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**Metals in Sweden, industrial use, mining production and recycling (tonnes/year, 2018)**

- Recycling
- Mining production
- Use

<table>
<thead>
<tr>
<th>Metal</th>
<th>Recycling</th>
<th>Mining production</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>121 790</td>
<td>100 000</td>
<td>57 000</td>
</tr>
<tr>
<td>Chromium</td>
<td>110 140</td>
<td>100 000</td>
<td>0</td>
</tr>
<tr>
<td>Aluminium</td>
<td>54 000</td>
<td>10 000</td>
<td>0</td>
</tr>
<tr>
<td>Zinc</td>
<td>237 715</td>
<td>100 000</td>
<td>0</td>
</tr>
<tr>
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<td>27 526 000</td>
<td>15 000 000</td>
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- National parks, nature 52 311 km²
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- Trade and business activities 240 km²
- Manufacturing Industry 600 km²
- The surface area of Sweden is approximately 407 300 km²

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Recycling  
Mining production  
Use  
From 2013  
Iron ore products sold

Copper  121 700  100 000  0  10 000  2 337 715
Chromium  100 000  0  0  0  0
Aluminium  100 000  0  0  0  0
Zinc  54 800  4 561 780  0  0  0
Iron  2 000 000  0  0  0  0

Rock, soil and groundwater

SGU is the government agency responsible for issues relating to bedrock, soil and groundwater in Sweden. Our mission is to meet society’s need for geological information. This includes producing annual statistics on the quantity of metals, minerals and aggregate produced in Sweden.

This folder provides an overview of what is produced and in what quantities. The information has been obtained from SGU annual reports: Bergverksstatistik, Grus, sand och krossberg and Energitorvproduktion (Statistics of Swedish Mining Industry, Aggregates and Production of energy peat).

You can find more information and services on our web site: www.sgu.se

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sgu@sgu.se

www.sgu.se  
www.youtube.com/user/sgusweden  
www.facebook.com/sgu.sverige

The total area in Sweden covered by...

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Golf courses  
280 km²

Wind Turbins, influence area  
850 km²

Trade and business activities  
240 km²

Manufacturing Industry  
600 km²

The surface area of Sweden is approximately 407 300 km²
Metals, minerals and aggregates

Each year some 130 million tonnes of minerals are produced in Sweden, having a total value of about SEK 40 billion. Iron production accounts for the greatest economic value, with the base metals copper, lead and zinc as a good second, closely followed by crushed bedrock. Iron drops to second place by volume. The greatest volume produced is of aggregate made from crushed bedrock.

Total production occupies an area of just over 800 square kilometers, equivalent to two-thirds of the island of Öland in the Baltic Sea. The minerals industry employs over 9,000 people at just over 1,400 sites.

Metals in the north and aggregates in the south

In terms of value, most minerals are produced in Norrbotten County, northern Sweden. Iron and copper predominate. In southern Sweden, particularly in the densely populated conurbations, aggregate production predominates. On the island of Gotland industrial limestone production is the most important in economic terms, being worth just under SEK 2 billion.

Value of annual production, SEK millions, by county

Sustainable mining

In the early 20th century there were about 250 mines in Sweden. Today, 100 years later, the number has fallen to 13 operating metal mines (2018), yet total production has more than doubled. This is mainly due to new technologies and new methods. The quickening pace of technological development, combined with more stringent environmental standards and other factors, is leading to safer, more efficient and more sustainable operations.

The mining sector generates revenues for the state in the form of taxes and, where the state holds a stake, dividends.

Aggregate is the name for gravel, sand and crushed bedrock. Aggregates are used in concrete, asphalt, as a filler and as railway track ballast, among other things.

The mining sector employs over 7,000 people (not including sub-contractors), of whom approximately 20 percent are women.
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Mining sector turnovers and dividends from 2008—2018

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<thead>
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<th>Material</th>
<th>Recycling</th>
<th>Mining production</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>0</td>
<td>12 723</td>
<td>12 723</td>
</tr>
<tr>
<td>Chromium</td>
<td>0</td>
<td>64 627</td>
<td>64 627</td>
</tr>
<tr>
<td>Aluminium</td>
<td>0</td>
<td>54 816</td>
<td>54 816</td>
</tr>
<tr>
<td>Zinc</td>
<td>0</td>
<td>10 591</td>
<td>10 591</td>
</tr>
<tr>
<td>Iron</td>
<td>0</td>
<td>237 715</td>
<td>237 715</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27 526 006</strong></td>
<td><strong>28 800 000</strong></td>
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</tr>
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**From 2013** **Iron ore products sold**

You can find more information and services on our web site: [www.sgu.se](http://www.sgu.se)

Box 670, 751 28 Uppsala
Sweden
018-17 90 00
sgu@sgu.se

You can also find us on:

- [www.youtube.com/user/sgusweden](http://www.youtube.com/user/sgusweden)
- [www.facebook.com/sgu.sverige](http://www.facebook.com/sgu.sverige)

The total area in Sweden covered by...

- **Active Mines (under the Mineral Act)**
  90 km²
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- **Quarries and gravel pits**
  270 km²
- **Reindeer herding**
  247 280 km²
- **National parks, nature**
  52 311 km²
- **Golf courses**
  280 km²
- **Wind Turbins, influence area**
  850 km²
- **Trade and business activities**
  240 km²
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Sources: Geological survey of Sweden and Statistics Sweden.
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- Use
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</table>

SGU is the government agency responsible for issues relating to bedrock, soil and groundwater in Sweden. Our mission is to meet society’s need for geological information. This includes producing annual statistics on the quantity of metals, minerals and aggregate produced in Sweden.

This folder provides an overview of what is produced and in what quantities. The information has been obtained from SGU annual reports: Bergverksstatistik, Grus, sand och krossberg and Energitorvproduktion (Statistics of Swedish Mining Industry, Aggregates and Production of energy peat).

You can find more information and services on our website: [www.sgu.se](http://www.sgu.se)

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The total area in Sweden covered by...

- Active Mines (under the Mineral Act) 90 km²
- Exploitation concessions 130 km²
- Quarries and gravel pits 270 km²
- Reindeer herding 247 280 km²
- National parks, nature 52 311 km²
- Golf courses 280 km²
- Wind Turbines, influence area 850 km²
- Trade and business activities 240 km²
- Manufacturing Industry 600 km²
- The surface area of Sweden is approximately 407 300 km²
Recycling
Recycling and reuse are among the most energy-efficient methods of reducing the impact of the mining and minerals industry on the environment. In Sweden we recycle much of our metals, but we can and must recycle even more.

Scrap metal, mining waste, other industrial waste and ageing urban infrastructure are examples of recycling sources. We recycle not only metals produced in Sweden, but also many of the materials that are imported. But recycling does not suffice to meet growing demand for metals and minerals in Sweden and across the globe. Recycling and mining operations are both needed.

Metals in Sweden, industrial use, mining production and recycling (tonnes/year, 2018)

<table>
<thead>
<tr>
<th>Metal</th>
<th>Mining production</th>
<th>Use</th>
<th>Recycling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper</td>
<td>121 790</td>
<td>100 000</td>
<td>57 000</td>
</tr>
<tr>
<td>Chromium</td>
<td>54 000</td>
<td>64 000</td>
<td>0</td>
</tr>
<tr>
<td>Aluminium</td>
<td>342 013</td>
<td>4 563 780</td>
<td>0</td>
</tr>
<tr>
<td>Zinc</td>
<td>54 800</td>
<td>0</td>
<td>7 800</td>
</tr>
<tr>
<td>Iron</td>
<td>237 715</td>
<td>1 300 000</td>
<td>27 526 000</td>
</tr>
</tbody>
</table>

1. You have an idea of where a deposit might be located. You can find useful data and maps in Geological survey of Sweden’s databases.
2. An application for an exploration permit is submitted to the Mining Inspectorate of Sweden. The inspectorate grants or refuses the application.
3. A work plan showing how operations are to be carried out must be produced and communicated to stakeholders.
4. If mining is considered appropriate, the inspectorate will grant an exploitation concession.
5. The Land Environment Court considers applications for environmental permits under the Environmental Code. Permits are granted on condition that the applicant put up a bond to cover clean-up costs.
7. The municipality grants building and land permits under the Planning and Building Act.
8. Mining can begin.

From exploration to mine
The steps from exploration to mining is an assessment process. Somewhat simplified, this is how it works:

Geology everywhere
Current living standards in Sweden owe much to the fact that we have been able to mine and use the rich metal and mineral assets present in the country. The first blast furnace used to make iron was built in Sweden as long ago as the 12th century. From the Middle Ages onwards Sweden was Europe’s main producer of iron and copper. Even today we remain the main producer of iron ore in the EU. We also produce significant quantities of lead, zinc, copper, gold and silver.

We are still entirely dependent on natural resources, domestic and imported. In fact, our per capita use of natural resources continues to rise:

- Metals are present in most of the products we use – everything from forks and bicycles to smart phones and solar panels.
- Industrial minerals such as limestone, feldspar and quartz are used in clothes, medicines, building materials, glass, electronics, etc.
- Aggregate is the name used for gravel, sand and crushed bedrock. Aggregate is needed for homes, roads and railways, and is one of the main components in asphalt and concrete.
- Dimension stone is used in building facades, for worktops, floors, gravestones and for many other purposes.
- Production of energy peat in Sweden reduces the need to import and use oil and coal.

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National parks, nature
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Golf courses
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Wind Turbins, influence area
850 km²
Trade and business activities
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Manufacturing Industry
600 km²
The surface area of Sweden is approximately 407 300 km²