TITANIUM SPONGE PRODUCTION IN KAZAKHSTAN, RUSSIA AND UKRAINE

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UKRAINE
Ilmenite concentrate production

VOLNOGORSK
Production / shipment
2005 – 180,000
2006 – 190,000
2007 – 200,000
2008 – 200,000 / 9,400 mt
2009 – 200,000 / 12,700 mt

IRSHANSK
2005 – 195,000 mt
2006 – 280,000 mt
2007 – 300,000 mt
2008 – 300,000 mt
2009 – 300,000 mt
Mg Prices
(source: Metal Pages)
UKRAINE
TITANIUM SPONGE PRODUCTION

<table>
<thead>
<tr>
<th>YEARS</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009 (e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPY</td>
<td>6,000</td>
<td>7,000</td>
<td>9,000</td>
<td>9,500</td>
<td>10,500</td>
<td>11,000</td>
<td>7,000</td>
</tr>
</tbody>
</table>
UKRAINE

TITANIUM SPONGE EXPORTS AND SHIPMENTS TO DOMESTIC MARKET

<table>
<thead>
<tr>
<th>YEARS</th>
<th>Exports</th>
<th>Deliveries to Domestic Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>6,000</td>
<td>1,000</td>
</tr>
<tr>
<td>2006</td>
<td>9,000</td>
<td>1,500</td>
</tr>
<tr>
<td>2007</td>
<td>12,000</td>
<td>2,000</td>
</tr>
<tr>
<td>2008</td>
<td>9,000</td>
<td>2,000</td>
</tr>
<tr>
<td>2009</td>
<td>6,000</td>
<td>1,500</td>
</tr>
</tbody>
</table>
KAZAKHSTAN
TITANIUM SPONGE PRODUCTION

YEARS

TPY

2003  2004  2005  2006  2007  2008  2009
Kazakhstan Titanium Sponge Share
In World Production in 2008

World Ti Sponge Production (China included)

- China
- Ukraine
- USA
- Japan
- Russia
- Kazakhstan

- 13.11%
- 19.61%

World Ti Sponge Production (for aerospace industry)

Kazakhstan Titanium Sponge Share
In World Production in 2009

World Ti Sponge Production (China included)
World Ti Sponge Production (for aerospace industry)

- China
- Ukraine
- USA
- Japan
- Russia
- Kazakhstan

13.96% 21.81%
Russia Titanium Sponge Production

![Bar chart showing Russia Titanium Sponge Production from 2004 to 2009, with data for Solikamsk and AVISMA. The chart indicates a steady increase in production from 2004 to 2008, with a slight decrease in 2009.]
Russia Titanium Mill Products Exports and Domestic Sales

![Bar chart showing the trend of Russia Titanium Mill Products Exports and Domestic Sales from 2003 to 2009 (e). The chart compares exports and domestic sales for each year, with exports generally being higher than domestic sales.](image-url)
US IMPORTS OF TITANIUM SPONGE FROM KAZAKHSTAN, JAPAN, CHINA, RUSSIA AND UKRAINE
World Titanium Sponge Supply and CIS Share

CIS 38%
JAPAN 22%
CHINA 28%
USA 13%

CIS 39%
JAPAN 23%
CHINA 30%
USA 8%
World Titanium Sponge Supply for Aerospace Market and CIS Share

CIS 56 %

CIS 54 %
CIS TITANIUM SPONGE PRODUCTION

Decrease in 2009 compared to 2008: - 22,065 mt
WORLD TITANIUM SPONGE SUPPLY

The graph depicts the world titanium sponge supply from 2003 to 2009, with predictions for 2009 (e). The supply is categorized by different regions and countries, including Russia, Japan, Kazakhstan, North America, Ukraine, and China. The data is represented in tons per year (TPY) on the y-axis and years on the x-axis.
Production decrease in 2009

LOSSES PER COUNTRY

<table>
<thead>
<tr>
<th>Country</th>
<th>Loss (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>-13,000 MT</td>
</tr>
<tr>
<td>JAPAN</td>
<td>-11,500 MT</td>
</tr>
<tr>
<td>CHINA</td>
<td>-14,000 MT</td>
</tr>
<tr>
<td>CIS</td>
<td>-22,000 MT</td>
</tr>
</tbody>
</table>

- 60,500 MT