

Asia Pacific talc

Under reorganisation

by Dr Wilhelm Schober*

China has the largest quality talc reserves worldwide. However, the Chinese talc industry is fragmented, and only few mines and grinding operations have reached significant levels of output with sufficient profitability to invest in new production technology and quality management. Their output is constantly increasing, but revenues are suffering. Meanwhile, elsewhere in the Asia Pacific region, Western Australia has excellent talc mines, serving similar export markets. Asia is a growing region for all types of minerals. However, technological changes concerning the use of minerals in different industries will have an increasing influence on the situation of demand & supply. The imports of high price products from Western countries are expected to be reduced in the future. This article reviews the Asia Pacific talc market with a special focus on China and Australia as sources of supply.

China's talc industry

China's talc industry is fragmented: there are some 29 regions where talc can be found. However, not all resources are exploited at present. The major mining regions in China are the provinces of Liaoning, Guangxi, and Shandong.

The total confirmed reserves of active talc mining operations in China are around 127m. tonnes, the geologically proven reserves exceed 200m. tonnes.

Not all of these reserves are economically viable to mine, as the access to some of these resources is limited and the quality does not meet market demands.

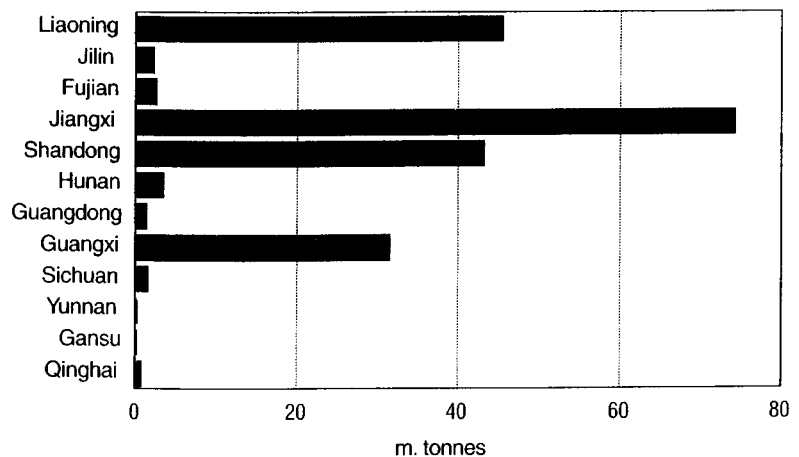
The accompanying pie chart shows the market shares of the active mining operations in China.

The differences in *talc qualities* are wide, depending on geological conditions and the mineralogical environment. All Chinese talc deposits can be classified into three geological types:

- deposits with magnesium carbonate rock
- deposits with ultramafics
- "black talc" sedimentary deposits

The first deposit type is the most common in terms of both current production and reserves. Most mines in Liaoning, Shandong, and Guangxi are set in this environment. The accompanying minerals found are magnesite, dolomite, quartz, chlorite, calcite, in some cases also tremolite, and pyrites.

The second deposit type occurs in serpentinised ultramafic rocks as regular ore bodies. The talc can be associated with a



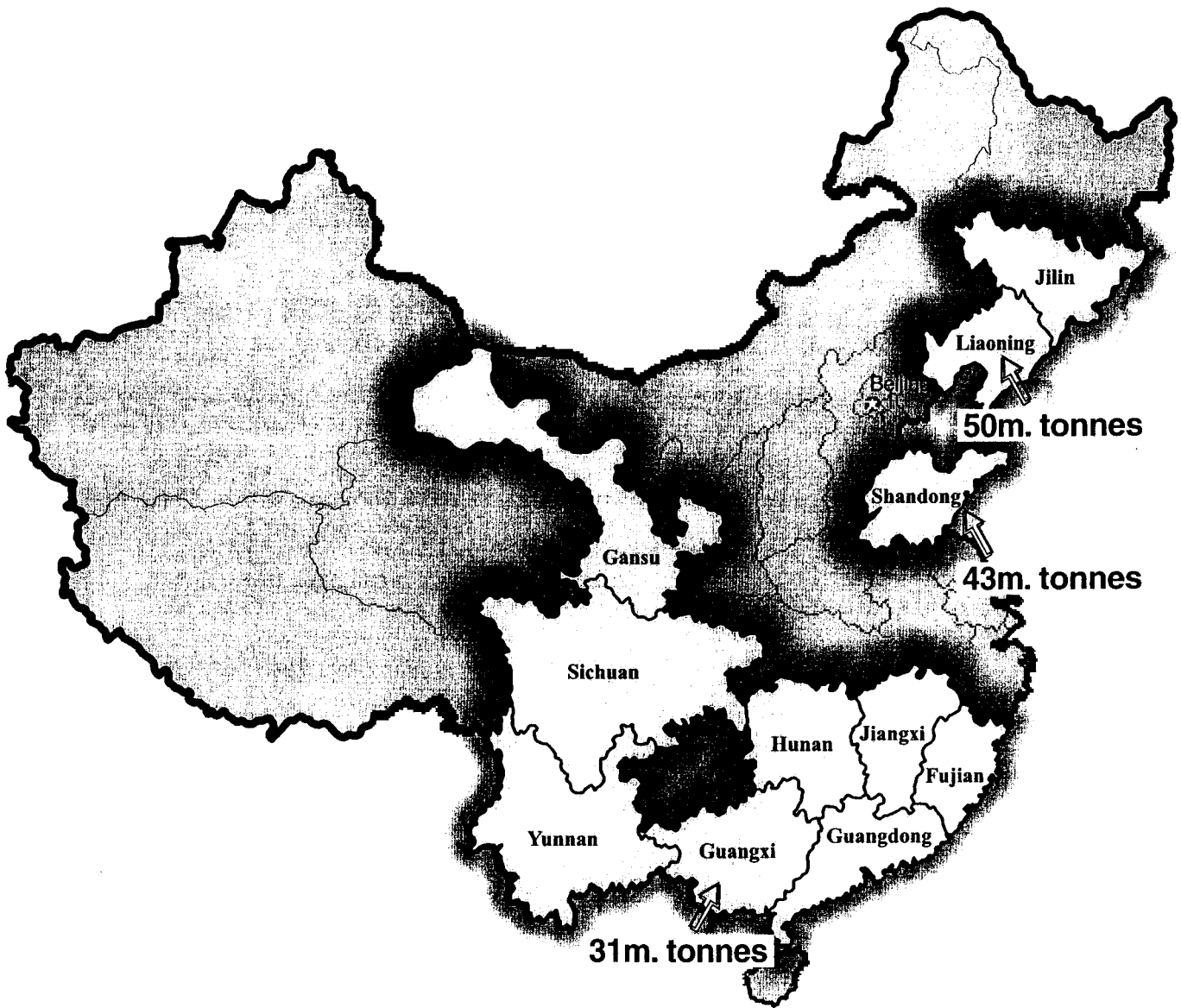
Talc reserves in China
Total guaranteed reserves : 207m. tonnes

variety of minerals including magnesite, serpentine, chrysotile asbestos, chlorite, and magnetite. The chemical composition of the ore shows typically high alumina and iron contents.

The largest deposit of "black talc" exists in Guangfeng, in Jiangxi province; associated minerals are quartz, calcite, dolomite, and montmorillonite. These mines were developed in the 1970s.

As can be seen in this rough classification, there are many suitable and excellent talcs available in China, yet there are also asbestiform mineral containing types. An occasional relationship with Chinese mines or trading companies, rather than a well established and regular connection, can be risky, since asbestiform mineral-containing talcs have been supplied in such cases!

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**Talc reserves in China at operating mines
total volume 127m. tonnes**

The usable reserves in Liaoning account for more than 30% of the known total volume. Talc is mainly associated with magnesite, and occur in lenses and small size layers. The mines are underground operations.

The Haicheng talc mines are the best known sources of white and pink talc grades operating on an industrial basis. On the other hand, there are quite a few smaller scale talc "farmers", supplying traders and larger talc mines.

About 33% of talc reserves in the Shandong area are exploited. The most famous deposits are Pingdu, Laizhou, Qixia, and Haiyang. Not all deposits are free of tremolite or asbestiform minerals. Also in this region, talc farmers are numerous. These small operations can be found everywhere in China. They are the real quality problem for China's talc industry as the mines are extracted unsystematically and both quality and consistency cannot be guaranteed.

The province of Guangxi contains more than 30m. tonnes of reserves, of which 24% are of usable quality. The Longsheng area is a carbonate type talc, occurring in lenses. Small amounts of

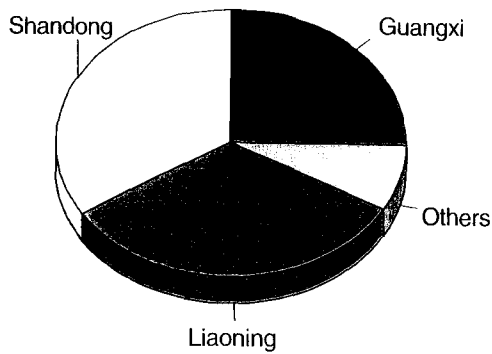
chlorite, calcite, pyrite, and quartz are typical associated minerals. Talc is extracted from three major mines, Guiguang, Longuang, and Huamei.

Talc from Shanglin and Huanyang are different: quartz, dolomite, tremolite, and serpentine are frequently occurring components.

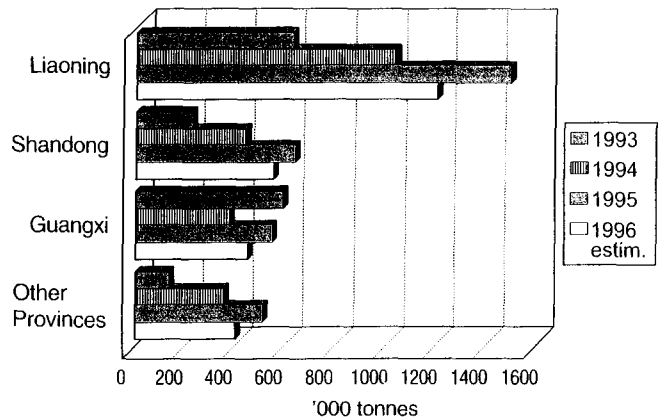
Talc processing in China

The existing talc processing capacity in China is about 2.2m. tonnes. The standard grinding equipment in use are ball and roller mills with standard fineness being 45 to 100 microns top size. Some of the mills have good classifiers in order to produce finer products. However, only few micronisers exist for the production of 20 microns top size or finer.

The best and largest grinding facilities are in Haicheng, Pailou and Yingkou in Liaoning province, Pingdu and Laizhou in Shandong, as well as Guiguang and Longuang in Guangxi. Packaging is constantly a major problem in China, especially for the export business. ISO 9000 certification is only at its beginnings.



Talc reserves of the active mining operations
total volume : 127m. tonnes



Development of talc output
of major talc operations

China's talc markets

Chinese talc consumption is more than 1.6m. tpa. The market is dominated by the paper industry, where talc is used as a filler. In ceramic applications, talc is used for body composition, for glazes, as well as being used in refractories.

Prices are very low for Chinese talc. In 1997, paper filler grades ranged between RMB280/tonne and RMB400/tonne, depending on brightness and fineness. For domestic sales, countertrade and triangle businesses are typical. These trading activities are a problem for the entire Chinese industry.

As the talc operations have a high social responsibility for their workers, communities, and counties, they have to finance more than just the talc operations' costs. This constant drainage of cash flow limits the chances of the individual operations, and profits are certainly not sufficient to constantly invest in the upgrade of the mines with Western technology.

This is the reason why most of the talc mines are suffering. Companies with high export rates have been able to gain remarkable cash flows. More than 1m. tonnes, in some years nearly 1.6m. tonnes of Chinese talc products have been exported.

Japan is by far the largest consumer of Chinese talc products. More than 700,000 tonnes were exported in 1996.

These commercial links have a long tradition, but are not always in favour with the Chinese mining industry. The Japanese importers buy talc of good quality at very low prices, which are far away from European market price levels. Prices of US\$40-60/tonne FOB Chinese port are typical. Sometimes, equipment is supplied to Chinese operations to meet higher quality criteria and efficiency in production. Such co-operation makes the Chinese talc mines even more dependant, and do not help to develop a higher profitability .

However, it would not be fair to blame everything on the Japanese. They buy at the best available conditions. The

supposition of low prices is competition, and the Chinese talc industry has a long tradition in undercutting each other. Compared to domestic price structures, these low export prices are significantly higher; however, as we can see in reality, the result is an average sales revenue too low for the talc mines to survive.

Chinese talc exporting companies have a strong influence on the talc mines and govern the real marketing policy since they earn Western currencies and let the mines participate - or not.

Let us take a look at some examples: South Korea had a small but reasonably buoyant talc industry. Low price imports of talc from China (\$50-60/tonne) ruined this industry quite rapidly; the degree of undercutting was excessive and it will be difficult to improve prices in the future.

Indonesia is a large talc market of more than 80,000 tonnes. Prices are the lowest in the South East Asia region and they are only possible because the Chinese and Indonesian traders play the talc mines. There is no foreign company in competition, we can only find Chinese internal competition.

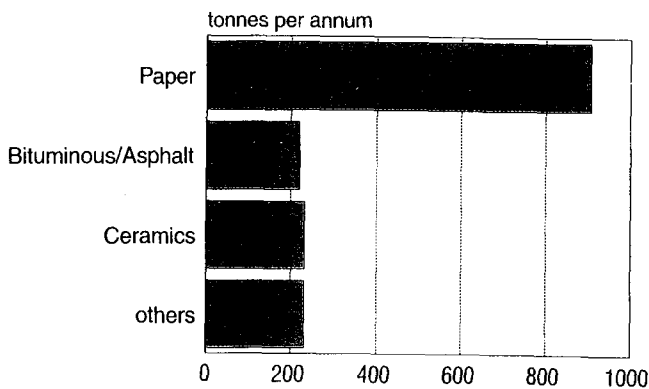
The Chinese trading and export companies have a comfortable position as the final market information is in their hands only, and the talc mines have no direct access to foreign end users. This type of business structure is neither healthy nor competitive in the long term. Thus an opportunity exists to initiate significant change and to reorganise the Chinese talc business.

Enter *China Industrial Minerals Company (CIMCO)*, which emerged as a new force in the Chinese talc industry in mid-1997 (see *IM July '97, p.11*). CIMCO was a Western company backed by Ivanhoe Capital Corp., a Vancouver-based investor in natural resources with a large financial capability.

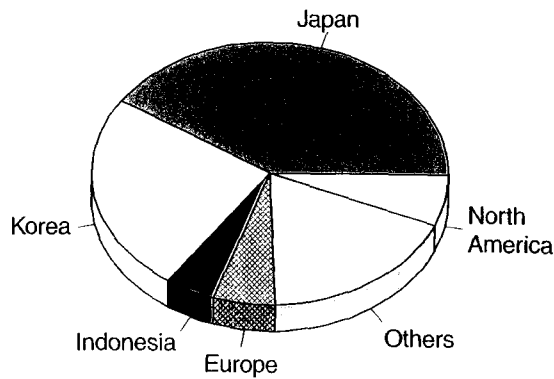
Through two of its subsidiaries, CIMCO created joint ventures with talc mines (Aihai and Qiantai) in Haicheng, Liaoning province. The mines have proven reserves in excess of 50m. tonnes of very high grade material, and existing production capacity of 325,000 tpa.

As part of its contribution to the j-vs, CIMCO intended to invest in new state of the art grinding and micronising facilities at Haicheng (in the order of 120,000 tpa), as well as introducing new western management of operations. Export sales and marketing expertise was also to be provided by CIMCO. The intention of CIMCO was to concentrate on the production of higher quality, finely ground material, where higher margins could be realised than those historically enjoyed by Chinese producers. It was hoped that as a benefit from this production, competition from other, small talc mines in the area could be significantly reduced.

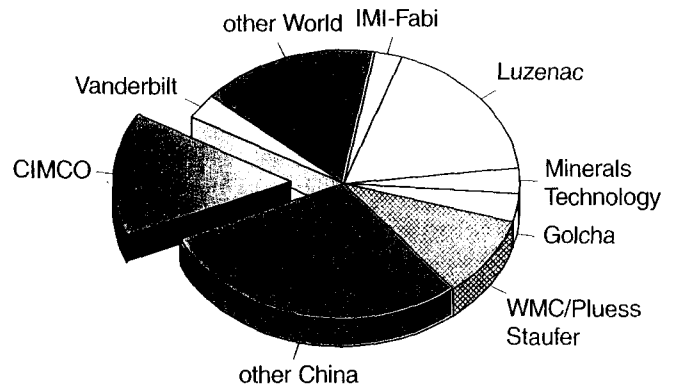
However, with the onset of the Asian financial crisis towards the end of 1997 which resulted in a decline in both price and volume for talc in Asia, CIMCO's original expectations for the project were significantly transformed. Moreover, CIMCO's



Market segments for talc
China 1995 : 1.6m. tonnes consumption



Chinese export of lump and ground talc estimated distribution 1996



CIMCO's targeted position in world talc market

future plans were further influenced by unresolved difficulties with its j-v partner.

The upshot was that the situation brought about a major change in strategic focus to seek alternative opportunities for the company outside China. This led to the merger of CIMCO with *African Minerals Corp.* in May 1998, following the acquisition of exploration and minerals rights to a South African platinum property. The combined company, called *African Minerals Ltd*, is registered in BC, Canada, and has exploration properties, predominantly in southern Africa, together with CIMCO's talc and other Chinese assets. The company is currently reviewing plans for its Chinese talc project.

In addition, it was expected that China will decrease the export of lump talcs in the future in order to keep the added value in China. Lump talc might only be sold, if the Western parties are prepared to pay a fair price.

The situation for US or Japanese talc processors, buying at low prices from the same Chinese talc mine competing with each other at their market place, may be over very soon. This author assumes a price increase up to \$30/tonne for the cheap lump and ground talc sales would be a reasonable step forward and would also be accommodated by the markets in Japan, South Korea, and the USA.

Talc mining operations have to gain more cash, and distributors' networks have to reduce their margins. Professional traders have to find their function between end users and the mines; multi level trading will be over very soon, as requested marketing information will be diluted before it arrives at the talc production companies.

Australia's talc industry

Australia's talc mines are in direct competition with Chinese and Indian talcs.

Mount Seabrook talc, owned by *Gwalia Consolidated Ltd* of Australia and *IMI-Fabi* of Italy, is very similar in mineralogy and morphology to Guangxi talc, and the talc of *Golcha* in India, or *Luzenac Val Chisone SpA* in Italy. In the past, The Mount Seabrook operation was a small scale mine. Reorganisation of the mine and an improved processing plant have now enabled a consistent high quality product. The total reserves are in excess of 6m. tonnes, most is high talc grade.

At present, lump talc is sold to European talc grinding operations, eg. the Luzenac group and *IMI-Fabi*. *IMI-Fabi* will use this mine for a global product policy, as shipping rates out of Australia are favourable. This talc is dedicated to plastics, paper, and cosmetics applications.

The Three Springs talc mine of *Western Mining Corp. (WMC)* is a microcrystalline type and mainly used for paper pitch

control and paints, as well as in electroceramics. The deposit is homogeneous and of high quality. Total output is estimated at 150,000-180,000 tpa. Some of the output is sold as lump talc to Japan and within Australia. Casual sales are conducted with Mexico and the USA. WMC has a grinding plant in Europe but has a limited position in ground talc in South East Asia. [Editor's note: WMC has recently extended its joint-venture with Swiss ground calcium carbonate giant, *Pluess-Staufer AG* by merging its other European talc activities with *Finnminerals Oy*. Out of the deal will emerge one of the most important talc suppliers in Europe, incorporating the activities of *Norwegian Talc AS*, owned by *Pluess-Staufer*, and WMC's *Westmin Talc BV* with *Finnminerals*, see *IM June '98*].

Future outlook

Today, more than 1.4m. tonnes of Chinese talc is used for paper filler applications, mainly in Asia. According to technological trends, wet ground calcium carbonate and precipitated material (PCC) will substitute a significant part of it. When papermills start reinvestments or greenfield operations, they immediately switch to alkaline papermaking; this can be seen in China, Japan, and South Korea, as well as in Indonesia, Malaysia, and Thailand.

It is assumed that the existing low talc prices ex-China cannot prevent the loss of market share in Japan's paper industry, as the delivered prices are high, much higher than carbonate prices. In South Korea, the situation is different, as talc prices are much lower. Following investigations, approximately 50% of paper filler talc will be substituted by carbonates within the coming ten years or within an even shorter period of time.

This technological move in favour of carbonates will have a strong impact on the Chinese talc industry. Every mine has a certain ratio of premium and lower grade talcs. The high volume, lower grade paper filler talc products, have to be sold primarily, in order to have access to the brighter talc grades, where higher revenues can be achieved. The Chinese talc industry has to start developing new outlets for these lower qualities immediately, in order to secure the white talc business.

The Australian talc industry will not suffer too much because their market segments are different and they never depended on these low price, low quality paper filler grades. Their markets are oriented towards cosmetics applications and other market segments, where primarily micronised and ultrafine talcs are used.

The globalisation of the talc business will continue. China and Australia will have the best chance to dominate the high quality talc segments of the next decade. New operations and alliances all over the world are in preparation to make these talcs global products.

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