Pahang.

In 2013, there were 16 various types of cement plants including a white cement plant operating in the country. Nine of these cement plants are integrated, one produce clinker while the other six are cement grinding plants. Four of the integrated plants are located in Perak and one each in Kedah, Negeri Sembilan, Pahang, Perlis and Selangor. The sole clinker plant located in Sarawak produces and supplies only clinker. Currently, the players in cement production are the CMS Group, CIMA Group, YTL Group, Lafarge Cement Sdn. Bhd., Tasek Corporation Berhad, Cement Industries (Sabah) Sdn. Bhd., Holcim (M) Sdn. Bhd., Aalborg White Asia Sdn. Bhd and Hume Cement Sdn. Bhd.

The Minerals and Geoscience Department of Malaysia has identified estimated reserves of about 30,480 Mt of limestone that are suitable for various uses such as cement manufacturing, dimension stone and other limestone-based products. These resources are mostly located in Sabah (4,754 Mt), Perak (2,599 Mt), Kelantan (1,308 Mt), Pahang (1,720 Mt) and Kedah (1,220 Mt). Some of these resources are presently being quarried. ■

# MICA

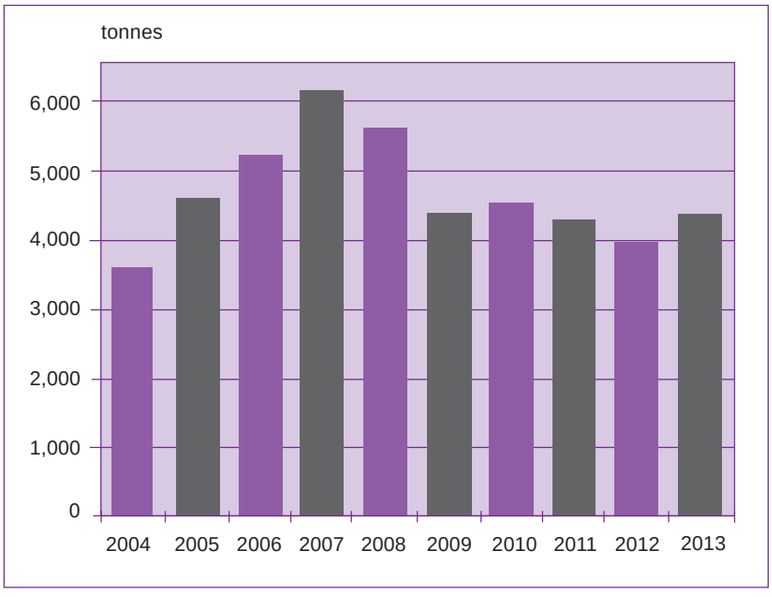
### Malaysia's production of mica

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Perak | 4,515 | 3 | 4,245 | 3 | 3,967 | 2 | 4,363 | 2 |
| **Total** | **4,515** | **3** | **4,245** | **3** | **3,967** | **2** | **4,363** | **2** |

### Malaysia's historic production of mica

| Year | tonnes |
|---|---|
| 2004 | 3,544 |
| 2005 | 4,544 |
| 2006 | 5,152 |
| 2007 | 6,118 |
| 2008 | 5,593 |
| 2009 | 4,324 |
| 2010 | 4,515 |
| 2011 | 4,245 |
| 2012 | 3,967 |
| 2013 | 4,363 |

### Malaysia's production of mica (2004 - 2013)




## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2525.10 | Crude mica and mica rifted into sheet or splitting | – | 50 | 14 | – | 6 | 26 |
| 2525.20 | Mica powder | 5,408 | 6,281 | 6,897 | 7,121 | 9,298 | 9,192 |
| 2525.30 | Mica waste | – | – | – | – | – | – |

**Imports**

| H.S. | Country | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2525.10 | Crude mica and mica rifted into sheet or splitting | 192 | 111 | 138 | 242 | 211 | 177 |
| 2525.20 | Mica powder | 1,466 | 713 | 830 | 12,899 | 5,603 | 4,849 |
| 2525.30 | Mica waste | – | – | 17 | – | – | 78 |

**Malaysia's exports of mica, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Mica (HS: 2525.20.000)* | | | | | | |
| Japan | 962 | 2,304,000 | 1,860 | 3,886,000 | 1,387 | 3,042,000 |
| China | 617 | 524,000 | 529 | 623,000 | 995 | 1,092,000 |
| Thailand | 1,521 | 1,110,000 | 1,333 | 1,171,000 | 1,259 | 1,084,000 |
| Indonesia | 619 | 576,000 | 917 | 928,000 | 900 | 915,000 |
| Republic of Korea | 1,103 | 77,000 | 964 | 822,000 | 914 | 818,000 |
| Others | 586 | 1,837,000 | 678 | 1,868,000 | 1,442 | 2,241,000 |
| **Total** | **5,408** | **7,122,000** | **6,281** | **9,298,000** | **6,897** | **9,192,000** |

Source: Department of Statistics

**Price (per tonne unless indicated)**

| Mica | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| Indian Wet ground, CIF Europe | $600 - 900 | $600 - 900 | $600 - 900 | $600 - 900 |
| **FOB Madras, India** | | | | |
| Dry ground | $200 - 430 | $300 - 400 | $300 - 400 | $300 - 400 |
| **FOB plant, USA** | | | | |
| Dry ground | N.A | N.A | N.A | N.A |
| Wet ground | $700 - 1,300 | $700 - 1,300 | $700 - 1,300 | $700 - 1,300 |
| Micronised | $700 - 1,000 | $700 - 1,000 | $700 - 1,000 | $700 - 1,000 |
| Flake | $350 - 500 | $350 - 500 | $350 - 500 | $350 - 500 |

Source: Industrial Minerals, December 2013

## Review

Mica is a group of silicate minerals composed of varying amounts of aluminium, potassium, magnesium, iron and water. Two mica minerals which are commercially important are muscovite (potassium mica) and phlogopite (magnesium mica). However, the term 'mica' is used to signify sericite or muscovite only. The quality of mica is determined by its chemical composition and particles size. As raw mica varies in chemical composition, processing is important in order to control the composition to a consistent value. Mica is used in electronics, insulators, paints, joint cements, dusting agents, well drilling muds, lubricants, plastics, roofing, rubber and welding rods. In this report, mica is referred to as fine-grained sericite in the form of weathered sericite schist. The mica mined is naturally fine-grained and has unique properties of excellent smoothness with very fine particle size. In Malaysia however, the mica produced in Perak are in its crude form and consists mainly of flake mica. The fine muscovite flakes are recovered from schistose rocks through a screening process. There are two common screening (wet and dry) processes that are used to produce mica flakes according to the required grain size. Scrap and flake mica are processed to various sizes of ground mica powder. It is commonly utilized as filler that is prized for its physically smooth properties for industrial applications such as paints.

In 2013, there were two mica producers operating on ex-tin mining land in Bidor, Perak namely Tasik Mahir Sdn. Bhd. and Techcera (M) Sdn. Bhd. Mica production had continued in a decreasing trend since 2007. For the last five years, Malaysia produced about 4,000 tonnes of mica annually. The total annual production of mica in 2013 slightly increased as much as 10% to 4,363 tonnes compared with 3,967 tonnes recorded in 2012.

Almost all the mica produced is exported mainly to Japan, Thailand, China, Indonesia and Republic of Korea. A total of 6,897 tonnes of mica powder valued at RM9.19 million was exported in 2013 compared to the 6,281 tonnes valued at RM9.3 million in the previous year. At the same time, Malaysia imported a total of 830 tonnes of mica valued at RM4.85 million compared with 713 tonnes valued at RM5.60 million in the previous year. ■

# PHOSPHATE ROCK

## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 3101.00 | Guano | 4,618 | 3,450 | 9,610 | 8,146 | 9,723 | 25,020 |
| 2510.10 | Natural calcium phosphates unground | 22 | – | 4,500 | 12 | – | 8,860 |
| 2510.20 | Natural calcium phosphates ground | 22 | – | 35 | 12,000 | – | 28,360 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 3101.00 | Guano | 781 | 2,180 | 15,350 | 842 | 2,491 | 20,320 |
| 2510.10 | Natural calcium phosphates unground | 16 | 526 | 78 | 17 | 269 | 157 |
| 2510.20 | Natural calcium phosphates ground | 331,076 | 375,825 | 393,114 | 126,331 | 190,816 | 180,235 |

Source: Department of Statistics



## Price (per tonne)

| Phosphates | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **Moroccan**, | | | | |
| 75-77%, BPL, FAS, Casablanca | N.A | N.A | N.A | N.A |
| 70-72%, BPL, FAS, Casablanca | N.A | N.A | N.A | N.A |
| **Central Florida** | | | | |
| **Phosphates** DAP FOB | N.A | N.A | N.A | $477-549 |

Source: Industrial Minerals, December 2013

**World production of phosphate rock**

| Country | tonnes | | | % of 2013p |
|---|---|---|---|---|
| | 2011 | 2012 | 2013p | |
| China | 81,000,000 | 95,300,000 | 97,000,000 | 43.4 |
| United States | 28,100,000 | 30,100,000 | 32,300,000 | 14.4 |
| Morocco and Western Sahara | 28,000,000 | 28,000,000 | 28,000,000 | 12.5 |
| Russia | 11,200,000 | 11,200,000 | 12,500,000 | 5.6 |
| Jordan | 6,500,000 | 6,380,000 | 7,000,000 | 3.1 |
| Brazil | 6,200,000 | 6,750,000 | 6,740,000 | 3.0 |
| Egypt | 3,500,000 | 6,240,000 | 6,000,000 | 2.7 |
| Tunisia | 5,000,000 | 2,600,000 | 4,000,000 | 1.8 |
| Peru | 2,540,000 | 3,210,000 | 3,900,000 | 1.7 |
| Israel | 3,100,000 | 3,510,000 | 3,600,000 | 1.6 |
| Australia | 2,650,000 | 2,600,000 | 2,600,000 | 1.2 |
| South Africa | 2,500,000 | 2,240,000 | 2,300,000 | 1.0 |
| Syria | 3,100,000 | 1,000,000 | 500,000 | 0.2 |
| Other countries | 14,690,000 | 17,660,000 | 17,170,000 | 7.7 |
| **World total (rounded)** | **198,000,000** | **217,000,000** | **224,000,000** | |

Source: United States Geological Survey



## Review

Phosphate rock is a major source for phosphorus and a general term used to describe mineral assemblages that naturally contain one or more phosphatic minerals of high purity and quantity to permit its commercial use as a source of phosphatic compounds or phosphorous elements. Another source of phosphate is from guano in the form of accumulated deposits of bat droppings that are found in caves. It is worked for phosphate or nitrate, while decomposed guano is made up of calcium phosphate. Phosphate rocks and guano are mainly used for fertilizer production, which is of vital importance to the agricultural sector.

The domestic requirement for phosphates is fully met by imports. In 2013, Malaysia imported a total of 408,542 tonnes of phosphate rock and guano valued at RM200.71 million compared with 378,531 tonnes valued at RM193.58 million in the previous year. Meanwhile, the total exports of phosphate and guano was 14,145 tonnes valued at RM66.24 million in 2013.

The world's supply of phosphate comes from 38 countries with China as the major contributor of more than 43.4% or 97 Mt of the total world production. The other three major producers are the United States of America, Morocco and Western Sahara and Russia that accounts for about 32.5% of the global phosphate rock production in 2013. ■

# SAND AND GRAVEL

**Malaysia's production of sand and gravel**

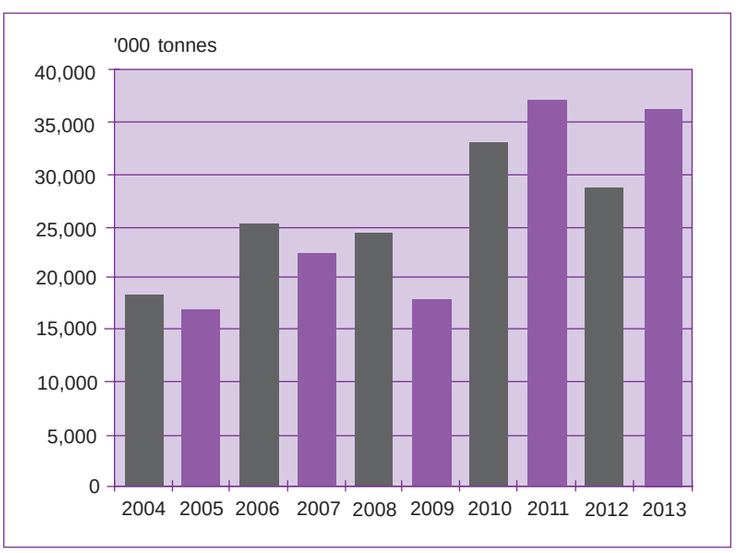
| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | '000 tonnes | producer | '000 tonnes | producer | '000 tonnes | producer | '000 tonnes | producer |
| Selangor / KL | 4,933 | 33 | 8,645 | 41 | 4,881 | 47 | 8,645 | 41 |
| Johor | 6,273 | 111 | 4,311 | 110 | 1,096 | 91 | 8,399 | 102 |
| Perak | 7,270 | 207 | 8,505 | 217 | 8,732 | 204 | 5,708 | 162 |
| Pahang | 2,198 | 131 | 6,946 | 142 | 5,626 | 139 | 4,793 | 130 |
| Sarawak | 2,821 | 27 | 1,507 | 24 | 1,998 | 24 | 3,020 | 28 |
| Negeri Sembilan | 1,706 | 79 | 2,132 | 79 | 1,644 | 64 | 1,644 | 70 |
| Kedah | 2,248 | 161 | 2,802 | 174 | 2,283 | 162 | 1,464 | 153 |
| Terengganu | 1,245 | 113 | 982 | 85 | 1,221 | 92 | 812 | 90 |
| Melaka | 459 | 17 | 423 | 14 | 287 | 11 | 279 | 10 |
| Kelantan | 323 | 125 | 193 | 98 | 212 | 77 | 174 | 86 |
| Sabah | 923 | 45 | 894 | 52 | 612 | 59 | 638 | 58 |
| **Total** | **30,698** | **1,049** | **37,339** | **1,036** | **28,592** | **970** | **35,578** | **930** |



**Malaysia's historic production of sand and gravel**

| Year | '000 tonnes |
|---|---|
| 2004 | 18,371 |
| 2005 | 17,071 |
| 2006 | 25,226 |
| 2007 | 22,370 |
| 2008 | 24,471 |
| 2009 | 17,382 |
| 2010 | 30,698 |
| 2011 | 37,339 |
| 2012 | 28,592 |
| 2013 | 35,578 |

**Malaysia's production of sand and gravel (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2505.90 | Other natural sand | 2,611 | 2,368 | 10,940 | 1,316 | 936 | 1,612 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2505.90 | Other natural sand | 11,719 | 8,459 | 6,063 | 10,960 | 13,601 | 7,242 |

Source: Department of Statistics

### Malaysia's exports of sand & gravel, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Sand & Gravel (HS: 2505.90.000)* | | | | | | |
| Singapore | 593 | 400,000 | 880 | 507,000 | 631 | 494,000 |
| Brunei | – | – | 1,330 | 319,000 | 7,869 | 372,000 |
| Qatar | – | – | – | – | 1,387 | 322,000 |
| Thailand | 144 | 81,000 | 72 | 40,000 | 215 | 141,000 |
| India | – | – | – | – | 520 | 83,000 |
| Others | 1,874 | 835,000 | 86 | 69,756 | 318 | 200,000 |
| **Total** | **2,611** | **1,316,000** | **2,368** | **936,000** | **10,940** | **1,612,000** |

**Malaysia's imports of sand & gravel, by country**

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Sand & Gravel (HS: 2505.90.000)* | | | | | | |
| India | 6,631 | 3,983,000 | 1,544 | 3,491,000 | 2,042 | 1,962,000 |
| Germany | 893 | 1,260,000 | 720 | 1,350,000 | 945 | 1,480,000 |
| Thailand | 289 | 736.000 | 339 | 843,000 | 415 | 1,049,000 |
| China | 1,557 | 1,813,000 | 896 | 2,443,000 | 887 | 652,000 |
| Japan | 537 | 1,664,000 | 1,684 | 3,000,000 | 113 | 370,000 |
| Others | 1,814 | 1,503,000 | 3,276 | 2,474,000 | 1,661 | 1,727,000 |
| **Total** | **11,719** | **10,960,000** | **8,459** | **13,601,000** | **6,063** | **7,242,000** |

Source: Department of Statistics

## Review

Sand and gravel are important raw materials used in the construction and infrastructure industries. The most important commercial sources of sand and gravel are from rivers, alluvium, offshore deposits and mine tailings.

Sand is used mainly as fine aggregates in concrete, mortar, cement bricks, filling and packing applications. Gravel is used mainly as coarse aggregates in concrete and also commonly used for road base. Offshore sand and gravel are often used for land reclamation.

Malaysia has abundant sand and gravel resources. In 2013, the total sand and gravel production was 35.58 Mt compared to 28.60 Mt in 2012. The production has increased significantly by 34% due to high demand in the construction sectors. Demands for sand and gravel are closely linked with the demand from construction sectors, which in turn is an indicator of economic performance. The major sand and gravel producing states are Selangor (8.6 Mt), Johor (8.4 Mt), Perak (5.7 Mt), Pahang (4.8 Mt), Sarawak (3.0 Mt), Negeri Sembilan (1.6 Mt) and Kedah (1.5 Mt).

During the year, there were 930 sand and gravel producers throughout the country compared with 970 in 2012. Perak has the highest number of 162 sand extraction permit holders while Selangor is leading in sand and gravel production, at 8.6 Mt or 24% of the total sand and gravel produced in the country. The other states with the highest number of producers were Kedah (153), Pahang (130), Johor (102) and Kelantan (86).

In 2013, the total exports of sand and gravel was 10,940 tonnes worth RM1.61 million compared to 2,368 tonnes worth RM936,000 recorded in 2012. The main export destinations were Singapore, Brunei, Qatar and Thailand. Whereas, the import volume of sand and gravel decreased by 28% to 6,063 tonnes worth RM7.24 million compared to 8,459 tonnes worth RM13.60 million recorded in the previous year. The main sources of imported sand and gravel were from India, Germany and Thailand. ■

# SILICA

**Malaysia's production of silica**

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Perak | 94,500* | 14 | 266,500* | 18 | 313,145* | 18 | 376,248* | 20 |
| Johor | 608,967 | 11 | 973,040 | 8 | 574,070 | 11 | 655,924 | 11 |
| Sarawak | 210,139 | 2 | 92,839 | 2 | 226,622 | 2 | 203,854 | 2 |
| Selangor | 18,553 | 1 | 7,634 | 1 | 6,069 | 1 | 7,634 | 1 |
| **Total** | **932,159** | **28** | **1,340,013** | **29** | **1,119,906** | **32** | **1,243,660** | **34** |

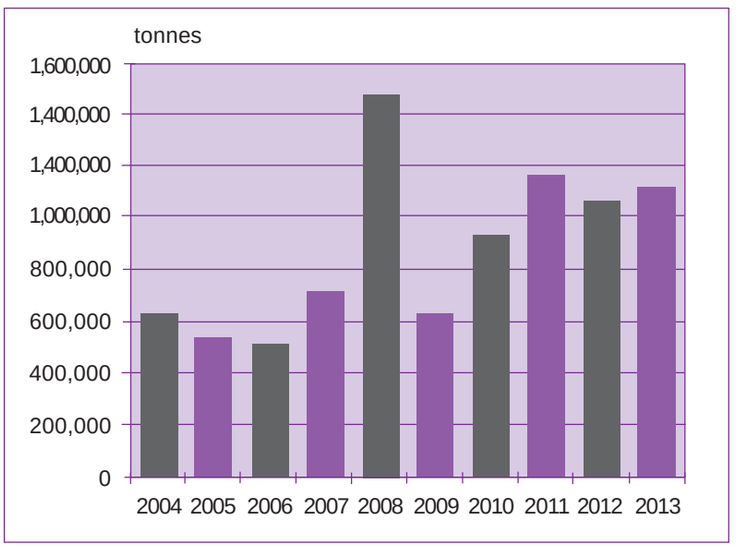
* - Included by-product from amang plants and tin mines

**Malaysia's historic production (silica)**

| Year | tonnes |
|---|---|
| 2004 | 631,402 |
| 2005 | 542,297 |
| 2006 | 512,277 |
| 2007 | 719,221 |
| 2008 | 1,466,904 |
| 2009 | 630,394 |
| 2010 | 932,159 |
| 2011 | 1,340,013 |
| 2012 | 1,119,906 |
| 2013 | 1,243,660 |

Note: Production includes silica sand and silica powder

**Malaysia's production of silica (2004 - 2013)**



## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2505.10 | Silica & quartz sands | 398,251 | 370,989 | 376,765 | 37,681 | 29,518 | 44,599 |

### Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2505.10 | Silica & quartz sands | 6,975 | 9,675 | 13,327 | 9,071 | 11,066 | 13,092 |

### Malaysia's exports of silica sand, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| Silica & quartz sands *(HS: 2505.10)* | | | | | | |
| Singapore | 319,148 | 30,385,000 | 358,703 | 27,857,000 | 234,600 | 29,384,000 |
| Philippines | 70,084 | 6,450,000 | 11,521 | 956,000 | 78,301 | 8,763,000 |
| South Korea | 7,505 | 413,000 | 286 | 373,000 | 53,101 | 4,774,000 |
| Japan | – | – | – | – | 9,900 | 1,089,000 |
| Vietnam | 180 | 100,000 | 285 | 192,000 | 436 | 258,000 |
| Others | 1,334 | 333,000 | 194 | 140,000 | 364 | 274,000 |
| **Total** | **398,251** | **37,680,000** | **370,989** | **29,518,000** | **376,693** | **44,542,000** |

### Malaysia's imports of silica sand, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| Silica & quartz sands *(HS: 2505.10)* | | | | | | |
| Taiwan | 1,342 | 3,065,000 | 3,585 | 5,025,000 | 8,282 | 6,426,000 |
| Australia | 206 | 145,000 | 2,615 | 1,448,000 | 2,841 | 2,704,000 |
| Belgium | 236 | 520,000 | 493 | 1,024,000 | 381 | 698,000 |
| France | 41 | 216,000 | 124 | 645,000 | 94 | 628,000 |
| Japan | 98 | 455,000 | 120 | 573,000 | 167 | 613,000 |
| Others | 5,054 | 4,669,000 | 2,745 | 2,351,000 | 1,562 | 2,023,000 |
| **Total** | **6,976** | **9,071,000** | **9,682** | **11,066,000** | **13,327** | **13,092,000** |

Source: Department of Statistics

**Price (per tonne)**

| Silica Sand | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| **FOB Durban**<br>Minus 20 micron, FCL, bagged >92 brightness, | $295 | $295 | $295 | $295 |
| **Ex-works, USA**<br>Glass sand, container | $14 - 26 | $14 - 26 | $20 - 26 | $20 - 26 |

Source: Industrial Minerals Disember 2013

## Review

The term of silica is used to describe a mineral commodity which contains a high proportion of silica in the form of rock and sand. In Malaysia, the source of silica is solely from the mining of silica sand. Most of the silica produced are from the mining of natural beach ridges, tin mine tailing sand and some from amang retreatment plants. The silica sand is processed using a variety of steps involving drying, screening, scrubbing, flotation, sizing, iron removal, grinding and acid leaching.

Malaysia has a large amount of silica sand resources. The Minerals and Geoscience Department has estimated about 141.8 Mt of silica sand resources occurs throughout the country. The reserves are located in Sarawak (45.7 Mt), Terengganu (45.6 Mt), Sabah (29.9 Mt), Perak (10.9 Mt), Selangor (8.4 Mt), Johor (1.0 Mt) and Kelantan (0.3 Mt).

In 2013, there were 34 silica sand producers compared with 32 in the previous year, with 20 producers in Perak, 11 in Johor, two in Sarawak and one producer in Selangor. In Sarawak, silica sand was produced from the mining of natural raised beach sand deposits whilst in Perak, Johor and Selangor it was produced both from natural raised beach sand and tin mine tailing sand.

During the year, the total production of silica increased slightly by 9% to 1.2 Mt with an estimated value of RM52.8 million from 1.1 Mt produced in 2012. Johor was the largest producer with a production of 655,924 tonnes, followed by Perak (376,248 tonnes), Sarawak (203,854 tonnes) and Selangor (7,634 tonnes). The bulk of the domestic silica produced went into the manufacturing of glass products. It is also consumed in ceramics, foundries, water treatment, glass wool and other related industries.

Export of silica sand in 2013 increased slightly to 376,693 tonnes worth RM44.54 million from 370,989 tonnes worth RM29.52 million recorded in the previous year. The major exporter of silica sand is Syarikat Sebangun Sdn. Bhd. in Bintulu, Sarawak. During the year, Malaysia exported most of the silica to Singapore, Philippines, Japan and ROK. Malaysia imported a total of 13,327 tonnes worth RM13.09 million of silica sand, an increase from the 9,682 tonnes registered in 2012. The imported silica sand was mainly from Taiwan and Australia. ■

# Energy Minerals

# COAL

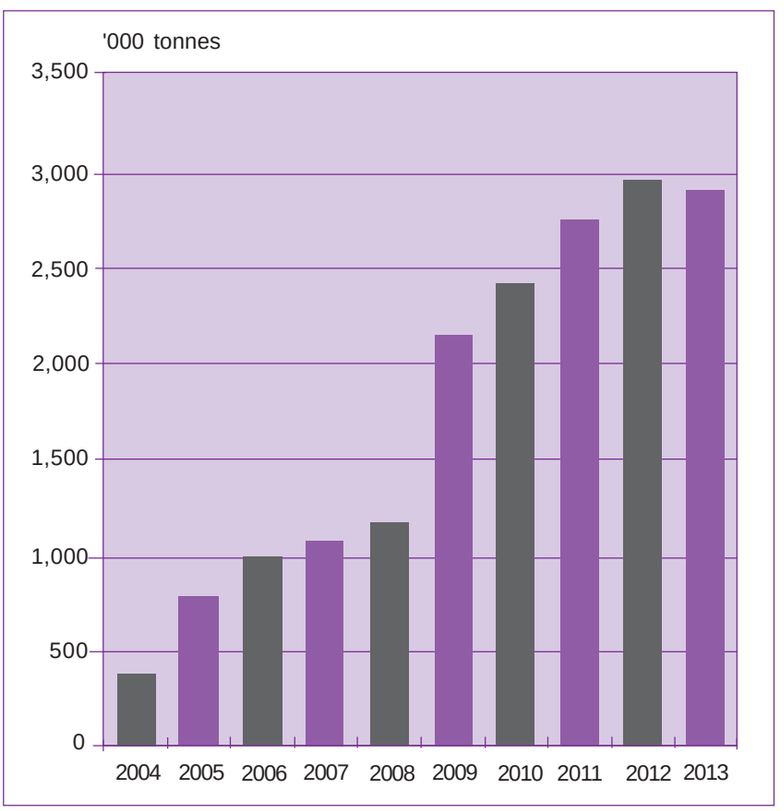
### Malaysia's production of coal

| State | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| | tonnes | mines | tonnes | mines | tonnes | mines | tonnes | mines |
| Sarawak | 2,397,340 | 10 | 2,915,788 | 9 | 2,941,620 | 7 | 2,893,963 | 8 |

### Malaysia's historic production (coal)

| Year | tonnes |
|---|---|
| 2004 | 389,176 |
| 2005 | 789,356 |
| 2006 | 901,801 |
| 2007 | 1,063,078 |
| 2008 | 1,166,525 |
| 2009 | 2,138,390 |
| 2010 | 2,397,340 |
| 2011 | 2,915,788 |
| 2012 | 2,941,620 |
| 2013 | 2,893,963 |

### Malaysia's production of coal (2004 - 2013)




## External Trade

### Exports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2701.11 | Anthracite coal | 2,415 | 1,282 | 1,610 | 2,944 | 1,610 | 1,805 |
| 2701.12 | Bituminous coal | 7,150 | – | – | 12,107 | – | – |
| 2701.19 | Other coal | 597,446 | 299,608 | 528,968 | 143,541 | 58,519 | 98,897 |
| 2701.20 | Briquettes | 418 | – | 403 | 424 | – | 433 |
| 2702.10 | Lignite | 160,004 | 369,021 | 108,715 | 27,450 | 53,690 | 19,903 |
| 2704.00.1 | Coke and semi coke of coal | 5,483 | 1,875 | 1,826 | 6,380 | 2,803 | 1,981 |
| 2704.00.2 | Coke and semi coke of lignite or peat | 65 | 29 | 43 | 129 | 62 | 70 |

## Imports

| H.S. | Commodity | tonnes | | | RM '000 | | |
|---|---|---|---|---|---|---|---|
| | | 2011 | 2012 | 2013p | 2011 | 2012 | 2013p |
| 2701.11 | Anthracite coal | 298,098 | 201,3216 | 235,378 | 179,475 | 154,386 | 174,743 |
| 2701.12 | Bituminous coal | 344 | 4,382 | 982 | 537 | 4,614 | 1,118 |
| 2701.19 | Other coal | 21,677,564 | 20,801,342 | 22,710,439 | 7,211,577 | 6,502,487 | 5,644,966 |
| 2701.20 | Briquettes | 694 | – | 694 | 646 | – | 426 |
| 2702.10 | Lignite | 6 | 20 | 2 | 58 | 32 | 7 |
| 2704.00.1 | Coke and semi coke of coal | 63,324 | 196,859 | 105,491 | 79,192 | 229,533 | 180,225 |
| 2704.00.2 | Coke and semi coke of lignite or peat | 7,800 | 4,314 | 200 | 5,285 | 5,578 | 196 |

## Malaysia's exports of coal, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Coal (HS: 2701.1)* | | | | | | |
| China | 618,952 | 138,954,000 | 128,107 | 27,570,000 | 363,600 | 71,981,000 |
| Vietnam | 9,897 | 2,741,000 | 102,582 | 18,375,000 | 106,103 | 17,225,000 |
| India | 9,000 | 4,914,000 | 1,200 | 1,549,000 | 55,106 | 8,169,000 |
| Indonesia | 2,340 | 2,866,000 | 1,200 | 1,549,000 | 4,988 | 2,056,000 |
| South Africa | – | – | 1,096 | 152,000 | 316 | 809,000 |
| Others | 37,531 | 11,742,000 | 72,081 | 13,534,000 | 465 | 461,000 |
| **Total** | **677,721** | **161,218,000** | **305,165** | **61,179,000** | **530,578** | **100,701,000** |



## Malaysia's imports of coal, by country

| Country | 2011 | | 2012 | | 2013p | |
|---|---|---|---|---|---|---|
| | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) | Quantity (tonnes) | Value (RM) |
| *Coal (HS: 2701.1)* | | | | | | |
| Indonesia | 15,950,275 | 5,014,470,000 | 14,913,858 | 4,630,052,000 | 16,515.075 | 3,921,848,000 |
| Australia | 3,085,924 | 1,147,422,000 | 2,778,961 | 1,000,584,000 | 3,824,284 | 1,072,429,000 |
| South Africa | 2,557,089 | 960,537,000 | 3,119,100 | 874,706,000 | 1,797,391 | 506,260,000 |
| Vietnam | 270,829 | 160,601,000 | 141,334 | 122,313,000 | 205,829 | 152,827,000 |
| Russia | 67,000 | 27,336,000 | – | – | 437,829 | 135,567,000 |
| Others | 58,372 | 84,673,000 | 65,503 | 37,287,000 | 173,594 | 53,491,000 |
| **Total** | **21,989,490** | **7,395,039,000** | **21,018,756** | **6,664,942,000** | **22,954,002** | **5,842,422,000** |

Source: Department of Statistics

**World production of coal**

| Country | tonnes | | | % of 2012 |
|---|---|---|---|---|
| | 2010 | 2011 | 2012 | |
| China | 3,240,000,000 | 3,520,000,000 | 3,660,000,000 | 46.19 |
| USA | 969,017,857 | 992,750,000 | 964,000,000 | 12.17 |
| India | 533,908,000 | 627,570,000 | 603,540,000 | 7.62 |
| Australia | 424,751,000 | 413,733,000 | 447,000,000 | 5.64 |
| Indonesia | 275,000,000 | 350,000,000 | 380,000,000 | 4.80 |
| South Africa | 254,521,945 | 252,756,844 | 258,575,793 | 3.26 |
| Kazakhstan | 96,676,862 | 101,044,958 | 120,528,000 | 1.52 |
| Colombia | 74,350,133 | 85,803,000 | 89,024,321 | 1.12 |
| Canada | 67,895,000 | 67,114,000 | 66,565,000 | 0.84 |
| Czech Republic | 55,124,000 | 57,815,000 | 54,506,000 | 0.69 |
| Vietnam | 44,010,700 | 45,800,000 | 42,383,000 | 0.53 |
| Korea, Dem. P.R. of | 25,000,000 | 41,000,000 | 41,000,000 | 0.52 |
| Mongolia | 26,596,530 | 32,029,700 | 28,561,000 | 0.36 |
| Thailand | 17,906,894 | 21,324,406 | 18,652,557 | 0.24 |
| Mexico | 16,015,216 | 20,967,630 | 16,276,556 | 0.21 |
| Philippines | 6,650,357 | 6,881,474 | 7,348,647 | 0.09 |
| Brazil | 5,611,467 | 5,689,727 | 6,440,998 | 0.08 |
| New Zealand | 5,330,500 | 4,944,700 | 4,926,200 | 0.06 |
| **Malaysia*** | **2,397,340** | **2,915,788** | **2,893,962** | **0.04** |
| Other countries | 22,003,692 | 22,451,788 | 1,111,777,966 | 14.03 |
| **World total (rounded)** | **6,215,000,000** | **6,673,000,000** | **7,924,000,000** | |

Source: BGS World Mineral Statistics 2008-2012
* Minerals and Geoscience Department Malaysia

## Review

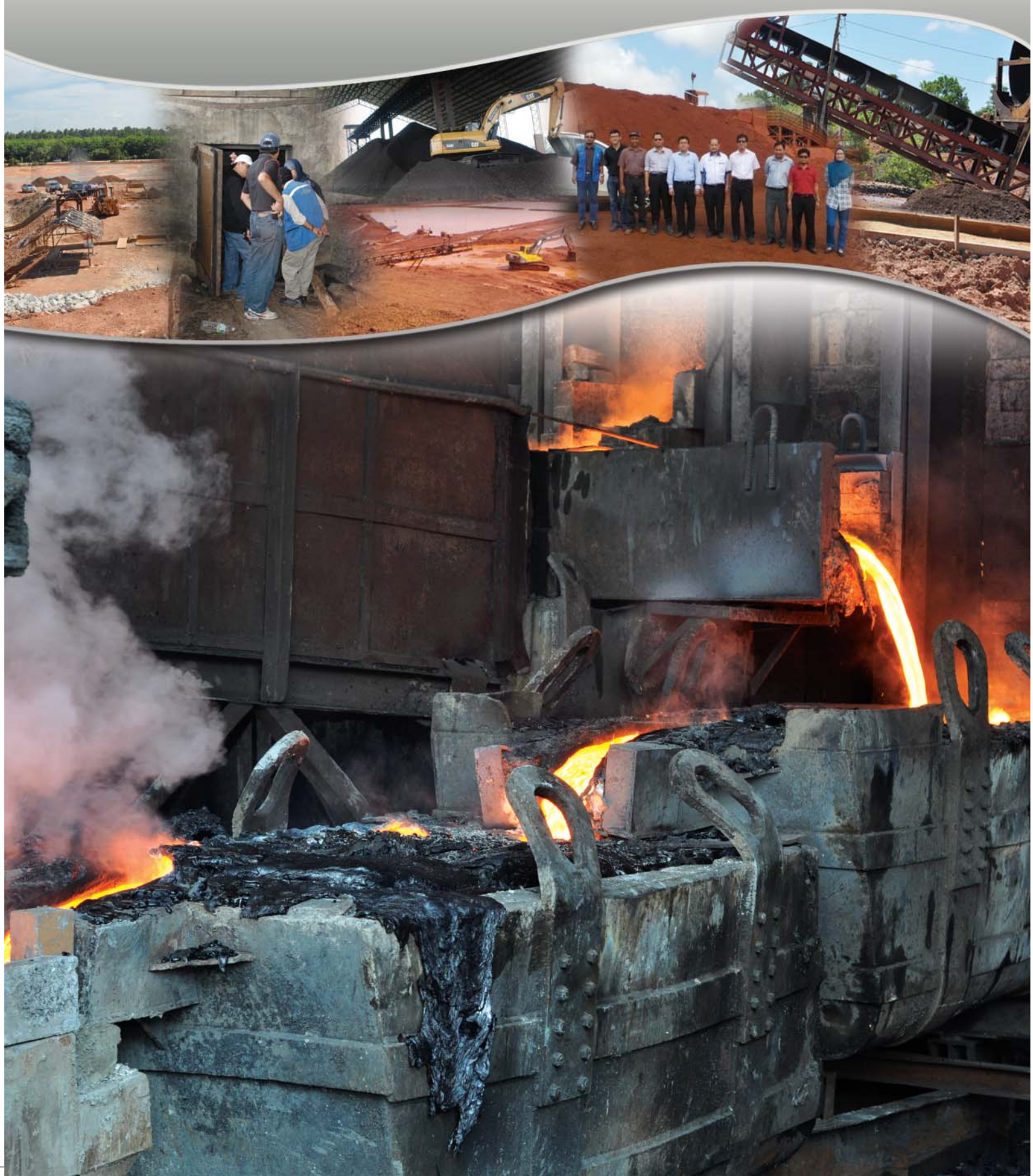
In Malaysia, the coal resources are found mostly in East Malaysia, in the states of Sarawak and Sabah. About 80% of the reserves are in Sarawak, 19% in Sabah and 1% in Peninsular Malaysia. Malaysia's coal deposits ranges from lignite to anthracite with sub-bituminous and bituminous coal being more common. It is estimated that the total coal reserves is about 1,938 Mt, of which 281 Mt are classified as measured resources, 378 Mt as indicated and another 1,279 Mt as inferred. The largest measured reserves of coal located in the Merit Pila coalfield, in Sarawak where as 170 Mt of coal reserves had been identified. The development of local coal resources were not aggressively pursued because most of the deposits are located in the interior areas, which lack of infrastructure, and therefore uneconomic to be fully exploited. In Sabah, more than 72% of the resources are located in Maliau Basin Conservation Area, which was designated by the Sabah State Government as a Protection Class One Forest Reserve.

Currently, coal mining operates only in Sarawak. There were eight coal mines in operation during 2013. Annual production of coal in Malaysia has been on upward trend since 2004. However, in 2013 coal production decreased slightly by 2% to 2.89 Mt compared with 2.94 Mt recorded in 2012. Most of the coal produced are consumed by power generation plants besides cement, brick, iron and steel manufacturing industries.

At present, there are six coal-fired power generation plants in operation namely the Sultan Salahuddin Abdul Aziz Power Plant in Kapar, Selangor; the Janamanjung Power Plant in Manjung, Perak; Sejingkat Power Plant in Kuching, Sarawak; Mukah Coal Power Plant in Mukah Sarawak; SKS Tanjung Bin in Johor and Jimah Power Plant in Port Dickson, Negeri Sembilan. These power stations contribute about 27% of the total installed capacity of Malaysia's electricity power stations. Among the six power plants, two of them are using locally produced coal for their requirement. The percentage of coal consumption in Malaysia was 88% or 13,000 ktoe by power stations and the rest 12% by industries sector. The share available capacity from coal power plant is 30% from a total of 24,400 MW. In last three years, coal power plant contributed about 15,000 ktoe or 18% of primary energy supply of Malaysia (Malaysia Energy Statistics Handbook 2014).

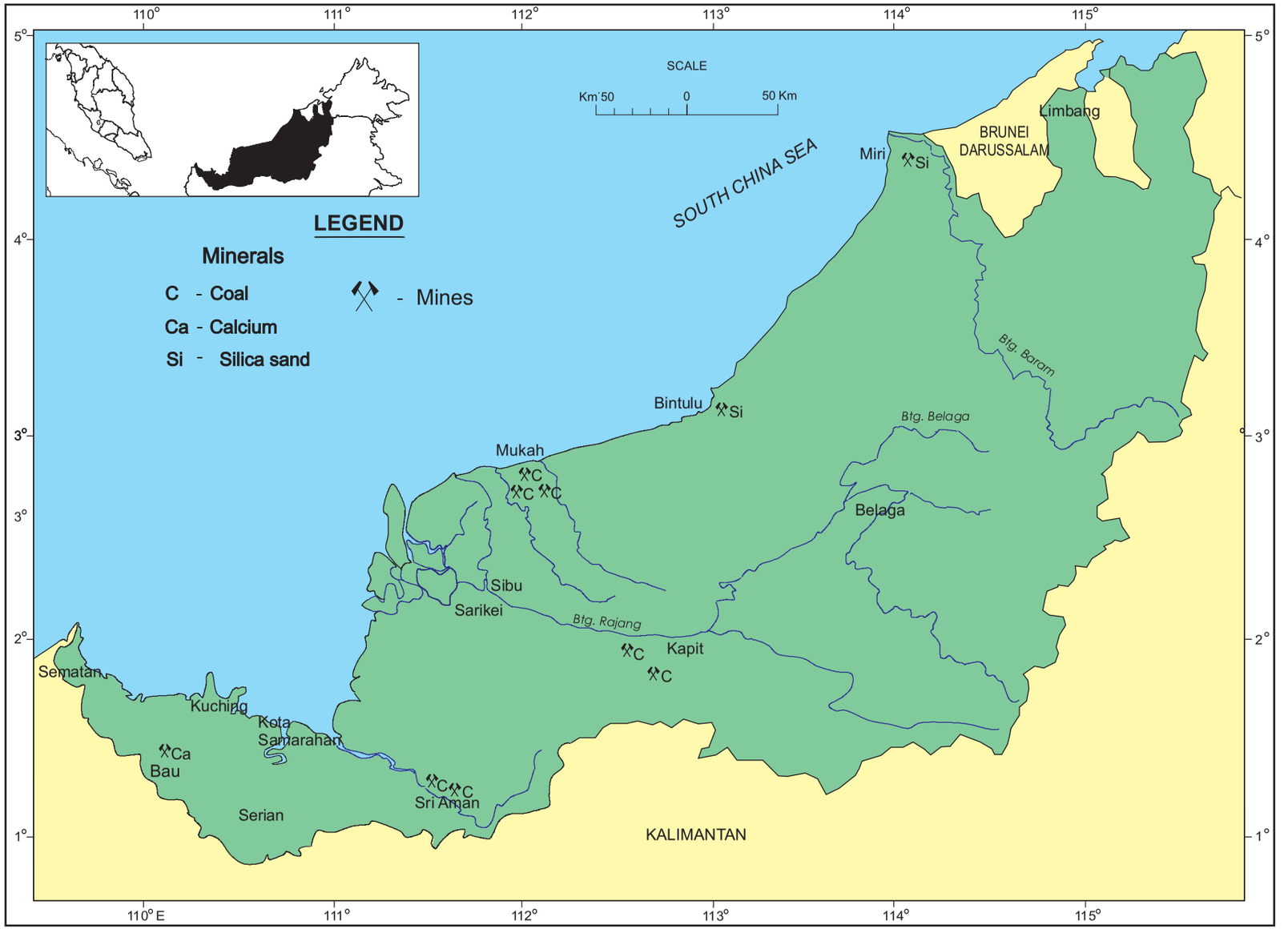
The import of coal has been on the increasing trend. In 2013, a total of 23 Mt of coal was imported increased slightly by 9% from 21 Mt recorded in 2012. The major sources of imported coal were from Indonesia, Australia and South Africa. Malaysia also exported some of its coal to China, Vietnam India and Indonesia. During the year, 530,578 tonnes of coal was exported increasing by 74% from 305,165 tonnes recorded in 2012. ■

# Mines in 2013



# LOCATION OF MINES IN PENINSULAR MALAYSIA

## LOCATION OF MINES IN SARAWAK



## LIST OF OPERATING MINES IN MALAYSIA 2013

| | Name | Location | Mineral mined |
|---|---|---|---|
| **STATE : PAHANG** | | | |
| 1 | MK Ria Sdn Bhd | Bukit Yon, Lipis | Iron ore |
| 2 | Semantan Resources Sdn Bhd | Cheka, Kuala Lipis | Iron ore |
| 3 | Semantan Resources Sdn Bhd (2) | Cheka, Kuala Lipis | Iron ore |
| 4 | Sg. Temau Mining Sdn Bhd | Lipis | Iron ore |
| 5 | Lanchang Mining Sdn Bhd | Temerloh | Iron ore |
| 6 | Tajau Makmur Sdn Bhd | Maran | Iron ore |
| 7 | Ibam Mining Sdn Bhd | Bukit Ibam | Iron ore |
| 8 | Ibam Mining Sdn Bhd (2) | Bukit Ibam | Iron ore |
| 9 | Ibam Mining Sdn Bhd (3) | Bukit Ibam | Iron ore |
| 10 | ZCM Resources Sdn Bhd | Rompin | Iron ore |
| 11 | Pacific Megalink Sdn Bhd | Rompin | Iron ore |
| 12 | Aras Kuasa Sdn Bhd | Chini | Iron ore |
| 13 | Memori Bintang Sdn Bhd | Chini | Iron ore |
| 14 | Alam Etika Sdn Bhd | Kuantan | Iron ore |
| 15 | Mekar Unggul Sdn Bhd | Maran | Iron ore |
| 16 | Menyata Natural Resources Sdn Bhd | Sungai Perepuk | Iron ore |
| 17 | Chini Highland Mining Resources Sdn Bhd | Kampung Melai | Iron ore |
| 18 | Esperance Mining Sdn Bhd | Rompin | Iron ore |
| 19 | Edubest Mining Sdn Bhd | Jerantut | Iron ore |
| 20 | Edubest Resources Sdn Bhd | Kuala Lipis | Iron ore |
| 21 | Lanchang Mining Sdn Bhd | Temerloh | Iron ore |
| 22 | World Top Resources Mining Sdn Bhd | Lipis | Iron ore |
| 23 | Jalur Galian Sdn Bhd | Jerantut | Iron ore |
| 24 | Sinar Tani Sdn Bhd | Kuantan | Iron ore |
| 25 | Victor Stone Sdn Bhd | Pekan | Iron ore |
| 26 | GE Mining Sdn Bhd | Sungai Besol | Iron ore |
| 27 | HT Mines Sdn Bhd | Bukit Ibam | Iron ore |
| 28 | MZ II Trading & Mining Sdn Bhd | Pekan | Iron ore |
| 29 | Gema Impak Sdn Bhd | Sungai Cipai | Iron ore |
| 30 | Everest Minerals & Mining Sdn Bhd | Sungai Geroh | Iron ore |
| 31 | Unimines World Trade Sdn Bhd | Gambang | Iron ore |
| 32 | RK Sejiwa Wibawa (M) Sdn Bhd | Chini | Iron ore |
| 33 | CKB Trading Sdn Bhd | Raub | Iron ore |
| 34 | Mega Well Mining Sdn Bhd | Bera | Iron ore |
| 35 | Rapat Teguh Sdn Bhd | Kampung Bakapur | Iron ore |
| 36 | Axzonic Marketing Sdn Bhd | Chini | Iron ore |
| 37 | Phoneix Lakel Sdn Bhd | Sungai Liut | Iron ore |
| 38 | Spring Iron Sdn Bhd | Kampung Melaka | Iron ore |
| 39 | Wong Chong Me Mining Sdn Bhd | Bukit Pesagi | Iron ore |
| 40 | New World High Tech Mining Sdn Bhd | Selendang | Iron ore |
| 41 | Visinara Sdn Bhd | Sungai Ganoh | Iron ore |

| | Name | Location | Mineral mined |
|---|---|---|---|
| 42 | OTS Mining Sdn Bhd | Sungai Timun | Iron ore |
| 43 | YM Tg Nor Ashikin bt Sultan Sir Abu Bakar | Bukit Batu Putih | Iron ore |
| 44 | YM Tg Nor Akemar bt Sultan Sir Abu Bakar | Bukit Batu Putih | Iron ore |
| 45 | Teknorat Engineering Sdn Bhd | Kampung Baharu | Iron ore |
| 46 | Safemine Minerals Sdn Bhd | Sungai Lik | Iron ore |
| 47 | Batu Iman Sdn Bhd | Sungai Besul / Sungai Sipli | Iron ore |
| 48 | Dato' Abdul Kadir Awang Kadir Sdn Bhd | Sungai Jeram | Iron ore |
| 49 | Lmbg. Dato' Dr Hj Wahid bin Abdul Manap | Bukit Tamar | Iron ore |
| 50 | Natural Mining Sdn Bhd | Bukit Campamak | Iron ore |
| 51 | Lambaian Belantara Sdn Bhd | Bukit Tamar | Iron ore |
| 52 | Jaya Primalan Sdn Bhd | Bukit Batu Putih | Iron ore |
| 53 | De' Raha Mining Sdn Bhd | Sungai Sepli | Iron ore |
| 54 | Lmbg. YAM Tg Abdul Rahman | Penyor | Iron ore |
| 55 | J Resources Sdn Bhd | Penjom, Kuala Lipis | Gold |
| 56 | Raub Australian Gold Mining Sdn Bhd | Bukit Koman | Gold |
| 57 | Selinsing Gold Mine Manager Sdn Bhd | Sungai Kermoi | Gold |
| 58 | Yan Chan Kee Kim Mining Trading Sdn Bhd | Sungai Penyadap | Gold |
| 59 | HDL Global Sdn Bhd | Sungai Carah | Gold |
| 60 | Champmark Sdn Bhd | Sungai Timah | Gold |
| 61 | Agenda Jitu Sdn Bhd | Bentong | Tin ore |
| 72 | Rich Marvellous Sdn Bhd | Sg. Semantut, Bentong | Tin ore |
| 73 | Metro Emerald Sdn Bhd | Sg. Lembing, Kuantan | Tin ore |
| 74 | Ratna Putra Sdn Bhd | Sungai Timun | Tin ore |
| 75 | Myah Mines Sdn Bhd | Sungai Lembing | Tin ore |
| 76 | Pekan Mining Sdn Bhd | Chini | Manganese ore |
| 77 | RK Sejiwa Wibawa Sdn Bhd | Tasik Biru | Manganase ore |
| 78 | Memori Bintang Sdn Bhd | Chini | Manganase ore |
| 79 | Vector Stone Sdn Bhd | Chini | Manganase ore |
| 80 | Lmbg. Datu' Dr Hj Wahid Abd Manap | Sungai Renggoi | Manganase ore |
| 81 | Chini Highland Mining Sdn Bhd | Kampung Melai | Manganase ore |
| 82 | Ladang Jelita Sdn Bhd | Sungai Renggoi | Manganase ore |
| 80 | Sri Hisham Holding Sdn Bhd | Sungai Serai | Kaolin |
| 81 | Sri Hisham Holding Sdn Bhd (No.2) | Sungai Serai | Kaolin |
| 82 | Cermat Aman Sdn Bhd | Bukit Bekapor | Copper ore |
| | **STATE : PERAK** | | |
| 1 | Kaolin (M) Sdn Bhd | Tapah | Kaolin |
| 2 | Tinex Kaolin Corp. Sdn Bhd | Tanah Mas, Bidor | Kaolin |
| 3 | Uniteck Agency Sdn Bhd | Kramat Pulai | Kaolin |
| 4 | Asia Ceramic & Chemical Ind. Sdn Bhd | Bidor Selatan, Bidor | Kaolin |
| 5 | Foo Hoo Kaolin (M) Sdn Bhd | Tanah Mas, Bidor | Kaolin |
| 6 | Forming Koalin (M) Sdn Bhd | Tanah Mas, Bidor | Kaolin |
| 7 | Kongsi Maju Sdn Bhd | Tanah Mas, Bidor | Kaolin |

| | Name | Location | Mineral mined |
|---|---|---|---|
| 8 | Kongsi Maju Sdn Bhd (2) | Tanah Mas, Bidor | Kaolin |
| 9 | Kongsi Maju Sdn Bhd (3) | Tanah Mas, Bidor | Kaolin |
| 10 | Lam Weng Hong & Rakan | Tanah Mas, Tapah | Kaolin |
| 11 | Tinex Kaolin Corp. Sdn Bhd | Bidor Selatan, Bidor | Kaolin |
| 12 | Solid Kaolin Sdn Bhd | Tanah Mas, Bidor | Kaolin |
| 13 | United Clay Product Sdn Bhd | Sg. Jangka, Tapah | Kaolin |
| 14 | Seen Mee Clay Factory (M) Sdn Bhd | Sg. Jangka, Tapah | Kaolin |
| 15 | Rahman Hydraulic Tin Sdn Bhd | Klian Intan, Pangkalan Hulu | Tin ore |
| 16 | Uniteck Agency Sdn Bhd | Kramat Pulai, Kinta | Tin ore |
| 17 | Dollar Valley Sdn Bhd | Tg. Tualang, Batu Gajah | Tin ore |
| 18 | HWG Tin Mining Sdn Bhd | Klian Intan, Pangkalan Hulu | Tin ore |
| 19 | Kepayang Resources Sdn Bhd | Keramat Pulai, Kinta | Tin ore |
| 20 | Johan Bersatu Sdn Bhd | Klian Intan, Pangkalan Hulu | Tin ore |
| 21 | Haji Abdullah Bin Haji Muhammad | Manjung, Pantai Remis | Tin ore |
| 22 | Techcera (M) Sdn Bhd | Bidor Station, Bidor | Mica |
| 23 | Tasik Mahir Sdn Bhd | Bidor Station, Bidor | Mica |
| 24 | Datar Ribu Sdn Bhd | Bidor Station, Bidor | Iron ore |
| 25 | Rapat Tiara Sdn Bhd | Sungkai | Iron ore |
| 26 | Geoway Sdn Bhd | Sungkai | Iron ore |
| 27 | Perak Iron Mining Co Sdn Bhd | Sungai Rair, Simpang Pulai | Iron ore |
| 28 | BB Com Holdings Sdn Bhd | Lengong, Ulu Perak | Iron ore |
| 29 | Uniteck Agency Sdn Bhd | Keramat Pulai, Kinta | Iron ore |
| | **STATE : KELANTAN** | | |
| 1 | YAKIN (Takrif Baru Sdn Bhd) | Relai, Chiku, Gua Musang | Manganese ore |
| 2 | YAKIN (Cetamin Cont Sdn Bhd) | Relai, Chiku, Gua Musang | Manganese ore |
| 3 | YAKIN (Sunbay Resources Sdn Bhd) | Sungai Aring, Chiku, Gua Musang | Manganese ore |
| 4 | YAKIN (Ratusan Ardi Sdn Bhd) | Relai, Chiku, Gua Musang | Manganese ore |
| 5 | YAKIN (Jangka Bakat Sdn Bhd) | Sg. Aring, Gua Musang | Manganese ore |
| 6 | YAKIN (Hajaria Sdn Bhd) | Relai, Chiku, Gua Musang | Manganese ore |
| 7 | Han Jing Yu Hua (M) Sdn Bhd | Sg. Aring, Gua Musang | Manganese ore |
| 8 | YAKIN (Zulacco Mines Sdn Bhd) | Bertam, Gua Musang | Tin ore |
| 9 | PKINK (Kijang Barite Sdn Bhd) | Laloh, Gua Musang | Barytes |
| 10 | Gaya Radikal Sdn Bhd | Kuala Stong, Kuala Krai | Gold |
| 13 | PKINK (Pulai Mining Sdn Bhd) | Galas, Gua Musang | Gold |
| 14 | PKINK (CMNM Mining Group Sdn Bhd) | Sokor, Tanah Merah | Gold |
| 15 | PKINK (Pulai Mining Sdn Bhd) | Galas, Gua Musang | Gold |
| 16 | PKINK (Pulai Mining Sdn Bhd) (2) | Galas, Gua Musang | Gold |
| 17 | Perbadanan Men. Besar Kelantan Sdn Bhd | Pergau, Jeli | Gold |
| 18 | Yayasan Kraftangan Kelantan | Kg. Tanah Putih, Gua Musang | Feldspar |
| 19 | Yayasan Kraftangan Kelantan (2) | Kg. Tanah Putih, Gua Musang | Feldspar |
| 20 | PKINK/Pulai Mining Sdn Bhd | Kg. Tanah Putih, Gua Musang | Feldspar |
| 21 | Berkat Usaha Insan Sdn Bhd | Kg. Tanah Putih, Gua Musang | Feldspar |
| 22 | Perlombongan Gua Musang Sdn Bhd | Bukit Tambun, Gua Musang | Iron ore |

| | Name | Location | Mineral mined |
|---|---|---|---|
| 23 | Tekun Istimewa Sdn Bhd | Bukit Tambun, Gua Musang | Iron ore |
| 24 | Interbumi Mining Sdn Bhd | Bukit Kuang, Rantau Panjang | Iron ore |
| 25 | Ladang Ibu Sdn Bhd | Kuala Krai | Iron ore |
| 26 | Sungai Hijau Sdn Bhd | Sg Hau, Temangan | Iron ore |
| 27 | Juta Beseri Sdn Bhd | Pasir Genda, Tanah Merah | Iron ore |
| 28 | Interbumi Perfect Mining Sdn Bhd | Bukit Kuang, Rantau Panjang | Iron ore |
| 29 | Tanjung Krai Sdn Bhd | Batu Mengkebang, Kuala Krai | Iron ore |
| 30 | HYL Contruction Sdn Bhd | Pasir Genda, Tanah Merah | Iron ore |
| 31 | Cuffland Resources Sdn Bhd | Galas, Gua Musang | Iron ore |
| 32 | Chang Farn Sheng Sdn Bhd | Temangan, Machang | iron ore |
| 33 | Intra Alliance & Consult | Temangan, Machang | iron ore |
| 34 | Gugusan Syabas Sdn Bhd | Temangan, Machang | Iron ore |
| 35 | Pn Rohani binti Puteh | Bukit Kuang, Rantau Panjang | Iron ore |
| 36 | Interbumi Perfect Mining Sdn Bhd | Bukit Kuang, Rantau Panjang | Iron ore |
| 37 | PTG Usaha Trading | Kerala, Tanah Merah | Iron ore |
| 38 | PKINK (Nacstone Sdn Bhd) | Gua Musang | Iron ore |
| 39 | Pulai Jaya Trading Sdn Bhd | Temangan | Iron ore |
| 40 | Han Jing Yu Hua (M) Sdn Bhd | Sg. Aring, Gua Musang | Iron ore |
| 41 | NSA Integrity Sdn Bhd | Batu Mengkebang, Kuala Krai | Iron ore |
| 42 | Palamsel Holdings Sdn Bhd | Kuala Krai | Iron ore |
| 43 | Goh Golden Mining Sdn Bhd | Kerala, Tanah Merah | Iron ore |
| 44 | KSK Sawmill Sdn Bhd | Belimbing, Jeli | Iron ore |
| | **STATE : TERENGGANU** | | |
| 1 | Koperasi Polis Terengganu Berhad | Tebak, Kemaman | Iron ore |
| 2 | Koperasi Polis Terengganu Berhad (2) | Tebak, Kemaman | Iron ore |
| 3 | Lmbg. Telok Kalung Construction Sdn Bhd | Tebak, Kemaman | Iron ore |
| 4 | Lmbg. MKD Makmur Sdn Bhd | Mukim Bandi, Kemaman | Iron ore |
| 5 | Lmbg. Permint Mineral Sdn Bhd | Mukim Bandi, Kemaman | Iron ore |
| 6 | Lmbg. Bahtera Aizayuniex Sdn Bhd | Mukim Tebak, Kemaman | Iron ore |
| 7 | Jade Fortune Mining Sdn Bhd | Hulu Paka, Dungun | Iron ore |
| 8 | Harum Merdeka Sdn Bhd | Hulu Paka, Dungun | Iron ore |
| 9 | Lmbg. Wahaba Wangin Sdn Bhd | Bukit Besi, Dungun | Iron ore |
| 10 | Lmbg. Cahaya Ikhtiar Sdn Bhd | Mukim Jerangau, Dungun | Iron ore |
| 11 | TBM Mineral Sdn Bhd | Mukim Jerangau, Dungun | Iron ore |
| 12 | Lmbg. Jerangau Sdn Bhd | Mukim Bandi, Kemaman | Iron ore |
| 13 | Genesis Target Sdn Bhd | Mukim Kerandang, Besut | Iron ore |
| 14 | Mestika Jutamas Sdn Bhd | Hulu Chukai, Kemaman | Iron ore |
| 15 | Perwaja Rolling Mill & Dev. Sdn Bhd | Mukim Jerangau, Dungun | Iron ore |
| 16 | Treasure Mining Dev. Sdn Bhd | Mukim Besul, Dungun | Iron ore |
| 17 | Vista Mining Sdn Bhd | Mukim Besul, Dungun | Iron ore |
| 18 | Lmbg. Gugusan Syabas Sdn Bhd | Mukim Kerandang, Besut | Iron ore |
| 19 | Lmbg. Marang Sekutu Sdn Bhd | Hulu Chukai, Kemaman | Iron ore |
| 20 | Lmbg. Serijaya Kristal Sdn Bhd | Hulu Chukai, Kemaman | Iron ore |

| | Name | Location | Mineral mined |
|---|---|---|---|
| 21 | Gabungan Granit Sdn Bhd | Mukim Tersat, Hulu Terengganu | Dimension Stone |
| 22 | PERMINT (Sungai Kerak) | Sungai Kerak, Rusila | Gold |
| 23 | PERMINT (Sungai Tapah) | Hulu Nerus, Setiu | Gold |
| 24 | PERMINT (Sungai Tarom) | Hulu Setiu, Setiu | Gold |
| 25 | Lmbg. Cahaya Emas Ikhtiar Sdn Bhd | Hulu Setiu, Setiu | Gold |
| | **STATE : JOHOR** | | |
| 1 | Giant Distinction Sdn Bhd | Sungai Tengkil, Kota Tinggi | Tin ore |
| 2 | KEJORA Sdn Bhd | Sungai Tengkil, Kota Tinggi | Tin ore |
| 3 | Limemax Sdn Bhd | Pelepah Kanan, Kota Tinggi | Tin ore |
| 4 | Honest Sam Development Sdn Bhd | Chaah, Batu Pahat | Iron ore |
| 5 | Alpha Mining Sdn Bhd | Ulu Sedeli, Kota Tinggi | Iron ore |
| 6 | Alpha Beta Mining Sdn Bhd | Kg. Sayang, Kota Tinggi | Iron ore |
| 7 | OGL Mining Sdn Bhd | Ulu Sedeli, Kota Tinggi | Iron ore |
| 8 | Limemax Sdn Bhd | Pelepah Kanan, Kota Tinggi | Iron ore |
| 9 | Waja Jati Sdn Bhd | Pagoh, Muar | Iron ore |
| 10 | Hong Huat Mining Sdn Bhd | Lenga, Muar | Iron ore |
| 11 | Korporat Awal Sdn Bhd | Jamaluang, Mersing | Iron ore |
| 12 | Landas Sekata Sdn Bhd | Pelepah Kanan, Kota Tinggi | Iron ore |
| 13 | Sokongan Semulajadi Sdn Bhd | Jemaluang, Mersing | Iron ore |
| 14 | Sokongan Semulajadi Sdn Bhd | Felda Nitar 2, Mersing | Iron ore |
| 15 | AJ Mum Mining Sdn Bhd | Hutan Simpan Labis | Iron ore |
| 16 | Sentuhan Sumber Sdn Bhd | Felcra Bukit Kepong | Iron ore |
| 17 | Usaha Padu Jati Enterprise Sdn Bhd | Bukit Kepong, Muar | Iron ore |
| 18 | Bukit Kepong Mining Sdn Bhd | Felcra Bukit Kepong | Iron ore |
| 19 | Generasi Karisma Sdn Bhd | Moakil, Muar | Iron ore |
| 20 | Etika Gemilang Resources Sdn Bhd | Kg. Gelang Chincin, Segamat | Iron ore |
| 21 | Sektor Juta Sdn Bhd | Jemaluang, Mersing | Iron ore |
| 22 | OGL Mining Sdn Bhd | Pelepah Kiri, Kota Tinggi | Iron ore |
| 23 | Sokongan Semulajadi Sdn Bhd | Jemaluang, Mersing | Koalin |
| 24 | Johor Mining & Stevedoring Sdn Bhd | Teluk Ramunia, Kota Tinggi | Bauxite |
| 25 | Giant Distinction Sdn Bhd | Pengerang, Kota Tinggi | Silica Sand |
| 26 | Johor Mining & Stevedoring Sdn Bhd | Teluk Ramunia, Kota Tinggi | Silica Sand |
| | **STATE : SARAWAK** | | |
| 1 | Luckyhill Coal Mining Sdn Bhd | Sg. Apong, Abok, Sri Aman | Coal |
| 2 | Lucky Power Strategies Sdn Bhd | Silantek, Sri Aman | Coal |
| 3 | Genesis Force Sdn Bhd | Balingan, Mukah | Coal |
| 4 | Sarawak Coal Resources Sdn Bhd | Bergih, Mukah | Coal |
| 5 | Sarawak Coal Resources Sdn Bhd | Penipah, Mukah | Coal |
| 6 | Sarawak Coal Resources Sdn Bhd | Sg. Belian Mati, Mukah | Coal |
| 7 | Sarawak Coal Resources Sdn Bhd | Hulu Sg. Penipah, Mukah | Coal |

| | Name | Location | Mineral mined |
|---|---|---|---|
| 8 | Global Mineral (S) Sdn Bhd | Tebulan, Kapit | Coal |
| 9 | Global Mineral Exploration Corp. Sdn Bhd | Nanga Merit, Kapit | Coal |
| 10 | Syarikat Sebangun Sdn Bhd | Sg. Sebatang, Bintulu | Silica sand |
| 11 | Syarikat Sebangun Sdn Bhd | Ulu Linai, Miri | Silica sand |
| 12 | Luckyhill Quarry Sdn Bhd | Krian, Bau, Kuching | Calcium |
| **STATE : KEDAH** | | | |
| 1 | LGK Resources Sdn Bhd | Sungai Petani | Iron ore |
| 2 | Besta Gold Resources Sdn Bhd | Merbok | Iron ore |
| 3 | Permodalan Kedah Berhad | Gurun | Iron ore |
| 4 | YIKED Holding Sdn Bhd | Sungai Petani | Iron ore |
| 5 | Hui Mah Resources Sdn Bhd | Sungai Petani | Iron ore |
| 6 | Alpha Gold Prop. Management Sdn Bhd. | Sungai Petani | Iron ore |
| 7 | Enerindo Resources (M) Sdn Bhd | Sungai Batu, Bandar Baru | Iron ore |
| 8 | AA Info Jaya Sdn Bhd | Siong, Baling | Iron ore |
| 9 | SP Mega Mineral Sdn Bhd | Merbok | Iron ore |
| 10 | Sistem Cemerlang Sdn Bhd | Siong, Baling | Iron ore |
| 11 | Jelang Delima Sdn Bhd | Temin, Kubang Pasu | Tin ore |
| 12 | Perbadanan Menteri Besar Kedah | Temin, Kubang Pasu | Tin ore |
| 13 | Perbadanan Menteri Besar Kedah (2) | Temin, Kubang Pasu | Tin ore |
| **STATE : NEGERI SEMBILAN** | | | |
| 1 | Mok Yit Chek | Pasir Panjang | Iron ore |
| 2 | Jlink Sdn Bhd | Lengong Hilir | Iron ore |
| 3 | Everest Mining Sdn Bhd | Pasir Panjang | Iron ore |
| 4 | Sri Alam Mining Sdn Bhd | Linggi | Iron ore |
| 5 | Bagan Modal Sdn Bhd | Pasir Panjang | Iron ore |
| 6 | Juta Omega Sdn Bhd | Pasir Panjang | Iron ore |
| 7 | Mount United Mining Sdn Bhd | Pasir Panjang | Iron ore |
| 8 | Kam Lai Yin | Pasir Panjang | Iron ore |
| 9 | Alcamas Mining Sdn Bhd | Gemencheh | Iron ore |
| 10 | Anugerah Berharga Sdn Bhd | Gemencheh | Iron ore |
| 11 | Contemporary Tactics Sdn Bhd | Tampin | Feldspar |
| **STATE : NEGERI MELAKA** | | | |
| 1 | Yayasan Negeri Melaka | Kuala Sg. Baru, Alor Gajah | Iron ore |
| 2 | Yayasan Negeri Melaka | Sg. Baru, Alor Gajah | Iron ore |

*Note*: This list refers to Mining Lease