Cobalt

(ACCORDING TO EC-REGULATION 1907/2006 (REACH) & 1272/2008 (CLP))

Section 1. Identification of the Substance and Company

1.1 Product Identification:
Product Name: Cobalt Metal
Synonyms: Cobalt rounds
Chemical Family: Metal
Chemical Formula: Co

EC No: 231-158-0
CAS No: 7440-48-4
REACH Registration number: see Section 3

1.2 Uses
Identified Uses:
- Use of cobalt in the manufacture of inorganic cobalt substances
- Use of cobalt in the manufacture of cobalt carboxylates and resinate
- Manufacture of cobalt in the catalyst industry
- Industrial use of cobalt as catalyst
- Manufacture and industrial use of cobalt containing alloys, steels and tools
- Industrial use of cobalt in surface treatment processes
- Manufacture and industrial use of batteries using cobalt
- Industrial use of cobalt in the manufacture of inorganic pigments & frits, glass, ceramic ware, varistors and magnets (calcination/sintering processes)
- Manufacture and industrial use of coatings and inks using cobalt as drier and/or pigment
- Industrial use of cobalt in the production of diamond tools
- Welding in industrial and/or professional settings
- Professional use of dental alloys containing cobalt
- Professional use of diamond tools and other cobalt-containing tools
- Service life of articles containing cobalt encapsulated in the internal part of the product
- Service life of dental alloys
- Handling of heat and wear resistant vehicle parts
- Consumer use of cutting tools other than hard metal

Uses Advised Against: None known

Exposure Scenarios: See Annex 1

1.3 Company Identification
Vale Europe Limited
Clydach,
Swansea
SA6 5QR
msds@vale.com
REACH@vale.com

Telephone Number: +44 (0) 1792 842501
For Fire, Spill, or chemical emergency call CHEMTREC: +(44)-870-8200418
Section 2. Hazards Identification

2.1 Classification of the Substance:

2.1.1 Classification according Regulation (EC) No. 1272/2008
- Carcinogenicity – Category 1B
- Toxic to Reproduction – Category 2
- Acute Toxicity, oral – Category 4
- Respiratory Sensitization – Category 1
- Skin Sensitization – Category 1;
- Aquatic Chronic – Category 4

Hazard Pictograms: GHS07 – Exclamation Mark; GHS08 - Health Hazard

Signal Word: Danger

Hazard Statements:
- H350i – May cause cancer via inhalation
- H302 – Harmful if swallowed
- H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 – May cause an allergic skin reaction.
- H413 – May cause long lasting harmful effects to aquatic life


2.1.2. Classification according to Directive 67/548/EEC
- Xn R22, R42/43
- Carc. Cat 2 R49
- Repr. Cat 3 R62
- R53

2.2: Label elements

Labeling according to Regulation (EC) No 1272/2008

Product identifier: Cobalt

CAS #: 7440-48-4

Symbols: GHS07 – Exclamation Mark GHS08 - Health Hazard

Signal Word: Danger

Hazard Statements: H302, H317, H334, H350i, H361f, H413

Precautionary Statements: P261, P273, P280, P284, P302+P352, P501

(NOTE: P-statements have been reduced as per CLP regulation, the full list can be found in Section 15).
For full text of R-Statements and Precautionary, statements see section 15.

2.3: Other Hazards
The PBT and vPvB criteria of Annex XIII of the REACH regulation does not apply to inorganic substances, such as cobalt metal.

Section 3. Composition

<table>
<thead>
<tr>
<th>Substance</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt</td>
<td></td>
</tr>
<tr>
<td>Typical Composition (%)</td>
<td></td>
</tr>
<tr>
<td>&gt;99</td>
<td></td>
</tr>
<tr>
<td>CAS No.</td>
<td></td>
</tr>
<tr>
<td>7440-48-4</td>
<td></td>
</tr>
<tr>
<td>EC No.</td>
<td></td>
</tr>
<tr>
<td>231-158-0</td>
<td></td>
</tr>
</tbody>
</table>

REACH Registration #: 01-2119517392-44-xxxx

Section 4. First Aid Measures

Ingestion: IF SWALLOWED: Rinse mouth. Call a POISON CENTRE/doctor if you feel unwell.

Inhalation: IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Skin: IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention.

Eyes: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. If eye irritation persists: Get medical advice/attention.

Most important symptoms and affects, both acute and delayed

Inhalation: Cough, sore throat, wheezing, increased difficulty in breathing.

Ingestion: Abdominal pain, vomiting.

Eye Contact: Redness.

Indication of immediate medical attention and special treatment needed

IF exposed or concerned: Get medical advice/attention.

Section 5. Fire Fighting Measures

Suitable extinguishing media: As appropriate for surrounding fire. Extinguish with dry chemical, carbon dioxide or halones.

Special risks: Decomposes in a fire giving off toxic fumes: Cobalt oxide dust, acrid smoke, metal fumes.

Special protective equipment for fire-fighting: Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Dike fire control water for later disposal. Do not allow to enter drains, sewers or watercourses.

Section 6. Accidental Release Measures

Person related precautionary measures: Ensure adequate ventilation. Avoid breathing dust. Wear appropriate personal protective equipment, avoid direct contact.

Environmental Protection measures: Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

Procedures for Sweep spilled substances into containers if appropriate moisten first to prevent dusting. Use
**cleaning/absorption:** vacuum equipment for collecting spilt materials, where practicable. Transfer to a lidded container for disposal or recovery.

**Reference to other sections** See also Section 7, & 8.

**Section 7. Handling and Storage**

7.1 **Precautions for Safe Handling:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide adequate ventilation. Avoid breathing dust. Contaminated work clothing should not be allowed out of the workplace. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves, protective clothing, eye protection, and face protection. See Section: 8.

7.2 **Conditions for Safe Storage** Store locked up. Stable under normal storage conditions. Incompatible with acids, and strong oxidizing agents.

**Section 8. Exposure Controls / Personal Protection**

8.1.1 **Exposure Limits:**

<table>
<thead>
<tr>
<th>Cobalt Metal (Co) – CAS 7440-48-4</th>
<th>Exposure Limit (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH TLV-TWA ¹</td>
<td>0.02</td>
</tr>
<tr>
<td>UK WEL ²</td>
<td>0.1</td>
</tr>
<tr>
<td>NOHSC, Australia</td>
<td>0.05</td>
</tr>
</tbody>
</table>

8.1.2 **Environmental Limits:**

<table>
<thead>
<tr>
<th>PNEC’s</th>
<th>PNEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Compartment</td>
<td>0.51µg/l (Fresh water).</td>
</tr>
<tr>
<td>Marine Compartment</td>
<td>2.36 µg Co/L</td>
</tr>
<tr>
<td>Aquatic Compartment - sediment</td>
<td>11.2 mg Co/kg sediment dry wt</td>
</tr>
<tr>
<td>Aquatic Compartment – sediment, Added Risk Approach</td>
<td>9.5 mg Co/kg sediment dry wt</td>
</tr>
<tr>
<td>Marine Compartment - sediment</td>
<td>9.5 mg Co/kg sediment dry wt</td>
</tr>
<tr>
<td>Terrestrial Compartment</td>
<td>7.9 mg/kg Soil dw.</td>
</tr>
<tr>
<td>Sewage Treatment Plant - microorganisms</td>
<td>0.373 µg Co/L</td>
</tr>
<tr>
<td>Atmospheric Compartment</td>
<td>-</td>
</tr>
</tbody>
</table>

**DNEL**

<table>
<thead>
<tr>
<th>DNEL</th>
<th>Oral</th>
<th>Inhalation</th>
<th>Dermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry - Long Term – Local effects</td>
<td>-</td>
<td>40 µg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Industry - Long Term - Systemic effects</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Industry - Short term - Local effects</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Industry - Short term - Systemic effects</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Consumer - Long Term - Local effects</td>
<td>-</td>
<td>6.3 µg/m³</td>
<td>-</td>
</tr>
<tr>
<td>Consumer - Long Term - Systemic effects</td>
<td>9.5 µg/kg bw/day</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Consumer - Short term - Local effects | - | - | - | - 
Consumer - Short term - Systemic effects | - | - | - | -

8.2.1 Occupational exposure controls: Provide adequate ventilation.

8.2.2 Personal Protective Equipment:
- Eye/face protection: Wear eye protection with side protection (EN166).
- Skin protection (Hand protection/Other): Wear protective clothing and gloves: Butyl rubber, Neoprene, PVC.
- Respiratory protection: A suitable dust mask or dust respirator with filter type P (EN143 or EN405) may be appropriate.
- Thermal hazards: Not applicable.

8.2.3 Environmental Exposure Controls: Avoid release to the Environment

Section 9. Physical And Chemical Properties
Silver-grey odourless metal.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state at 20°C and 101.3 kPa</td>
<td>solid</td>
</tr>
<tr>
<td>pH (Value)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Melting Point (°C)</td>
<td>1494°C @1013hPa.</td>
</tr>
<tr>
<td>Boiling point/boiling range (°C):</td>
<td>2927°C @1013hPa.</td>
</tr>
<tr>
<td>Flash Point (°C)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non-flammable.</td>
</tr>
<tr>
<td>Explosive limit ranges.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour Pressure (mm Hg)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Vapour Density (Air=1)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Relative Density</td>
<td>8.89 @ 20°C.</td>
</tr>
<tr>
<td>Solubility (Water)</td>
<td>2.94mg/l @ 20°C.</td>
</tr>
<tr>
<td>Solubility (Other)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Partition Coefficient (n-Octanol/water)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto Ignition Temperature (°C)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Decomposition Temperature (°C)</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity (mPa.s)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not oxidising.</td>
</tr>
<tr>
<td>Size</td>
<td>8-12 mm thick, 18-24 mm dia.</td>
</tr>
<tr>
<td>Magnetic properties</td>
<td>Ferromagnetic</td>
</tr>
</tbody>
</table>

Section 10. Stability and Reactivity
10.1 Reactivity | Stable under normal conditions. |
10.2 Chemical stability | Stable under normal conditions. |
10.3 Possibility of hazardous reactions | Stable under normal conditions. |
10.4 Conditions to avoid | Heat |
Section 11. Toxicological Information

Cobalt

Acute Toxicity
a) Oral: LD₅₀ ORAL RAT 550 mg/kg. Acute Tox. 4; Harmful if swallowed.
b) Inhalation: Low acute toxicity. Main Symptoms: cough, sore throat, wheezing, increased difficulty in breathing. See Section 15 for further information.
c) Dermal: LD₅₀(Dermal) >2000mg/kg. Low acute toxicity.

Corrosivity/Irritation
a) Respiratory Tract: None
b) Skin: No data. Not classified. See sensitization section.
c) Eyes: Low acute toxicity. Main Symptoms: Redness.

Sensitization
a) Respiratory tract: Resp. Sens. 1; May cause allergy or asthma symptoms or breathing difficulties if inhaled.
b) Skin: Skin Sens. 1; May cause an allergic skin reaction. Repeated contact with metallic cobalt can cause cobalt sensitivity and allergic skin rashes.
c) Pre-existing conditions: Sensitized individuals may experience an allergic skin rash or asthma.

Chronic Toxicity
a) Oral: No information available.
b) Inhalation: No information available.
c) Dermal: No information available.

Mutagenicity / Reproductive Toxicity: There is no evidence of mutagenic potential. Reproductive toxicity category 2; Suspected of damaging fertility. Specific effect: fertility impairment in males.

Carcinogenicity
a) Ingestion: No data. Not classified.
b) Inhalation: Carcinogenicity category 1B; May cause cancer by inhalation.

Specific Target Organ Toxicity:
a) Single Exposure: None anticipated.
b) Repeated Exposure: None anticipated.

Aspiration Hazard: None.
Section 12. Ecological Information

| **Toxicity** | Aquatic Chronic 4; May cause long lasting harmful effects to aquatic life. By analogy with similar materials: Cobalt Dichloride. Fish: LC50 = 1.5mg/l (Fresh water) Aquatic invertebrates: LC50 = 0.61mg/l (Fresh water); 2.32mg/l (Sea water) Algae: LC50 = 144µg/l (Fresh water); 24.1µg/l (Sea water) NOEC Fish = 351.4mg/l NOEC Aquatic invertebrates: = 5.47µg/l (Fresh water); 206µg/l (Sea water) NOEC Algae = 4.9µg/l (Fresh water); 1.23µg/l (Sea water) |
| **Persistence and Degradability** | The methods for determining the biological degradability are not applicable to inorganic substances. |
| **Mobility in soil** | The substance is essentially insoluble in water. |
| **Results of PBT and vPvB assessment** | Not applicable. |
| **Other Adverse Effects** | None anticipated. |

Section 13. Disposal Considerations

13.1 Waste treatment methods

13.1.1 Type

**Hydro-metallurgical sludge and iron filter cakes.**

Waste code 01 03 07*, 11 02 07*

- Internal or external landfilling.
- Recycling in process.

13.1.2 Type

**Sludge from on-site WWTP.**

Waste code 06 05 02*

- Internal or external landfilling.
- Incineration.
- Recycling internally or externally.

13.1.3 Type

**Packaging materials.**

Waste code 15 01 10*

- Landfilling.
- Incineration.
- Recycling internally or externally.

13.1.4 Type

**Metal dusts and scraps.**
Waste code 10 08 04, 10 10 11*, 12 01 03, 12 01 04
Method • Recycling internally or externally.

13.1.5 Type Other wastes: Out of specification products, Waste water, Spent catalysts, Solvents, Contaminated materials, Battery casings.

Waste code 06 03 13*, 06 03 15*, 06 04 05*, 10 10 03, 10 10 05*, 10 10 07*, 16 06 05, 16 08 02*, 16 08 03
Method • Redistillation.
• Reuse in process.
• Storage.
• Landfilling.
• Incineration.
• Recycling.

13.1.6 Type Scraps, Cuttings, Dusts, Solvents, Solutions, Sludges, Contaminated materials, Off-specification batches, Spent catalysts.

Waste code 02 01 10*, 10 10 10, 12 01 03*, 15 01 04*, 16 01 06*, 16 01 18*, 16 06 02*, 16 08 02*, 16 08 03, 17 04 07*, 17 04 09*, 17 09 04*, 19 10 02*, 19 12 03*
Method • To be disposed of as hazardous waste.


Waste code 20 01 34, 20 01 40, 20 03 01, 20 03 07
Method • Municipal waste landfill.
• Municipal waste incineration.
• Recycling.

13.2 Additional Information Dispose of contents in accordance with local, state or national legislation.

Section 14. Transport Information

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Dept. of Transportation Regulations</td>
<td>Not regulated.</td>
</tr>
<tr>
<td>Canadian Transportation of Dangerous Goods Act</td>
<td>Not regulated.</td>
</tr>
<tr>
<td>European Agreement Concerning the International Carriage of Dangerous Goods by Road</td>
<td>Not regulated.</td>
</tr>
</tbody>
</table>

Updated: 21-Feb-2014
Cobalt
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Section 15. Regulatory Information

Additional toxicological information:
The Acute Toxicity inhalation information represents the product as it is placed on the market. Downstream users should be aware that cobalt metal powder is classified as Acute Toxicity inhalation category 1; LC$_{50}$ 4hr ≤ 0.05 mg/L. If the downstream use produces finely divided particles of cobalt metal, additional respiratory protection may be required.

Europe:
Classification according to Dangerous Substance Directive 67/548/EEC
Xn R22: Harmful if swallowed.
Xn R42/43: May cause sensitization by inhalation and skin contact.
Carc. Cat 2 R49; May cause cancer by inhalation.
Repr. Cat 3 R62; Possible risk of impaired fertility.
R53; May cause long-term adverse effects in the aquatic environment.

S22 - Do not breathe dust.
S24 - Avoid contact with skin.
S28 - After contact with skin, wash immediately with plenty of water.
S36/37 - Wear suitable protective clothing and gloves.
S38 - In case of insufficient ventilation, wear suitable respiratory equipment.
S61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.

All components are listed on EINECS (European Inventory of Existing Chemical Substances).

Classification according to Part 3 of Annex VI of EU Regulation No. 1272/2008
Carcinogenicity – Category 1B
Toxic to Reproduction – Category 2
Acute Toxicity, oral – Category 4
Respiratory Sensitization – Category 1
Skin Sensitization – Category 1
Aquatic Chronic – Category 4

Hazard Pictograms: GHS07 – Exclamation Mark; GHS08 - Health Hazard

Signal Word: Danger

Hazard Statements:
H350i – May cause cancer via inhalation.
H361f – Suspected of damaging fertility. Specific effect: fertility impairment in males.
H302 – Harmful if swallowed.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 - May cause an allergic skin reaction.
H413 - May cause long lasting harmful effects to aquatic life.
Precautionary Statements

Prevention:
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P261: Avoid breathing dust.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P272: Contaminated work clothing should not be allowed out of the workplace.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P284: In case of inadequate ventilation wear respiratory protection.

Response:
P301+P312: IF SWALLOWED: Call a POISON CENTRE/doctor if you feel unwell.
P302+P352: IF ON SKIN: Wash with plenty of water.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P362 + P364: Take off contaminated clothing and wash it before reuse.

Storage:
P405: Store locked up.

Disposal:
P501 - Dispose of contents/container in accordance to local, regional, national and international regulations.

Safety, health and environmental regulations/legislation specific for the substance or mixture
EU regulations
Authorisations and/or restrictions on use
Candidate List of Substances of Very High Concern for Authorisation
Not listed.
REACH: Annex XIV List of substances subject to authorisation
Not listed.
REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
Not listed.
Community Rolling Action Plan (CoRAP);
Draft 29/02/2012
Not listed.

Section 16. Other Information

Indications of Change:
1.0 – Original document
1.1 – Added “Size” and “magnetic properties” in Section 9
1.2 – Added section 2.3 information
2.0 – Updated sections as a result of NTP study
The following acronyms may be found in this document:

- **ACGIH**: American Conference of Governmental Industrial Hygienists
- **Acute Tox. 4**: Acute Toxicity Category 4
- **Aquatic Chronic 4**: Hazardous to the aquatic environment Category 4
- **DNEL**: Derived No Effect Level
- **LTEL**: Long Term Exposure Limit
- **LR**: Lead Registrant
- **MMAD**: Mass Median Aerodynamic Diameter
- **NIOSH**: National Institute of Occupational Safety and Health
- **NOHSC**: National Occupational Health & Safety Commission
- **OEL**: Occupational Exposure Limits
- **OR**: Only Representative
- **OSHA**: Occupational Safety and Health Administration
- **PBT**: PBT: Persistent, Bioaccumulative and Toxic
- **PNEC**: Predicted No Effect Concentration
- **Resp. Sens 1B**: Respiratory Sensitization Category 1B
- **Repr. 2**: Reproductive toxicity Category 2
- **Repr. Cat 3**: Reproductive toxicity Category 3
- **Skin Sens. 1**: Skin Sensitization Category 1
- **STEL**: Short Term Exposure Limit
- **STOT**: Specific Target Organ Toxicity
- **TLV-TWA**: Threshold Limit Value – Time Weighted Average
- **vPvB**: very Persistent and very Bioaccumulative
- **Xn**: Harmful
- **WEL**: Workplace Exposure Limit (UK HSE EH40)

Safety Data Sheet prepared by:
Vale Canada Limited
200 Bay St., Royal Bank Plaza
Suite 1600, South Tower, PO Box 70
Toronto, ON, Canada, M5J 2K2
Product Stewardship (416) 687-6010
msds@vale.com


**Note:**
Vale Canada believes that the information in this Safety Data Sheet is accurate. However, Vale Canada makes no express or implied warranty as to the accuracy of such information and expressly disclaims any liability resulting from reliance on such information.

1. Threshold Limit Values of the American Conference of Governmental Industrial Hygienists. 2008.
3. Describes possible health hazards of the product supplied. If user operations change it to other chemical forms, whether as end products, intermediates or fugitive emissions, the possible health hazards of such forms must be determined by the user.
ANNEX 1 – Exposure Scenarios

Exposure Scenarios can be obtained by clicking on the following link: Vale Cobalt Exposure Scenarios. Exposure Scenarios are listed on the page according to GES # and by language.

If you are unable to retrieve the document or have difficulties, please contact one of the following email addresses for assistance: REACH@vale.com or msds@vale.com

GES 2 - Use of cobalt in the manufacture of inorganic cobalt substances.
GES 3 - Use of cobalt in the manufacture of cobalt carboxylates and resinates.
GES 4 - Manufacture of cobalt in the catalyst industry.
GES 5 - Industrial use of cobalt as catalyst.
GES 6 - Manufacture and industrial use of cobalt containing alloys, steels and tools.
GES 7 - Industrial use of cobalt in surface treatment processes.
GES 8 - Manufacture and industrial use of batteries using cobalt.
GES 9 - Industrial use of cobalt in the manufacture of inorganic pigments & frits, glass, ceramic ware, varistors and magnets (calcination/sintering processes).
GES 10 - Manufacture and industrial use of coatings and inks using cobalt as drier and/or pigment.
GES 11 - Industrial use of cobalt in the production of diamond tools.
GES 12 - Welding in industrial and/or professional settings.
GES 13 - Professional use of dental alloys containing cobalt.
GES 14 - Professional use of diamond tools and other cobalt-containing tools.
GES 15 - Service life of articles containing cobalt encapsulated in the internal part of the product.
GES 16 - Service life of dental alloys.
GES 17 - Handling of heat and wear resistant vehicle parts.
GES 18 - Consumer use of cutting tools other than hard metal.