Critical materials in the Dutch economy

Preliminary results

Statistics Netherlands

Centre for Policy Related Statistics

Explanation of symbols

.	= data not available
*	= provisional figure
**	= revised provisional figure
x	= publication prohibited (confidential figure)
–	= nil or less than half of unit concerned
–	= (between two figures) inclusive
0 (0,0)	= less than half of unit concerned
blank	= not applicable
2008–2009	= 2008 to 2009 inclusive
2008/2009	= average of 2008 up to and including 2009
2008/'09	= crop year, financial year, school year etc. beginning in 2008 and ending in 2009
2006/'07–2008/'09	= crop year, financial year, etc. 2006/'07 to 2008/'09 inclusive

Due to rounding, some totals may not correspond with the sum of the separate figures.

Publisher
Statistics Netherlands
Henri Faasdreef 312
2492 JP The Hague

Prepress
Statistics Netherlands - Grafimedia

Cover
TelDesign, Rotterdam

Information
Telephone +31 88 570 70 70
Telefax +31 70 337 59 94
Via contact form: www.cbs.nl/information

Where to order
E-mail: verkoop@cbs.nl
Telefax +31 45 570 62 68

Internet
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ISSN: 1877-3036

60186201001 X–43

Content

Summary

This explorative study addresses the question of the impact of critical materials on the Dutch economy. The study uses the 41 critical materials identified by the EU working group on defining critical raw materials, and supplements this list with 3 critical materials identified by the Dutch Ministry of Economic Affairs, Agriculture and Innovation. The research techniques used enable Statistics Netherlands to link information on the use of critical materials in certain industries and product groups to the economic value of these industries.

This study provides a first glance at the industries and product groups in which critical materials are used. The results are crude estimates based on an experimental method published on a high level of aggregation. The study identifies the following industries with a large occurrence of critical materials: Manufacture of basic metals and fabricated metal products, Manufacture of machinery and equipment n.e.c.[1] and Manufacture of transport equipment. The following product groups with a large occurrence of critical materials are identified: Glass and construction materials, Basic metals, Metal products, Machinery and equipment n.e.c., Office machinery and computers, Electrical machinery n.e.c., Medical, precision and optical instruments, Motor vehicles, Other transport equipment and Electricity and gas.

Further research should provide more insight into the occurrence of individual critical materials in the Dutch economy. More insight into product groups and industries in which critical materials are used and their specific dependence on the products will be welcome.

The authors would like to thank the colleagues from the Netherlands Organisation for Applied Scientific Research (TNO), the Institute of Environmental Sciences Leiden University (CML) and the departments of Environmental and National Accounts of Statistics Netherlands for their input, critical review and expert opinion in the light of this explorative study.

[1] Not elsewhere classified.

1. Introduction

1.1 Objective of the study

Within the framework of the interdepartmental project *'Duurzaam materialenbeheer'* (Sustainable management of materials) the Ministry of Economic Affairs, Agriculture and Innovation is interested in the dependency of the Dutch economy on 44 critical materials. The objective is to use this information in standardized policy initiatives at the national or European level. Since no data are available on the impact of critical materials on the Dutch economy, it is impossible to estimate the possibly negative effects of national or European policy measures on the Dutch economy.

Therefore, the Ministry of Economic Affairs, Agriculture and Innovation has commissioned Statistics Netherlands (CBS), the Netherlands Organisation for Applied Scientific Research (TNO) and the Institute of Environmental Sciences Leiden (CML) to assess the degree of direct dependency of the Dutch economy on a specified list of critical materials and to calculate the monetary use in 2007 of different product groups by various industries in which critical materials are used. For this purpose TNO, CML and CBS have combined their knowledge of materials with their knowledge of the economic use of products to construct an overall table containing the requested statistical information.

It should be emphasised that the nature of this study is explorative. The results presented are crude estimates based on an experimental method.

1.2 Method

Within the framework of the EU Raw Materials Initiative, an expert working group identified a list of critical raw materials at the EU level[2]. The working group analysed a selection of 41 minerals and metals. Raw material was labelled critical when there was a higher risk of supply shortage and greater impact on the economy than with most other raw materials. Figure 1 shows the importance of the critical materials listed by the EU working group. The X-axis reflects the positioning of the material in relation to its importance to the EU economy. The results range from very low (talc) to very high (manganese). The Y-axis reflects the positioning of the material in relation to the supply risks that have been identified by the EU working group. The production of a material in a few countries marked by political and economic instability, coupled to a low recycling rate and low substitutability, will result in a very high supply risk. The results range from very low (titanium) to very high (rare earths).

Three sub-clusters of points can be distinguished, one point for each raw material, as illustrated in figure 1. The top right corner in figure 1 can be implicitly delimited by

[2] European Commission, Enterprise and Industry, Report of the ad-hoc Working Group on defining critical raw materials, June 2010.

horizontal and vertical lines that are the thresholds above which the raw materials are considered as critical.

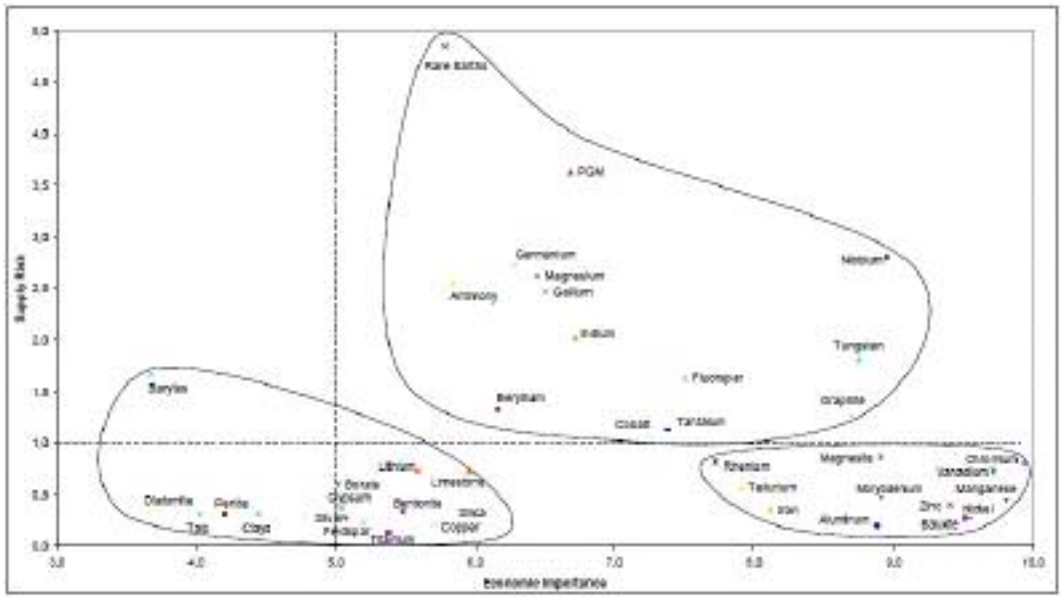
Three sub-clusters of points (one point for each raw material) can be distinguished as illustrated in figure 1. A number of materials are positioned in the top right corner of the figure in a separate sub-cluster of points. The EU working group regards these 14 raw materials as the most critical, because they are of great economic importance and have a high supply risk.

In addition to this list of 41 minerals and metals listed by the EU working group, three materials are added for the Netherlands based on input from experts and the Ministry of Economic Affairs, Agriculture and Innovation. Including phosphorus, uranium and gold, this results in our final list of 44 critical materials.

A three-step approach was followed in the current study.

1. CBS provided a classification of product groups based on the most detailed categorization used within the system of national accounts.
2. TNO and CML provided expert knowledge on each of these product groups, and estimated the amount of critical materials required to produce each product group. The estimates were based on desk research and expert judgment. The result of this work was a *Product Material Matrix* in which the 44 critical materials are linked to approximately 400 product groups.
3. CBS calculated to what extent the intermediate use of products by industries consists of critical materials based on the most detailed categorization of product groups used by the national accounts and the *Product Material Matrix* of TNO and CML. The results are aggregated and displayed at the standard publication level of the national accounts. The results show which industries and product groups require critical materials. The critical materials indicator is broken down into a three point scale: small occurrence, average occurrence and large occurrence of critical materials.

1. Critical materials listed by the EU working group



Source: European Commission, Enterprise and Industry, *Critical raw materials for the EU*. Report on the ad-hoc Working Group on defining critical raw materials, p. 6: <http://ec.europa.eu/enterprise/policies/raw-materials/files/docs/report-b_en.pdf>

1.3 Contents of tables

This report contains two tables. Table 1 shows the standard use table of the system of national accounts extended with the indicator 'Occurrence of Critical Materials'. The list of 44 critical materials is used in this table. The first column of this extended use table indicates the critical materials by product group by using four different colours (indicating no, small, average or large occurrence of critical materials). The first row added to the use table shows the dependency of critical materials by industry. The other cells in table 1 contain the total intermediate consumption of the product groups by industries, and are not restricted to the intermediate consumption of critical materials.

The layout of table 2 is identical to table 1. However, the analysis that underlies the results is based on the 14 most critical materials listed by the EU working group.

2. Results

This section outlines the main results of this explorative study on the use of critical elements. These results should be interpreted with caution. The main objective of the study was to establish a link between the use of critical raw materials in the Dutch economy and the economic value involved. It is a first tentative overview of where dependencies of critical materials can be found in the Dutch economy. Note that the dependencies, as estimated by the indicator in this study, signify the proportion of critical materials in terms of intermediate use. The indicator does not point out the importance of the critical materials in the functioning of the products involved. It is therefore too early to draw solid conclusions on the basis of this study. For further remarks on the interpretation of the results, see the description of the research in section 3.

2.1 Critical materials by product group

Table 1 shows the standard use table of the system of national accounts extended with the indicator 'Occurrence of Critical Materials'. This indicator is numeric and colour coded along the product groups (column) and the industries (rows). The colour code depends on the aggregation level of product groups and industries. If for instance the product group agricultural products (rated '0': no occurrence of critical materials) would have been mixed with textiles (rated '1': small occurrence) the resulting aggregate product group would have obtained a '1'.

A significant number of product groups at the publication level seem to contain little or no critical materials at all. These are for example fuels and agricultural products.

Product groups scoring high on critical materials are glass and building materials, basic metals, metal products, machinery and equipment, office machinery and computers, electronic machines, medical, precision and optical equipment, cars, other transport and electricity and gas.

2.2 Critical materials by industries

Critical materials are used throughout the Dutch economy. Every industry consumes critical materials, but expressed in terms of monetary value of intermediate use certain industries are more dependent on critical materials than others.

As figure 2 shows, industries that are most effected by critical materials are the manufacture of basic metals and metal products, the manufacture of machinery and equipment and the manufacture of transport equipment.

2. Industry dependency on critical materials ranked by percentage of intermediate use

Industry	*Occurrence indicator*
Manufacture of transport equipment	3
Manufacture of basic metals and fabricated metal products	3
Manufacture of machinery and equipment n.e.c.	3
Electricity, gas and water supply	2
Manufacture of electrical and optical equipment	2
Construction	2
Other manufacturing	2
Goods and services n.e.c.	1
General government	1
Manufacture of paper, paper products, publishing and printing	1
Agriculture, forestry and fishing	1
Trade and repair	1
Manufacture of textile and leather products	1
Manufacture of chemicals, chemical products and man-made fibres	1
Service activities n.e.c.	1
Manufacture of rubber and plastic products	1
Transport, storage and communication	1
Health and social work activities	1
Mining and quarrying	1
Hotels and restaurants	1
Manufacture of food products, beverages and tobacco	1
Business activities and renting of movables	1
Real estate activities	1
Financial intermediation	1
Manufacture of petroleum products	1

Table 1 also shows the value added and employment of the industries in rows 57 and 58. When this information is combined with the colour coding scheme, the value added and employment can be roughly quantified. Again, the colour coding depends on the level of aggregation chosen in breakdown. If the economy had been broken down into just a few industries, probably no industry would be classified as red.

Industries with a greater dependency on critical materials represent a relatively small part of the Dutch Economy. This is due to the nature of the Dutch economy, which is mainly focused on services and not on the production of machinery or (transport) equipment.
Table 2 shows the occurrence indicator for the 14 most critical materials. Expressed in monetary value, the Dutch economy does not seem to have a very high direct dependency on these 14 materials. Only two relatively small product groups have an average occurrence of these most critical materials.

2.3 Comments

The results only give a crude estimate of the dependency of critical materials in the Dutch economy. Various observations should be made.

Price effects

First of all, in this explorative study the assumption is used that mass percentage of critical materials within a product group equals value percentage. No price effects are considered.

Aggregates

Secondly, the indicator is dependent on the chosen breakdown of industries and product groups. The product groups and industries are aggregates. This means that within the product groups and industries a specific product may have a large share of critical materials/elements. This large occurrence is not always visible in the published results due to aggregation. For example: the manufacture of fertilizers requires a large amount of critical elements (large occurrence). Fertilizers are part of the product group chemical products and man-made fibres. Since most of the products within this product group require little or no critical materials, the product group in total has an average score of 1 (less occurrence) on the critical materials indicator.

Fixed capital formation

Thirdly, products can be either used for intermediate consumption or to satisfy final demand. Final demand consists of exports, final consumption by households or government, changes in inventories and capital formation (investments). Products used as investments, such as robots and machines used in production, can also contain critical materials.

Indirect dependence

The current tables do not express indirect dependencies. The indicator provides a static picture, as it only considers direct effects. Indirect effects, that occur when supply chains are analyzed, are not taken into account.

The product group of manufacturing cars, for example, depends on input from the product group electricity and gas. For this reason, product groups cannot simply be seen in isolation when it comes to reliance on critical elements. Ideally, the complete supply chain should be considered.

3. Description of the research and recommendations

3.1 Economic territory

The system of national accounts represents the official statistical review of the Dutch economy by Statistics Netherlands. Concepts and classifications of the national accounts are standardized and laid down in international guidelines, which makes it possible to make comparisons between countries.

The Dutch national accounts refer to the economic territory of the Kingdom of the Netherlands in Europe. The Dutch section of the continental shelf in the North Sea is also regarded as a part of that economic territory. The economies of the Netherlands Antilles (Curacao, Bonaire, part of the Island of St. Martin, St. Eustatius and Saba) are not described in the Dutch national accounts.

3.2 Method and operationalisation

TNO and CML provided a *Product Material Matrix* in which the 44 critical materials are linked to the approximately 400 product groups (goods) used within the national accounts. The matrix shows for each product group whether it contains any of the listed materials, as well as quantification in terms of its mass percentage (on a scale of 0 to 3). Statistics Netherlands assigned an overall score to each product group by assigning the highest score on any of the 44 materials to the product group (similar to a precautionary approach).

In a subsequent step, Statistics Netherlands linked the matrix with scores for each product group to the most detailed use table available in the national accounts.

The proportion of intermediate consumption that is critical is estimated based on the classification of ‘mass percentages’. For instance when industry x consumes a product group y that is classified with a 2, it is assumed that 50 percent of its intermediate consumption is critical. As a result we obtain a matrix in which intermediate consumption of critical materials in approximately 600 product groups (both goods and services) and industries are juxtaposed.

Critical Material Indicator

In a next step, the estimated consumption of critical materials of the 600 product groups was aggregated to the publication level of 45 product groups by Statistics Netherlands. The results are presented in the form of an indicator ‘Critical materials by product group’ which estimates the percentage of intermediate consumption of each product group that is critical. This indicator is essentially a weighted average of the detailed product groups that make up an aggregated product group, where the weights consist of the intermediate consumption of each detailed product group multiplied with their score (i.e. the assumed mass percentages).

The result is a percentage score that is classified into one of four categories:

- 0: no occurrence of critical materials;
- 1: small occurrence of critical materials (less than 15 percent of total intermediate consumption of this product group is critical);
- 2: average occurrence of critical materials (more than 15 percent, but less than 50 percent);
- 3: large occurrence of critical materials (more than 50 percent).

Finally the indicator ‘Critical materials by industry’ is compiled. This indicator points out which industries consume the product groups with occurrence of critical materials. The aggregation method and categories used for classification are similar to the indicator ‘Critical materials by product group’.

3.3 Source Files

Product Material Matrix

Based on desk research and expert judgment TNO and CML estimated the amount of critical materials required to produce the product groups of the national accounts. All the estimates have been checked by multiple material experts. The result of this work was a *Product Material Matrix* in which the 44 critical materials are linked to approximately 400 product groups.

The matrix indicates for each product group, whether it contains any of the listed materials. The following four-scale classification of 'mass percentages’ is used for quantification:

- 0: mass percentage equals 0%
- 1: mass percentage is less than 15%
- 2: mass percentage is between 15% and 50%
- 3: mass percentage is larger than 50%

As an example we consider a warship. The product group warship scores '1' on iron, '2' on aluminium and copper and '1' on various materials used for armour, turbine bolts, wiring etc. Using this information, an overall score of the product group warships can be obtained.

Box: Methodological choices Product-Material Matrix by TNO and CML

The following methodological choices were made during the research process:

- It was decided to only grant a score if the material has a value essential to the product function. For example, coal contains traces of many critical materials but these materials do not determine the value of coal as a fuel for the industries that use it.
- Some materials are used, but are not part of the end product. This is the case

with the use of catalysts in production. These materials are not included in the estimates. The catalysts themselves are of course seen as a standalone product group.

- The list of materials is not consistent in distinguishing between materials at the elementary level or at the compound level. Example: Titanium vs. TiO2, Aluminium vs. Bauxite. The choice was made to make a distinction only when the appropriate links were in the list (like aluminium).
- Some product groups are defined very broadly. So, it appears that there is great diversity in the products of these groups. It was difficult to make a meaningful quantification for these groups.
- Wastes are not included in the analysis, because, if used, they are part of a (more or less) closed material cycle.

Use Table

The system of national accounts[3] shows a quantitative overview of the economic process of a country and its economic relations with the rest of the world. Intermediate consumption is distinguished as a part of the economic process. Intermediate consumption includes all goods and services used up in the production process in the accounting period, regardless of the date of purchase. This includes, for example, fuel, raw materials, semi manufactured goods, communication services, cleansing services and audits by accountants. Intermediate consumption is valued at purchasers' prices, excluding deductible VAT.

Not included in intermediate consumption are:

- purchases of goods by trade enterprises, which are resold without undergoing any processing;
- purchases of goods used in the production process with a life span of more than one year (investments). These purchases are recorded as fixed capital formation. The use of these goods is spread over their economic life span and recorded as consumption of fixed capital.

The use table of the national accounts describes the use of different kinds of product in the Dutch economy. A distinction is made between intermediate consumption by industry (column 1-26) and fixed capital formation (column 27).

A row in the use table describes the destination of each product. For example cell 1,3 shows the monetary value of intermediate consumption of agricultural products by enterprises manufacturing food products, beverages and tobacco.

A column in the intermediate section of the use table shows the products used by a certain sector (row 1-45). For example cell 46,2 shows the total intermediate consumption of mining and quarrying. Extra indicators are the value added generated in the production

[3] For more information about the national accounts see the publication ‘National accounts of the Netherlands, 2009’.

process of an industry (row 47), labour input of employed personnel (row 48) and information on the size classes of the enterprises within the industry (row 49-51). The gross value added of mining and quarrying (at basic prices) can be found in cell 47,2.

3.4 Quality of the results

This study has to be considered as preliminary research, which provides an overview of where dependencies of critical elements can be found in the Dutch economy. It is difficult to draw solid conclusions on the basis of this study.

Product Material Matrix

The Product Material Matrix shows the critical materials composition for each product group. From the information in the table TNO infers the following:

A quantitative estimate is provided in terms of mass percentage for the product groups that contain critical material. These estimates are useful when calculating the share made up by material costs of critical materials. However, these numbers should be used with caution when drawing conclusions on the material dependency of the Dutch economy. To understand this, consider the case where the amount of material used in a product is small: this does not mean that the material is insignificant. For example, most critical metals applied in high-tech industries are actually used in very small quantities but they cannot not always be substituted by less critical alternatives. Contrarily product groups containing large mass percentages of critical materials do not necessarily point out the most sensitive parts of the economy. Rather, they are related to traditional bulky products made of iron, aluminium and steel.

The previous paragraphs indicate that quantification does not entirely answer the most important questions in the use of critical materials. Each cell in the table hides a world of inputs and outputs, of technologies and innovations in 2007. The information needed to uncover the details for each product group is not easy to grasp from a single table.

Occurrence of critical materials indicator

The indicator points out to what extent product groups and industries use critical materials. Therefore, the indicator gives an estimate of the maximum amount of material that is required. For this, CBS used the ‘mass rate’ from the *Product Material Matrix* to divide the intermediate consumption of a most detailed product group in ‘less occurrence of critical materials’, ‘average occurrence’ and ‘large occurrence’ without taking price differences into account. Therefore the monetary use of critical materials may present a higher or lower contribution of critical materials than specified by the indicator.

3.5 Recommendations for further research

This is an explorative study. The results presented are crude estimates based on an experimental method. The issue of material scarcity will remain very urgent for decennia to come. The recommendation is therefore to establish a future research agenda on this topic.

This section describes suggestions from TNO, CML and CBS for further research in order to give a more precise answer to the question of the dependency of the Dutch economy on critical materials.

Disaggregated analysis

Disaggregated analyses of product groups and industries are required if we want better insights in the criticality of material use in certain products and industries.

- The results of this study point out that a more disaggregated approach is needed in order to derive insights into the vulnerability of industries. This could be done by focusing on particular industries and considering material flows at the level of actual value chains. Techniques such as input-output analysis in combination with detailed information on physical flows of materials in the economy can be used to estimate the indirect effects critical materials may have on the economy.
- With the foregoing research it is possible to calculate the material flows in the Dutch economy more precisely and in accordance with the national accounts in terms of monetary use. Using more detailed information may also make it possible to use price information.
- Another option is to take a more qualitative approach. When considering the *Product Material Matrix,* particular critical materials re-occur together in sets, in various product groups. This has to do with the nested hierarchy of product structures. For example, a piece of painted clothing will contain at least the elements that the paint itself contains. If we understand how complex product groups are assembled from basic groups, it may be possible to come up with a modular analysis of material use in the economy. Using such an approach may make it possible to evaluate scarcity in relation to the structure of our economy.

Technical improvements

- The current study describes the occurrence of critical materials in terms of intermediate use. For a complete overview of the consumption of critical materials it is important to incorporate fixed capital formation in more detail by analyzing the occurrence of critical materials within investments and distributing fixed capital formation across the industries.
- Future studies should distinct between bulk metals and high-tech metals. The future development of supply and demand will be very different for both categories. For example, the demand of bulk metals (iron, aluminium) will increase according to predictable demographic growth patterns. Whereas the demand of high-tech metals will depend on future innovations and is therefore rather unpredictable.
- Future studies should clarify the effects of cross-boarder transactions. For example, how do we account for the material use of Dutch production facilities based in China.
- Future studies should relate the use of critical materials to environmental impact and energy use.

4. Glossary, literature and abbreviations

4.1 Glossary

Intermediate consumption

Intermediate consumption includes all goods and services used up in the production process in the accounting period, regardless the date of purchase. This includes for example fuel, raw materials, semi manufactured goods, communication services, cleansing services and audits by accountants.

Intermediate consumption is valued at purchasers' prices, excluding deductible VAT. For companies, which do not need to charge VAT on their sales, the VAT paid on their purchases is non-deductible. It is therefore recorded as a component of intermediate consumption.

Not included in intermediate consumption are:

− purchases of goods by trade enterprises, which are resold without undergoing any processing.

− purchases of goods used in the production process with a life span of more than one year. These purchases are recorded as fixed capital formation. The use of these goods is spread over their economic life span and recorded as consumption of fixed capital.

Value added

Value added at basic prices by industry is equal to the difference between output (basic prices) and intermediate consumption (purchasers' prices).

Fixed capital formation

Purchases of goods used in the production process with a life span of more than one year. These purchases are recorded as fixed capital formation. The use of these goods is spread over their economic life span and recorded as consumption of fixed capital.

4.2 Literature

European Commission, Enterprise and Industry, Critical raw materials for the EU. Report on the ad-hoc Working Group on defining critical raw materials, June 2010

Statistics Netherlands, *National Accounts of the Netherlands 2009, Official statistical review of the Dutch economy, August 2010*

TNO, *Product Material Matrix, Expert guess about estimating the amount of critical materials, October 2010*

4.3 Abbreviations

CBS	Statistics Netherlands
CML	Institute of Environmental Sciences
EU	European Union
n.e.c.	Not elsewhere classified
TNO	Dutch Organization for Applied Scientific Research

Appendix aggregated Product Material Matrix

Aggregated Product Material Matrix[1)]

	Product group	Critical Material	Most Critical													
			Antimony	Beryllium	Cobalt	Fluorspar	Gallium	Germanium	Graphite	Indium	Magnesium	Niobium	Platinum group metals	Rare earths	Tantalum	Tungsten
1	Products of agriculture	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Products of forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Products of fishing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Crude petroleum and natural gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Other mining and quarrying products	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Food products and beverages	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Tobacco products	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Textiles	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
9	Wearing apparel	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
10	Leather and leather products	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
11	Wood and wood products (excl. furniture)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Paper en paper products	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0
13	Printed matter and recorded media	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
14	Petroleum products	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Chemical products and man-made fibres	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	Rubber and plastic products	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	Glass and construction materials	1	0	0	0	0	0	0	1	0	1	1	0	1	1	1
18	Basic metals	1	1	1	1	0	0	0	1	0	1	1	1	1	1	1
19	Metal products	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
20	Machinery and equipment n.e.c.	1	1	0	1	0	0	1	0	1	0	0	0	0	0	1
21	Office machinery and computers	1	1	0	1	0	0	0	1	1	0	0	0	0	0	0
22	Electrical machinery n.e.c.	1	1	1	1	0	0	1	1	1	1	0	0	1	0	1
23	Radio, television and communication apparatus	1	1	1	1	0	1	1	0	1	0	0	0	0	1	0
24	Medical, precision and optical instruments	1	1	1	1	0	1	1	0	1	0	0	0	0	1	0
25	Motor vehicles	1	1	0	1	0	0	0	0	0	1	0	1	0	0	1
26	Other transport equipment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	Furniture and other manufactured goods	1	1	1	1	0	0	1	1	1	1	0	1	1	0	1
28	Electricity and gas	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Construction work	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Repair of consumer goods (incl. motor vehicles)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Hotel and restaurant services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	Transport services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Post and telecommunications services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Financial intermediation services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Real estate services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	Renting services of movables	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Business services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Public administration, defence, social security	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Education	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Health and social work services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Services n.e.c.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Not imputed goods and services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	Contract wages for services, finishing and trade services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Non-deductible VAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

1) The total Product Material Matrix including 'Mass rate' is available on request at TNO.

0 – Product group contains no listed materials;

Economic importance												Less critical and less economic importance															Extra		
Aluminium	Bauxite	Chromium	Iron	Magnesite	Manganese	Molybdenum	Nickel	Rhenium	Tellurium	Vanadium	Zinc	Barytes	Bentonite	Borates	Clays (and caolin)	Copper	Diatomite	Feldspar	Gypsum	Limestone (high grate	Lithium	Perlite	Silica	Silver	Talc	Titanium	phosphorus	uranium	gold
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	1	0	0	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	1	0	0	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	1	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	1	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	0	1	1	1	1	1	0	1
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	1	1	0	0	1	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0	0	0
1	1	1	1	0	1	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1
1	0	1	1	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	1	0	1	1	1	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	1	0	1	1	0	0	0
1	0	1	1	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	1	1	0	0	1
1	0	1	1	0	1	0	1	0	0	1	1	1	0	0	1	1	0	0	0	0	1	0	1	1	1	1	1	0	0
1	0	1	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1	1	0	0	1
1	0	1	1	0	0	0	1	0	1	1	0	1	0	0	0	1	0	0	0	0	1	0	1	1	1	1	0	0	1
1	0	1	1	0	1	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0
1	0	1	1	0	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	0	1	0	1	1	0	1	0	1	0
1	0	1	1	0	1	1	1	0	0	1	1	0	0	0	0	1	0	0	0	0	1	0	0	1	1	1	1	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

1 – Product group contains listed materials;

Tables

Tables

Table 1	Use table of the National Accounts by occurrence of 44 critical materials, purchasers' prices (million euro), 2007
Table 2	Use table of the National Accounts by occurrence of 14 most critical materials, purchasers' prices (million euro), 2007

Table 1
Use table of the National Accounts1) by occurrence of 44 'critical' materials, purchasers' prices (mln euro), 2007

	Indicator Critical Materials by product group	Agriculture, forestry and fishing	Mining and quarrying	Manufacture of food products, beverages and tobacco	Manufacture of textile and leather products	Manufacture of paper, paper products, publishing and printing	Manufacture of petroleum products	Manufacture of chemicals, chemical products and man-made fibres	Manufacture of rubber and plastic products	Manufacture of basic metals and fabricated metal products	Manufacture of machinery and equipment n.e.c.	Manufacture of electrical and optical equipment
	-	1	2	3	4	5	6	7	8	9	10	11
- **Indicator Critical Materials by industry**		1	1	1	1	1	1	1	1	3	3	2
1 Products of agriculture	0	4 564	17	14 468	6	11	3	24	28	12	8	30
2 Products of forestry	0	0	0	0	3	15	0	9	1	0	0	0
3 Products of fishing	0	9	0	133	0	0	0	2	0	0	0	0
4 Crude petroleum and natural gas	0	0	1 915	307	0	188	21 234	3 530	49	181	1	20
5 Other mining and quarrying products	1	130	126	43	3	12	1	325	5	1 352	1	0
6 Food products and beverages	0	3 759	0	14 766	26	47	0	972	2	0	0	0
7 Tobacco products	0	0	0	114	0	0	0	0	0	0	0	0
8 Textiles	1	50	2	54	1 059	104	0	41	46	23	5	19
9 Wearing apparel	1	15	1	7	4	4	0	2	1	3	4	6
10 Leather and leather products	1	11	0	4	89	3	0	1	0	2	2	28
11 Wood and wood products (excl. furniture)	1	188	8	70	6	40	5	63	41	77	17	23
12 Paper en paper products	1	27	5	1 399	24	3 734	7	279	147	103	43	120
13 Printed matter and recorded media	1	26	3	255	15	2 052	10	61	14	42	47	63
14 Petroleum products	1	693	54	160	15	64	4 232	6 205	20	101	48	198
15 Chemical products and man-made fibres	1	759	11	526	427	582	697	18 949	2 672	269	55	372
16 Rubber and plastic products	1	148	10	661	44	329	12	376	561	267	338	392
17 Glass and construction materials	3	89	5	296	0	0	0	81	25	156	29	153
18 Basic metals	3	1	16	0	2	31	0	323	59	6 221	1 161	1 125
19 Metal products	3	37	64	894	4	13	4	258	38	4 024	1 887	565
20 Machinery and equipment n.e.c.	3	696	138	128	11	37	65	210	57	293	3 612	147
21 Office machinery and computers	3	19	15	151	11	71	35	174	28	114	105	547
22 Electrical machinery n.e.c.	3	2	50	94	8	35	19	102	17	239	694	1 440
23 Radio, television and communication apparatus	2	1	0	0	0	0	0	0	0	38	308	769
24 Medical, precision and optical instruments	3	4	0	0	0	0	0	16	0	3	1 081	774
25 Motor vehicles	3	5	0	7	1	2	0	4	8	3	21	0
26 Other transport equipment	3	20	8	0	0	0	0	0	0	0	0	0
27 Furniture and other manufactured goods	2	2	2	16	25	4	10	42	43	328	64	10
28 Electricity and gas	3	1 571	1 313	850	70	342	113	1 228	180	693	179	188
29 Water	0	123	3	52	2	12	2	36	3	24	9	9
30 Construction work	0	261	47	75	9	42	11	77	16	45	51	75
31 Repair of consumer goods (incl. motor vehicles)	0	117	11	63	3	10	3	31	8	25	23	12
32 Hotel and restaurant services	0	17	12	127	19	95	11	98	25	78	91	129
33 Transport services	0	139	240	315	25	105	92	181	33	122	116	128
34 Post and telecommunications services	0	197	33	113	19	324	16	89	23	72	103	106
35 Financial intermediation services	0	503	144	480	52	246	181	463	70	234	211	207
36 Real estate services	0	105	35	248	45	266	89	178	93	311	246	132
37 Renting services of movables	0	179	200	290	29	231	30	190	81	293	229	121
38 Business services	0	1 338	463	4 398	296	2 123	524	4 584	630	1 959	2 443	6 189
39 Public administration, defence, social security	0	20	4	22	6	8	4	13	1	8	6	16
40 Education	0	12	9	93	8	52	17	88	15	64	56	85
41 Health and social work services	0	301	3	45	2	18	4	26	7	27	18	20
42 Services n.e.c.	0	336	19	185	22	211	28	177	23	68	59	52
43 Not imputed goods and services	0	8	8	72	19	74	10	106	20	53	90	137
44 Contract wages for services, finishing and trade services	-	48	95	646	455	637	49	1 310	212	1 787	1 562	1 513
45 Non-deductible VAT	-	0	0	0	0	0	0	0	0	0	0	0
46 Total of rows 1–45	1	16 530	5 089	42 627	2 864	12 174	27 518	40 924	5 302	19 741	15 023	15 920
Extra indicators												
47 Value added (gross, basic prices)	-	10 548	15 655	13 112	1 208	7 754	2 774	11 671	2 085	8 740	7 330	4 065
48 Labour input of employed persons (1000 full-time equivalent jobs)	-	209	7	117	19	98	6	63	32	114	87	79
Enterprises by sizeclass (%)												
49 Small enterprises (1 to 10 persons employed)	-	98	74	66	89	81	43	52	57	72	67	78
50 Mid size enterprises (10 to 100 persons employed)	-	2	22	29	10	17	43	33	36	25	29	20
51 Large enterprises (100 persons employed or more)	-	0	4	5	1	2	14	15	6	2	4	2

1) The table shows the total intermediate consumption of the product groups and industries, so not only the value of the consumption of the 'critical' materials.

0 – no occurrence of critical materials;
1 – small occurrence of critical materials (less then 15 percent);

Manufacture of transport equipment	Other manufacturing	Electricity, gas and water supply	Construction	Trade and repair	Hotels and restaurants	Transport, storage and communication	Financial intermediation	Real estate activities	Business activities and renting of movables	General government	Health and social work activities	Service activities n.e.c.	Goods and services n.e.c.	Total colums 1–25	Fixed capital formation (gross)
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
3	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2
7	17	123	90	121	447	78	36	122	27	249	213	199	242	21 142	236
0	104	0	5	0	0	0	0	0	0	11	0	0	1	149	0
0	0	0	0	0	27	0	0	0	0	4	11	0	0	186	0
0	171	7 703	0	0	0	0	0	0	0	0	0	0	0	35 299	210
7	705	642	1 001	18	0	0	0	0	0	149	0	0	0	4 520	0
0	161	18	21	47	3 699	30	6	4	117	199	899	790	614	26 177	0
0	0	0	0	0	1	0	0	0	0	0	0	0	10	125	0
43	216	0	8	147	21	32	4	0	18	49	129	32	2	2 104	353
4	10	0	29	60	17	78	7	5	63	133	84	35	4	576	27
0	149	0	11	14	3	10	2	1	5	8	21	8	4	376	0
53	1 165	90	2 552	165	8	31	10	356	238	50	19	163	46	5 484	309
40	195	12	52	412	119	78	222	21	462	304	430	81	9	8 325	0
22	60	35	46	1 657	84	347	681	58	1 901	1 148	400	321	46	9 394	0
33	125	362	523	1 581	43	4 387	203	40	1 146	497	26	362	0	21 118	0
210	803	173	784	286	6	0	10	12	539	243	2 091	296	15	30 814	0
637	584	71	1 658	772	11	193	27	85	381	76	219	78	16	7 946	370
104	1 098	16	6 187	70	61	0	0	467	107	86	67	157	0	9 254	208
696	664	168	1 321	59	0	0	0	7	2	44	0	17	0	11 917	0
1 545	316	32	4 946	1 000	7	2	9	8	771	502	27	174	74	17 201	1 710
534	192	260	1 460	622	39	414	50	120	640	664	42	191	24	10 646	9 307
53	72	40	118	287	26	140	43	6	142	210	99	113	0	2 619	5 050
525	62	235	1 489	286	37	405	5	16	33	177	23	106	28	6 127	543
310	1	11	567	76	0	730	3	0	21	46	16	0	24	2 921	841
185	0	11	29	50	0	93	0	0	338	154	918	6	32	3 694	1 797
4 240	8	0	28	1 633	0	0	0	0	8	154	0	5	0	6 127	11 315
647	7	0	17	38	0	1 360	0	0	0	240	0	0	0	2 337	1 651
67	284	9	421	123	12	3	28	93	74	110	61	84	30	1 945	3 440
117	438	9 668	156	1 901	784	625	294	62	673	1 128	737	1 110	0	24 420	127
7	11	113	0	94	9	54	12	13	32	60	44	36	0	760	0
25	96	281	18 643	368	120	1 128	359	9 813	2 094	4 595	515	664	0	39 410	44 040
13	59	47	289	1 103	11	885	176	34	1 128	103	51	236	0	4 441	0
49	60	57	36	835	67	1 297	424	70	766	622	458	324	0	5 767	0
63	160	19	230	2 721	174	8 719	123	35	587	353	253	225	3	15 161	0
38	86	89	288	2 006	137	4 619	1 914	490	1 228	915	603	811	0	14 319	0
138	172	300	883	2 175	264	986	16 720	1 400	1 925	706	539	969	0	29 968	195
111	283	66	344	5 827	881	1 600	570	1 135	2 325	694	924	863	0	17 371	1 638
90	199	131	933	1 929	69	760	227	32	2 316	91	133	625	0	9 408	0
1 159	1 522	2 869	3 615	15 091	1 416	10 069	6 922	1 428	28 780	7 923	1 969	3 846	10	111 566	17 308
12	10	24	58	114	22	44	83	4	95	2 277	34	32	0	2 917	606
31	37	36	59	542	36	113	44	21	830	325	166	55	0	2 794	0
10	41	17	37	180	7	131	151	7	180	462	1 403	33	0	3 130	0
37	121	76	471	381	420	231	93	79	1 173	3 683	790	6 189	0	14 924	0
26	65	29	499	1 489	80	2 627	24	159	639	332	43	111	0	6 720	4 144
1 408	588	1 148	125	4 537	2	303	292	91	213	21	10	32	0	17 084	0
0	0	0	0	0	0	117	1 860	1 238	0	3 617	1 460	879	18	9 189	10 332
13 926	11 117	24 981	50 029	50 817	9 167	42 719	31 634	17 532	52 017	33 414	15 927	20 258	1 252	577 872	115 757
3 908	8 933	9 894	28 181	66 941	9 340	35 272	30 014	41 961	69 561	56 145	43 867	18 691	-	507 650	-
47	182	29	462	1 080	203	407	255	71	1 141	782	849	390	-	6 728	-
78	86	88	90	90	89	84	91	94	92	83	90	92	-	90	-
19	12	5	9	10	10	15	8	5	7	9	7	7	-	9	-
3	2	7	1	1	0	2	1	0	1	8	2	1	-	1	-

2 – average occurrence of critical materials (more then 15 percent, but less then 50 percent);
3 – large occurrence of critical materials (more then 50 percent).

Table 2
Use table of the National Accounts1) by occurrence of 14 most 'critical' materials (EU), purchasers' prices (mln euro), 2007

		Indicator Critical Materials by product group	Agriculture, forestry and fishing	Mining and quarrying	Manufacture of food products, beverages and tobacco	Manufacture of textile and leather products	Manufacture of paper, paper products, publishing and printing	Manufacture of petroleum products	Manufacture of chemicals, chemical products and man-made fibres	Manufacture of rubber and plastic products	Manufacture of basic metals and fabricated metal products	Manufacture of machinery and equipment n.e.c.	Manufacture of electrical and optical equipment
		-	1	2	3	4	5	6	7	8	9	10	11
-	**Indicator Critical Materials by industry**		1	1	1	1	1	1	1	1	1	1	1
1	Products of agriculture	0	4 564	17	14 468	6	11	3	24	28	12	8	30
2	Products of forestry	0	0	0	0	3	15	0	9	1	0	0	0
3	Products of fishing	0	9	0	133	0	0	0	2	0	0	0	0
4	Crude petroleum and natural gas	0	0	1 915	307	0	188	21 234	3 530	49	181	1	20
5	Other mining and quarrying products	1	130	126	43	3	12	1	325	5	1 352	1	0
6	Food products and beverages	0	3 759	0	14 766	26	47	0	972	2	0	0	0
7	Tobacco products	0	0	0	114	0	0	0	0	0	0	0	0
8	Textiles	1	50	2	54	1 059	104	0	41	46	23	5	19
9	Wearing apparel	1	15	1	7	4	4	0	2	1	3	4	6
10	Leather and leather products	1	11	0	4	89	3	0	1	0	2	2	28
11	Wood and wood products (excl. furniture)	0	188	8	70	6	40	5	63	41	77	17	23
12	Paper en paper products	1	27	5	1 399	24	3 734	7	279	147	103	43	120
13	Printed matter and recorded media	1	26	3	255	15	2 052	10	61	14	42	47	63
14	Petroleum products	0	693	54	160	15	64	4 232	6 205	20	101	48	198
15	Chemical products and man-made fibres	1	759	11	526	427	582	697	18 949	2 672	269	55	372
16	Rubber and plastic products	0	148	10	661	44	329	12	376	561	267	338	392
17	Glass and construction materials	1	89	5	296	0	0	0	81	25	156	29	153
18	Basic metals	1	1	16	0	2	31	0	323	59	6 221	1 161	1 125
19	Metal products	1	37	64	894	4	13	4	258	38	4 024	1 887	565
20	Machinery and equipment n.e.c.	1	696	138	128	11	37	65	210	57	293	3 612	147
21	Office machinery and computers	1	19	15	151	11	71	35	174	28	114	105	547
22	Electrical machinery n.e.c.	2	2	50	94	8	35	19	102	17	239	694	1 440
23	Radio, television and communication apparatus	1	1	0	0	0	0	0	0	0	38	308	769
24	Medical, precision and optical instruments	1	4	0	0	0	0	0	16	0	3	1 081	774
25	Motor vehicles	1	5	0	7	1	2	0	4	8	3	21	0
26	Other transport equipment	2	20	8	0	0	0	0	0	0	0	0	0
27	Furniture and other manufactured goods	1	2	2	16	25	4	10	42	43	328	64	10
28	Electricity and gas	0	1 571	1 313	850	70	342	113	1 228	180	693	179	188
29	Water	0	123	3	52	2	12	2	36	3	24	9	9
30	Construction work	0	261	47	75	9	42	11	77	16	45	51	75
31	Repair of consumer goods (incl. motor vehicles)	0	117	11	63	3	10	3	31	8	25	23	12
32	Hotel and restaurant services	0	17	12	127	19	95	11	98	25	78	91	129
33	Transport services	0	139	240	315	25	105	92	181	33	122	116	128
34	Post and telecommunications services	0	197	33	113	19	324	16	89	23	72	103	106
35	Financial intermediation services	0	503	144	480	52	246	181	463	70	234	211	207
36	Real estate services	0	105	35	248	45	266	89	178	93	311	246	132
37	Renting services of movables	0	179	200	290	29	231	30	190	81	293	229	121
38	Business services	0	1 338	463	4 398	296	2 123	524	4 584	630	1 959	2 443	6 189
39	Public administration, defence, social security	0	20	4	22	6	8	4	13	1	8	6	16
40	Education	0	12	9	93	8	52	17	88	15	64	56	85
41	Health and social work services	0	301	3	45	2	18	4	26	7	27	18	20
42	Services n.e.c.	0	336	19	185	22	211	28	177	23	68	59	52
43	Not imputed goods and services	0	8	8	72	19	74	10	106	20	53	90	137
44	Contract wages for services, finishing and trade services	-	48	95	646	455	637	49	1 310	212	1 787	1 562	1 513
45	Non-deductible VAT	-	0	0	0	0	0	0	0	0	0	0	0
46	Total of rows 1–45	1	16 530	5 089	42 627	2 864	12 174	27 518	40 924	5 302	19 741	15 023	15 920
	Extra indicators												
47	Value added (gross, basic prices)	-	10 548	15 655	13 112	1 208	7 754	2 774	11 671	2 085	8 740	7 330	4 065
48	Labour input of employed persons (1000 full-time equivalent jobs)	-	209	7	117	19	98	6	63	32	114	87	79
	Enterprises by sizeclass (%)												
49	Small enterprises (1 to 10 persons employed)	-	98	74	66	89	81	43	52	57	72	67	78
50	Mid size enterprises (10 to 100 persons employed)	-	2	22	29	10	17	43	33	36	25	29	20
51	Large enterprises (100 persons employed or more)	-	0	4	5	1	2	14	15	6	2	4	2

1) The table shows the total intermediate consumption of the product groups and industries, so not only the value of the consumption of the 'critical' materials.

0 – no occurrence of critical materials;
1 – small occurrence of critical materials (less then 15 percent);

Manufacture of transport equipment	Other manufacturing	Electricity, gas and water supply	Construction	Trade and repair	Hotels and restaurants	Transport, storage and communication	Financial intermediation	Real estate activities	Business activities and renting of movables	General government	Health and social work activities	Service activities n.e.c.	Goods and services n.e.c.	Total colums 1–25	Fixed capital formation (gross)
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	17	123	90	121	447	78	36	122	27	249	213	199	242	21 142	236
0	104	0	5	0	0	0	0	0	0	11	0	0	1	149	0
0	0	0	0	0	27	0	0	0	0	4	11	0	0	186	0
0	171	7 703	0	0	0	0	0	0	0	0	0	0	0	35 299	210
7	705	642	1 001	18	0	0	0	0	0	149	0	0	0	4 520	0
0	161	18	21	47	3 699	30	6	4	117	199	899	790	614	26 177	0
0	0	0	0	0	1	0	0	0	0	0	0	0	10	125	0
43	216	0	8	147	21	32	4	0	18	49	129	32	2	2 104	353
4	10	0	29	60	17	78	7	5	63	133	84	35	4	576	27
0	149	0	11	14	3	10	2	1	5	8	21	8	4	376	0
53	1 165	90	2 552	165	8	31	10	356	238	50	19	163	46	5 484	309
40	195	12	52	412	119	78	222	21	462	304	430	81	9	8 325	0
22	60	35	46	1 657	84	347	681	58	1 901	1 148	400	321	46	9 394	0
33	125	362	523	1 581	43	4 387	203	40	1 146	497	26	362	0	21 118	0
210	803	173	784	286	6	0	10	12	539	243	2 091	296	15	30 814	0
637	584	71	1 658	772	11	193	27	85	381	76	219	78	16	7 946	370
104	1 098	16	6 187	70	61	0	0	467	107	86	67	157	0	9 254	208
696	664	168	1 321	59	0	0	0	7	2	44	0	17	0	11 917	0
1 545	316	32	4 946	1 000	7	2	9	8	771	502	27	174	74	17 201	1 710
534	192	260	1 460	622	39	414	50	120	640	664	42	191	24	10 646	9 307
53	72	40	118	287	26	140	43	6	142	210	99	113	0	2 619	5 050
525	62	235	1 489	286	37	405	5	16	33	177	23	106	28	6 127	543
310	1	11	567	76	0	730	3	0	21	46	16	0	24	2 921	841
185	0	11	29	50	0	93	0	0	338	154	918	6	32	3 694	1 797
4 240	8	0	28	1 633	0	0	0	0	8	154	0	5	0	6 127	11 315
647	7	0	17	38	0	1 360	0	0	0	240	0	0	0	2 337	1 651
67	284	9	421	123	12	3	28	93	74	110	61	84	30	1 945	3 440
117	438	9 668	156	1 901	784	625	294	62	673	1 128	737	1 110	0	24 420	127
7	11	113	0	94	9	54	12	13	32	60	44	36	0	760	0
25	96	281	18 643	368	120	1 128	359	9 813	2 094	4 595	515	664	0	39 410	44 040
13	59	47	289	1 103	11	885	176	34	1 128	103	51	236	0	4 441	0
49	60	57	36	835	67	1 297	424	70	766	622	458	324	0	5 767	0
63	160	19	230	2 721	174	8 719	123	35	587	353	253	225	3	15 161	0
38	86	89	288	2 006	137	4 619	1 914	490	1 228	915	603	811	0	14 319	0
138	172	300	883	2 175	264	986	16 720	1 400	1 925	706	539	969	0	29 968	195
111	283	66	344	5 827	881	1 600	570	1 135	2 325	694	924	863	0	17 371	1 638
90	199	131	933	1 929	69	760	227	32	2 316	91	133	625	0	9 408	0
1 159	1 522	2 869	3 615	15 091	1 416	10 069	6 922	1 428	28 780	7 923	1 969	3 846	10	111 566	17 308
12	10	24	58	114	22	44	83	4	95	2 277	34	32	0	2 917	606
31	37	36	59	542	36	113	44	21	830	325	166	55	0	2 794	0
10	41	17	37	180	7	131	151	7	180	462	1 403	33	0	3 130	0
37	121	76	471	381	420	231	93	79	1 173	3 683	790	6 189	0	14 924	0
26	65	29	499	1 489	80	2 627	24	159	639	332	43	111	0	6 720	4 144
1 408	588	1 148	125	4 537	2	303	292	91	213	21	10	32	0	17 084	0
0	0	0	0	0	0	117	1 860	1 238	0	3 617	1 460	879	18	9 189	10 332
13 926	11 117	24 981	50 029	50 817	9 167	42 719	31 634	17 532	52 017	33 414	15 927	20 258	1 252	577 872	115 757
3 908	8 933	9 894	28 181	66 941	9 340	35 272	30 014	41 961	69 561	56 145	43 867	18 691	-	507 650	-
47	182	29	462	1 080	203	407	255	71	1 141	782	849	390	-	6 728	-
78	86	88	90	90	89	84	91	94	92	83	90	92	-	90	-
19	12	5	9	10	10	15	8	5	7	9	7	7	-	9	-
3	2	7	1	1	0	2	1	0	1	8	2	1	-	1	-

2 – average occurrence of critical materials (more then 15 percent, but less then 50 percent);
3 – large occurrence of critical materials (more then 50 percent).