Thirtieth General Assembly and associated meeting

The Thirtieth General Assembly and formal sessions of the meeting, and also the social events, on October 18th and 19th 1989 will be held at the Gravenbruch Kempinski Hotel, near Frankfurt, Federal Republic of Germany. A large number of rooms has been reserved for delegates to stay at this hotel which combines a rural setting in its own park with all the facilities expected of a modern hotel. Participants should enjoy the country-house atmosphere, the view of the grounds and the lake, the variety of restaurants and bars, and the indoor swimming pool — even if the season is not quite right for the outdoor pool. There are tennis courts in the grounds, and a golf course nearby. The hotel is situated about 15 minutes’ taxi ride, or drive, from Frankfurt’s international airport.

On Wednesday October 18th delegates will be able to register at the T.I.C. desk at the hotel, and in the evening there will be a cocktail party to open the meeting. On October 19th the General Assembly (with attendance restricted to delegates of member companies) will be followed by a programme of technical presentations for the rest of the morning and afternoon sessions, with a break for lunch. In the evening there will be a banquet dinner.

The participants will go to nearby Hanau on Friday October 20th for a tour of the metallurgical plant of W.C. Heraeus GmbH, where they will also be the guests of Heraeus for lunch. The meeting will close at about 3.30 p.m.

Interesting tours for the ladies accompanying delegates have been arranged. On Thursday there will be a short sightseeing tour of the old centre of Frankfurt, followed by lunch at the Henninger-Turm — watching the world go round... In the afternoon the group will take a tour by bus through the Taunus region, stopping for a visit of the Hessenpark. On Friday the ladies will visit the picturesque town centre of Hanau, with its ‘Goldschmiedehaus’ (goldsmiths’) hall and ancient churches, before going on to Schloss Philippsruhe, a splendid early 18th century castle and historical museum, beautifully decorated. They will join the men’s group at Heraeus where they will be guests of the company for lunch and be present at the closing of the meeting.

TECHNICAL PROGRAMME

Papers will include an outlook on supply and demand for tantalum and niobium, by Mr L.S. O’Rourke, and an update on the development of the market for capacitors, with future forecasts, by Mr David E. Maguire, Kemet Electronics Corporation. Dr T. Gaballah of the Centre de Recherche sur la Valorisation des Mineraux will speak on the characterisation and mineral processing of certain European ore deposits. A paper entitled ‘Tantalum powder dopants and the effect of their residues on tantalum oxide quality of low oxygen tantalum surfaces’, by Mr John VanVoorhis, Mr James Bates and Mr Frédéric Brindel of Sprague Technologies, Inc., will be presented. Also planned are a review and comparison of markets in Europe, the United States and Japan, a paper on the analysis of impurities, and a survey of new projects in electron-beam melting.

A panel discussion will close the technical session.

Invitations have been sent to the nominated delegates of member companies, and many participants have shown their interest in the meeting by completing the pre-registration procedure.

HERAEUS

W.C. Heraeus GmbH is 100 % owned by Heraeus Holding GmbH, the parent of a worldwide network of subsidiaries and associated companies, employing over 9000 people. Sales have almost doubled in value in the past ten years, reaching the order of DM 4000 million, in 1988. Of this, precious and refractory metals accounted for about 34 %.

Heraeus works with gold, silver, platinum and platinum metals, as well as with special metals such as titanium, tantalum, niobium, zirconium and beryllium. It is in the forefront of development and production of materials and equipment for advanced technologies and prides itself on a constant pursuit of progress.

The staff of Heraeus have given much attention to their plans for the plant tour by T.I.C. delegates, and the visitors should it very interesting.

FRANKFURT

Many will know Frankfurt best as a centre of trade and business, or as a connection point for European and international flights, but it has more to offer too. There are many art galleries and more than twenty museums, indeed there is a riverbank lined with these, the Museumsufer. The Zeil boasts of being Germany’s highest-turnover shopping precinct. The old quarter has traditional style cafés, and there are gourmet restaurants as well as discos, jazz cellars and piano bars to be found. Delegates will have the opportunity to seek out some of these on Wednesday evening, perhaps, and to visit some galleries, theatres or shops before or after the conference.

THIRTIETH GENERAL ASSEMBLY

to be held at 9.00 a.m.
on Thursday
October 19th 1989
at the Gravenbruch Kempinski Hotel,
Frankfurt, Federal Republic of
Germany

AGENDA

1. Voting proxies
2. Address by the President of the T.I.C., Dr Harry Stuart
3. Minutes of the Twenty-ninth General Assembly
4. Membership : applications, resignations
5. Financial matters, including approval of the audited accounts for the year ending June 30th 1989
6. Report of the Executive Committee
7. Statistics
8. Statutory elections
9. Forthcoming General Assemblies
10. Other matters

President’s letter

Despite the fact that we lost our technical officer earlier in the year, the T.I.C. staff continues to serve our association in fine fashion. We are all working hard preparing for our meeting in Frankfurt and looking forward to an outstanding attendance, even though we do not expect to match that of Orlando. Please make every effort to join us.

Harry Stuart
President
July 14th 1989
T.I.C. statistics

PRODUCTION AND SHIIPMENTS
(quoted in lb Ta₂O₅ contained)

1st quarter 1989

<table>
<thead>
<tr>
<th>Production</th>
<th>Shipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tin slag (over 2 % Ta₂O₅)</td>
<td>253 751</td>
</tr>
<tr>
<td>Tantalite (all grades), other</td>
<td>128 712</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>379 463</strong></td>
</tr>
</tbody>
</table>

Note:
17 companies were asked to report, 15 replies were received. The companies which reported included the following, whose reports are essential before the data may be released:
Dutch Keramat Smelting, Greenbushes, Malaysia Smelting, Tandine Mine, Mexico, Metalurgia, Metalurgia Group, Tantalum Mining Corporation of Canada, Thailand Smelting and Refining.

QUARTERLY PRODUCTION ESTIMATES
(quoted in lb Ta₂O₅ contained)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>US $ 30</td>
<td>230 000</td>
<td>363 500</td>
<td>421 500</td>
<td>446 500</td>
<td>212 000</td>
<td>331 500</td>
</tr>
<tr>
<td>US $ 40</td>
<td>220 000</td>
<td>353 500</td>
<td>421 500</td>
<td>446 500</td>
<td>212 000</td>
<td>331 500</td>
</tr>
<tr>
<td>US $ 50</td>
<td>217 000</td>
<td>351 500</td>
<td>421 500</td>
<td>446 500</td>
<td>212 000</td>
<td>331 500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>170 530</strong></td>
<td><strong>363 500</strong></td>
<td><strong>421 500</strong></td>
<td><strong>446 500</strong></td>
<td><strong>212 000</strong></td>
<td><strong>331 500</strong></td>
</tr>
</tbody>
</table>

Notes:
The quarterly production estimates are based on information available, and do not necessarily reflect total world production.

Capacitor statistics

EUROPEAN TANTALUM CAPACITOR SHIPMENTS
(thousands of units)

1st quarter 1989 | 170 530
(Data from ECTSP)

JAPANESE TANTALUM CAPACITOR PRODUCTION
AND EXPORTS
(thousands of units)

<table>
<thead>
<tr>
<th>Production</th>
<th>Of this, exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st quarter 1989</td>
<td>886 371</td>
</tr>
</tbody>
</table>
| (Data from JEIDA)

WORLD TANTALUM CAPACITOR SHIPMENTS
(millions of units)

3rd quarter 1988 | 1362.0
4th quarter 1988 | 1342.7
(Data compiled by combining regional and export data)

U.S. TANTALUM CAPACITOR SALES
(thousands of units)

1st quarter 1989

<table>
<thead>
<tr>
<th>Foil</th>
<th>163</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal-cased</td>
<td>29 000</td>
</tr>
<tr>
<td>Moulded</td>
<td>80 679</td>
</tr>
<tr>
<td>Dipped</td>
<td>97 082</td>
</tr>
<tr>
<td>Chips</td>
<td>47 680</td>
</tr>
<tr>
<td>Wet slag</td>
<td>2 079</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>256 853</strong></td>
</tr>
</tbody>
</table>

(Data from EIA)

Note:
The data did not provide separate figures for U.S. shipments and exports for this quarter.

It is a fact that because of the second condition the results have only ever been released in two categories:
A Tin slag 2 % and over
B Tantalite (all).

While the above reporting format provided useful data in the past, I believe that because of fundamental changes in the tantalum industry a better production statistical questionnaire can be designed.

Basically the reasons for suggesting a change now are as follows:
- The reporting categories are no longer applicable.
- Production distribution between slags and concentrates is not very important.
- Raw materials with more than 10 % Ta₂O₅ represent direct feed into processing plants.
- Raw materials with less than 10 % Ta₂O₅ are feed for synthetic concentrate production.
- Synthetic concentrate production is not included in the current production statistics.
- Slags with 2 %-10 % Ta₂O₅ are included in current production statistics even though they do not become useable by processors until turned into synthetic concentrate.

My proposal is that the questionnaire to producers be changed to reflect this position and that the 65 % rule be dropped because under the revised reporting format it will not be required.

Letter to the editor

The following letter has been sent by Mr John Linden, Managing Director of Greenbushes Ltd., proposing changes in the way in which the T.I.C. collects tantalum statistics: comments are invited from readers, with a view to initiating an informed discussion at the forthcoming assembly in Frankfurt.

Dear Sir,

RE: TANTALUM PRODUCER STATISTICS

Statistics on the production and shipments of tantalum raw materials have been collected for more than ten years now in the following categories:
A Tin slag (2 %-10 % Ta₂O₅)
B Tin slag over 10 % Ta₂O₅
C Tantalite under 25 % Ta₂O₅
D Tantalite over 25 % Ta₂O₅
E Other materials.

The release of the data collected by Price Waterhouse is subject to two conditions:
1. That all "must report" companies have reported
2. That no single company represents more than 65 % of a category otherwise categories must be amalgamated.
A Tantalum raw materials less than 10% Ta₂O₅.
B Tantalum raw materials greater than 10% Ta₂O₅.

Category A would include: Tin slags, Tantaltite concentrates, Columbite concentrates, Struvurites. Other.

Category B would include: Tin slags, Tantaltite concentrates, Synthetic tantalite concentrates, Other.

As Category B would include all productions from Thaissarco, Tanco, Greenbushes, Stark and Metallurg there would be sufficient anonymity and the 65% rule would never be broken.

In reporting statistics back to members it can be immediately seen that total production from Category B either matches or does not match demand and statistics.

The Category A material would be shown but not totalled with Category B as this is essentially inventory material to be reprocessed into synthetic concentrates.

Shipments for both categories would continue to be reported and traders would be asked to report as well as producers.

The present reporting of all slags over 2% Ta₂O₅ is a meaningless number as it includes low grade tin slags that may not be available to processors for one or more reasons.

It is felt that separating the low grade slags and incorporating synthetic concentrate production will give more accuracy to the refractory metals tantalum and columbium, a supply and demand picture which is of the best interest of all serious members of the tantalum industry.

It may be useful to publish this letter in the next T.I.C. Bulletin requesting comment on the suggestion and seeking an informed discussion at the next meeting.

Yours faithfully,
J. Linden
Managing Director

Fansteel starts new 12 megawatt electron beam facility

This article was written for the T.I.C. Bulletin by Mr Thomas S. Carilli, General Manager of the Muskgogee plant of Fansteel/Metals.

Fansteel/Metals has completed installation of a six million dollar melting facility for refractory metals at its Muskgogee, Oklahoma, plant, and is now starting up this facility. The addition includes not only the new electron beam melting furnace, built by Leybold AG and utilizing state-of-the-art technology, but also a retrofitted, computer-controlled vacuum arc remelt furnace.

The melting facility represents the largest single capital equipment investment made at the Muskgogee plant since its opening in 1979. Fansteel is a leading producer of the refractory metals tantalum and columbium, and it manufactures precision metal products for use in the electronic, aircraft and aerospace, defense, chemical and energy-producing industries. The company is recognized as a world leader in the manufacture of tantalum capacitor products, including powder, wire, and foil. In addition to Muskgogee, other plants for production of these products are located in North Chicago, Illinois, and in Mito, Ibaraki Prefecture, Japan, where Fansteel has set up V Tech-Fansteel (VFT), a joint venture with the trading company V Tech; this plant began operations in late 1986 and today offers a full line of high charge capacitor powders under the VFT label.

The new EB furnace will provide both improved efficiency and quality for melting tantalum, columbium, and their alloys. Fansteel sees burgeoning market opportunities for columbium alloys in both superconducting and high temperature alloy applications. It has been estimated that the Superconducting Super Collider, for example, to be located in Texas, will employ $270 million of superconducting cable, which will require about 1,800,000 pounds of columbium-titanium alloy billets. Fansteel intends to supply alloy rod to superconducting cable and magnet manufacturers. Other applications for superconducting columbium also exist with the Continuous Electron Beam Accelerator Facility (CEBAF) being constructed by Southern University Research Association in Newport News, Virginia (USA), and at CERN in Geneva, Switzerland, for both the large electron-positron collider (LEP) and the planned large hadron collider (LHC). The technology for manufacturing the coils has been demonstrated with the Fermilab (Batavia, Illinois) Tevatron II collider, as well as commercial in numerous body cavity magnetic resonance imaging systems now in use in medical centers.

The expansion of the melting facility at the Muskgogee plant consisted of four phases: (a) modernization of the power substation from a maximum capacity of 6,600 to 10,800 KVA, (b) construction of the melt shop building, which has dimensions of 180 ft. long by 80 ft. wide with 52 ft. height at the eaves, (c) upgrading and retrofitting of the vacuum arc furnace, and (d) installation of the new electron beam furnace.

The VAR furnace upgrade consisted of increasing power by 15% to 1000 KW, adding state-of-the-art control and instrumentation systems with automatic read-out at the operator console, and improved systems for materials handling and cooling water recirculation. The maximum ingot diameter will be 12 inches for tantalum, and up to 18 inches for other tantalum and columbium alloys. The VAR furnace improvements were completed in December, 1988, and the equipment has been in production since that time.

The new electron beam furnace will have two 600 KW/400KV electron beam guns. These double-pumped Leybold electron beam guns will also maintain operation even if there are pressure fluctuations in the vacuum chamber caused by feed material gassing. The vacuum system design permits pump-down to less than 0.5 microns (5 x 10⁻⁴ millibar) in less than twenty minutes. The ultimate pressure for the continuously pumped system is 0.01 microns (1.3 x 10⁻⁵ millibar). Although the bottom of the furnace extends about twenty feet below ground level and forty-one feet above, all components requiring routine maintenance are easily accessible. A vacuum lock and horizontal feed bar loader permit the furnace to be fed continuously. A carousel-design crucible station permits one ingot to be melted while a second is cooling without vacuum interruption. The control room and operators' console have capability for automatic data acquisition, fault-finding, and a maintenance management system. The furnace has capability of melting tantalum ingots up to 12 inches diameter by 105 inches long and columbium ingots up to 14 inches diameter by 165 inches long. The furnace capacity is approximately 250 000 lb/yr of triple-melted columbium (14-inch diameter) or 510 000 lb of double-melted tantalum ingot (12-inch diameter). The building contains adequate space for material handling, staging and expansion, when required.
Fansteel's Musogee plant was built in 1957 when the company, the first to produce refractory metals commercially in the U.S., identified expanded needs for columbium to be used in the U.S. space effort. The Musogee site was selected from a number of alternatives because of its proximity to the Arkansas River as well as to other important resources for transportation, power, and skilled labor. The plant starts directly from ore, extracting both the tantalum and columbium via acid digestion. Metallurgical separations are performed by liquid-liquid extraction, and the tantalum or columbium is recovered as sodium salt. Tantalum is reduced to metal powder by sodium reduction and columbium is obtained by the electrolysis process. Fansteel has two older Ternalsal-design 450-kW electron beam furnaces which began operation in 1954. Plans are that these furnaces will be maintained and used for the production of tantalum powders, which will become ever more demanding. Fansteel's expanded melt capability positions it not only to remain a leader in refractory metal processing but also to capitalize on other opportunities in high-temperature metallurgy.

The tantalum market in Japan

This article is based on a report prepared by Mr. Yohiro Takekuro, Chairman of the Tantalum Group of the Japan Society of Newer Metals.

THE CONSUMPTION OF TANTALUM IN 1988 AND A FORECAST FOR 1989

As can be seen from Table 1, the Japanese tantalum market remained buoyant condition in 1988. However, the demand for tantalum in 1989 is expected to be less than in the previous year, and the size of the decrease will differ from one product to another. The reasons for the drop in distribution are firstly, is forecast that the Japanese economy will not be as strong in 1989 as it was last year, and, in addition, the total amount of tantalum distributed in 1989 was far more than the amount actually used in the Japanese industry in that year and, consequently, can be assumed that some of this tantalum is stored somewhere in the country.

Table 1: Demand for tantalum in Japan 1985 to 1988 and a forecast for 1989 (Unit: kilogram tantalum contained)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder</td>
<td>96854</td>
<td>86120</td>
<td>10125</td>
<td>158652</td>
<td>135000</td>
</tr>
<tr>
<td>Imports</td>
<td>59110</td>
<td>19135</td>
<td>22450</td>
<td>364300</td>
<td>315000</td>
</tr>
<tr>
<td>Import share</td>
<td>20%</td>
<td>22%</td>
<td>21%</td>
<td>22%</td>
<td>23%</td>
</tr>
<tr>
<td>Compounds</td>
<td>52900</td>
<td>50020</td>
<td>45320</td>
<td>55340</td>
<td>51000</td>
</tr>
<tr>
<td>Imports</td>
<td>12300</td>
<td>14500</td>
<td>14500</td>
<td>27000</td>
<td>210000</td>
</tr>
<tr>
<td>Import share</td>
<td>25%</td>
<td>30%</td>
<td>25%</td>
<td>30%</td>
<td>40%</td>
</tr>
<tr>
<td>Total</td>
<td>148844</td>
<td>135440</td>
<td>157448</td>
<td>243992</td>
<td>186000</td>
</tr>
<tr>
<td>Impairs</td>
<td>31500</td>
<td>31450</td>
<td>36948</td>
<td>52438</td>
<td>47000</td>
</tr>
</tbody>
</table>

REFINED

<table>
<thead>
<tr>
<th>Refining</th>
<th>Powder</th>
<th>Imports</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>34532</td>
<td>34542</td>
<td>69074</td>
</tr>
<tr>
<td>Import share</td>
<td>43%</td>
<td>50%</td>
<td>58%</td>
</tr>
</tbody>
</table>

Tantalum powder sold in 1988 amounted to approximately 158 tonnes, marking a record 45% increase over 1987 sales. In January 1989, we estimated that the amount of tantalum powder actually used in Japan during 1988 was 120 tonnes, or 130 tonnes at most. For tantalum capacitors the consumption of tantalum per unit continues to decrease, due to the large efforts at improvement made by the manufacturers of powder (even though their efforts are not, unfortunately, reflected in the price of powder). Also, although 3.5 billion tantalum capacitors were produced in 1988, a 27% increase over 1987, this percentage did not match the 45% growth in powder sales. The factors in part the basis of our conclusion that part of the tantalum sold last year is stored in Japanese investors' warehouses.

The Japanese Electronic Machinery Association has forecast that the production of solid capacitors is expected to be 7.9% higher in 1989 than in 1988. In the past, the annual growth rate for tantalum capacitors was higher than the rates for aluminium and ceramic capacitors, but in recent years production figures show that growth rates for the latter two types have increased considerably, while that for tantalum has remained static. The growth rates for aluminium, ceramic and tantalum capacitors were minus 3.3%, plus 15%, and plus 26%, respectively, in 1987, while in 1988, production of the three types increased by 17%, 29% and 27%, respectively.

Figures for the month of December 1988 compared with data for the same month in 1987 show that there is almost no difference in the growth rates of the three types. The age when the growth of tantalum capacitor manufacture outstripped that of other types appears to be history, and therefore we project that the amount of tantalum powder to be consumed in 1989 will be 15% less than last year, at 135 tonnes.

The amount of processed goods, such as wire, sold in 1988 was 78.7 tonnes, an increase of 87% over 1987 sales. The market environment for these products is the same as that for tantalum powder, and in 1988 there was here also a large difference between the amount sold and the quantity consumed. It is therefore predicted that sales of these tantalum products in 1989 may drop by as much as 33%.

DEMAND STRUCTURE

Table 2 shows the structure of the Japanese market in terms of the percentage taken up by each type of use. It can be readily seen that the electronic industry, that is, for capacitors, has by far the largest share — 70% of the total for 1987.

Table 2: Industry structure: demand, by type of use (Unit: percent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic powder</td>
<td>66</td>
<td>70</td>
<td>68</td>
<td>68</td>
</tr>
<tr>
<td>Cemented carbide</td>
<td>22</td>
<td>17</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Ceramics</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>6</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

T.I.C. DATA (1987)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Powder</th>
<th>Cermented carbide</th>
<th>Rolled products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>42%</td>
<td>25%</td>
<td>16%</td>
</tr>
<tr>
<td>Tantalum carbide</td>
<td>5%</td>
<td>12%</td>
<td></td>
</tr>
</tbody>
</table>

A comparison of the structure of the Japanese industry with the world industry in general, as represented by the T.I.C.'s collected data for the year 1987 as an example, may be attempted. The figures for the electronic industry in Japan includes not only use of tantalum in powder but also in wire for capacitors: the figure for wire could therefore be deducted to make the comparison more accurate. Even when this is done, it is clear that the proportion of the total consumed by the electronic industry is much greater for Japan than for the world as a whole. ('Others' in Table 2 stands for processed products used in industries other than the electronic industry.)

Another major difference between the world market and the Japanese market is that there is a considerable demand for tantalum for aerospace use in the rest of the world, whereas in Japan this kind of use is rare. Also, in our opinion, a relatively large amount of tantalum was consumed for ceramic use in Japan, including the addition of tantalum to glass used for lenses. However, the table shows very small percentages for ceramic use in both Japan and the world market. This is probably because use of tantalum in this form of the Japanese industry has not yet recovered from a rapid drop when the price rose abruptly, a factor which should not be forgotten.

IMPORTS

Government statistics show that tantalum to the value of $50 million yen ($US 44.61 million) was imported into Japan in 1988 in the following forms: ore ($US 1.96 M), intermediate products ($US 19.41 M), powder ($US 9.00 M), processed products ($US 11.36 M) and other products ($US 2.88 M). But these figures do not include the imports of tantalum compounds, which accounted for about 30% of the market over the past four years (see Table 1), and therefore the real value of all tantalum-containing imports into Japan was considerably higher than these statistics suggest.

The value of imports, as given by these statistics, increased from $US 20 M in 1987 to almost $US 45 M in 1988, but a similar increase cannot be expected in 1989, for the economic reasons outlined above. Also it must be appreciated that the industry's sound development would be hindered by soaring prices which would lead to a loss in the aerospace market, an industry that all other industries would weaken the industry.

Looking back at Table 1, it is evident that the Japanese tantalum industry provides a market which is not exclusively for Japanese companies. Japan is an open market, importing from overseas 20% of its powder requirements, 30% of its compounds and as much as 50% of processed products, and the market share of imports has been increasing steadily. Japanese manufacturers rely on the availability of imported materials ranging from ores and intermediary products to stock, and for the healthy development of their industry they look forward to further cooperation with overseas companies in the years to come.