

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

• **1.1 Product identifier**

• **Trade name:** **VITROBRAZE**®

• **Detailed descriptions:**

VITROBRAZE 2170, 2099, 2177

® registered trademark of VACUUMSCHMELZE GmbH & Co. KG

• **Information sheet - no.:** IB115

• **Remarks for information sheet**

Our semi-finished and finished products constitute manufactured articles under the terms of the REACH Regulation (EC) No. 1907/2006.

Articles are not subject to any legal obligation concerning production and distribution of material safety data sheets. The detailed information usually shown in a safety data sheet will be provided in the form of an 'Information sheet for articles' for specific alloys.

However, we expressly point out that these information sheets for articles are voluntarily produced data sheets which are not governed by the requirements of the REACH regulation.

• **1.2 Relevant identified uses of the substance or mixture and uses advised against** Not applicable

• **Application of the article:** Brazing foil

• **1.3 Details of the supplier of the information sheet**

• **Manufacturer/Supplier:**

VACUUMSCHMELZE GmbH & Co.KG  
Grüner Weg 37  
D-63450 Hanau

datasheet@vacuumschmelze.com

• **Further information obtainable from:** Environmental Protection Department

• **1.4 Emergency telephone number:**

Tel. no.: (\*\*49) 6181/38-0  
Emergency tel. no.: via (\*\*49) 6181/38-0

## SECTION 2: Hazards identification

• **2.2 Classification (substance or mixture)**

Classification according to Regulation (EC) No 1272/2008 (CLP-Regulation):

Not applicable

For articles there is no obligation to classify acc. to CLP -Regulation.

• **2.2 Labelling according to Regulation (EC) No 1272/2008**

Labelling according to Regulation (EC) No 1272/2008 (CLP-Regulation):

Not applicable

• **Additional VAC information:**

**In the case of dust-producing processing, we recommend observance of the following warnings :**

• **Hazard statements**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

May cause cancer by inhalation.

Causes damage to organs through prolonged or repeated exposure.

• **Precautionary statements**

Do not breathe dust/fume/gas/mist/vapours/spray.

Do not eat, drink or smoke when using this product.

Avoid release to the environment.

Use personal protective equipment as required.

In case of inadequate ventilation wear respiratory protection.

Get medical advice/attention if you feel unwell.

• **2.3 Other hazards**

Danger of accident!

Always wear protective clothing, protective glasses and safety gloves when handling the bands.

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- The bands have sharp edges. There is a danger of (serious) injury from cuts.
- The bands can split and cause (serious) cuts when bent excessively

**• Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### SECTION 3: Composition/information on ingredients

**• 3.2 Chemical characterization:**

• **Description:** Brazing foil

• **Components(composition):**

The classifications given below reflect the classification of each pure substance respectively and are intended for information only

The legal classifications of the pure substances (harmonized classification according to substance list of the Annex VI of the CLP Regulation) got complemented, insofar as additional substance-specific information from accessible data sources (e.g. TRGS 905, toxicological studies) for health hazards and / or physical hazards are available.

CAS: 7440-02-0 EINECS: 231-111-4 Index number: 028-002-00-7	nickel ☠ Carc. 2, H351; STOT RE 1, H372; ☠ Skin Sens. 1, H317	~ 29-68%
CAS: 7440-47-3 EINECS: 231-157-5 RTECS: GB 4200000	chromium substance with a Community workplace exposure limit	~ 11-25%
CAS: 7723-14-0 EINECS: 231-768-7 Index number: 015-002-00-7 RTECS: TH 3495000	red phosphorus ☠ Flam. Liq. 2, H225; Flam. Sol. 1, H228; Aquatic Chronic 3, H412	≤ 8%
CAS: 7440-42-8 EINECS: 231-151-2 RTECS: ED 7350000	boron ☠ Acute Tox. 4, H302	< 2%
CAS: 7440-48-4 EINECS: 231-158-0 Index number: 027-001-00-9 RTECS: GF 8750000	cobalt ☠ Resp. Sens. 1, H334; Carc. 1B, H350i; Repr. 2, H361f; ☠ Acute Tox. 4, H302; Skin Sens. 1, H317; Aquatic Chronic 4, H413	< 1%

• **NON-hazardous Ingredients**

CAS: 7439-89-6 EINECS: 231-096-4 RTECS: NO 4565500	iron	0-50%
CAS: 7440-21-3 EINECS: 231-130-8	silicon	< 3%
CAS: 7439-98-7 EINECS: 231-107-2 RTECS: QA 4680000	molybdenum	< 2%

• **Remark to the composition:**

VITROBRAZE 2170 and VITROBRAZE 2177 contain < 1% iron and < 0,5% molybdenum

• **Additional information:**

For the wording of the listed hazard phrases refer to section 16.

**Additional information for Cobalt:**

See also Chapter 11

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## SECTION 4: First aid measures

### • 4.1 Description of first aid measures

#### • After inhalation:

If metal vapours or dusts have been inhaled:  
Get the affected person out in the fresh air and call a doctor.

#### • After skin contact:

Foreign bodies which have penetrated the skin must be removed and the wound cleaned thoroughly.

#### • After eye contact:

Foreign bodies must be removed, consult a doctor if necessary.  
Beware of metal splinters - Consult a doctor immediately.

#### • After swallowing: Consult a doctor if the symptoms persist.

### • 4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

### • 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

## SECTION 5: Firefighting measures

### • 5.1 Extinguishing media

#### • Suitable extinguishing agents:

Non-combustible.  
Extinguishing agents must be adapted to the environment.

### • 5.2 Special hazards arising from the substance or mixture

In the event of a fire, dangerous/toxic fumes or vapours may be produced. Do not inhale fumes.  
Formation of toxic smoke / fumes (metal / metal oxides) is possible during heating or in case of fire. Do not inhale fumes.

### • 5.3 Advice for firefighters

#### • Protective equipment: Wear self-contained respiratory protective device.

## SECTION 6: Accidental release measures

Accidental release of dusts and vapours which are damaging to health can be ruled out.

### • 6.1 Personal precautions, protective equipment and emergency procedures

No special measures required.

### • 6.2 Environmental precautions: No special measures required.

### • 6.3 Methods and material for containment and cleaning up: No special measures required.

### • 6.4 Reference to other sections

See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## SECTION 7: Handling and storage

### • 7.1 Precautions for safe handling

#### Danger of accident!

Always wear protective clothing, protective glasses and safety gloves when handling the bands.  
- The bands have sharp edges. There is a danger of (serious) injury from cuts.  
- The bands can split and cause (serious) cuts when bent excessively.

No protective measures are required in the provided form.

The appropriate industrial and environmental safety measures must be taken for processing steps which cause dust or fumes (see also section 8):

Ensure good ventilation/exhaustion at the workplace.

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Take note of emission threshold.

- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Store in dry conditions and in the dark.
- **Storage class:** Not applicable
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

- **Additional information about design of technical facilities:**

Provide a suitable suction with filter and good ventilation of the working area for all processing steps.

Suitable breathing apparatus must be used (see personal safety equipment) for repair and maintenance work on suction systems, especially when changing the filters.

- **8.1 Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

For International Limit Values see Additional information below.

<b>7440-47-3 chromium</b>	
IOELV (EU)	Long-term value: 2 mg/m <sup>3</sup> as Cr

- **DNELs**

DNELs for OSH purposes

In Germany, occupational exposure limits (AGW) of the Technical Rules on Hazardous Substances (TRGS) 900 continue to constitute workplace atmospheric limit values that are binding upon employers. Should no AGW and for example no maximum workplace concentration (MAK value) of the German Research Foundation (DFG) be available, the employer must also consider the DNEL during risk assessment. (Source: Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA))  
current values are available: <http://www.dguv.de/ifa/gestis/gestis-dnel-liste/index.jsp>.

<b>7440-02-0 nickel</b>		
Inhalative	Long-term exposure - inhalation - local effects	0.05 mg/m <sup>3</sup> (Ind)
	Long-term exposure - inhalation - systemic effects	0.05 mg/m <sup>3</sup> (Ind)
<b>7440-48-4 cobalt</b>		
Inhalative	Long-term exposure - inhalation - local effects	0.04 mg/m <sup>3</sup> (Ind)
		0.0063 mg/m <sup>3</sup> (Consumer)

- **Additional Occupational Exposure Limit Values for possible hazards during processing:**

Compliance with the general dust limit value(s) (lung penetrating and/or inhalable fraction) must be ensured. If the occurrence of Boric acid/ Boron oxide cannot be ruled out, the appropriate workplace-related limit values must also be monitored!

- **Additional information:**

- The lists valid during the making were used as basis.

- GESTIS International Limit Values:

<http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-Internationale-Grenzwerte-für-chemische-Substanzen-limit-values-for-chemical-agents/index.jsp>

- **8.2 Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Do not eat, drink, smoke or sniff while working.

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• **Respiratory protection:**



In the case of exceeding the limit values, breathing apparatus must be worn. Time limits for wearing must be observed. Breathing mask, apparatus with particle filter P2 or P3, for example:  
- Full face mask (EN 136)  
- Breathing mask (EN 149) FFP2 or FFP3  
10 times the limit value (FFP2)  
30 times the limit value (FFP3)  
Recommendation: P3

• **Protection of hands:**



Wearing of gloves with a high cutting protection class is recommended for handling the bands.

The following applies due to the ingredients:

Avoid repeated and prolonged contact with the skin, use protective gloves. Preventive skin protection by use of skin-protecting agents is recommended.

• **Material of gloves**

Experience has shown glove materials polychloroprene, nitrile caoutchouc, butyl caoutchouc, fluoride caoutchouc and polyvinylchloride to offer sufficient protection.

• **Penetration time of glove material -**

• **Eye protection:**



Tightly sealed goggles (EN 166)

• **Limitation and supervision of exposure into the environment**

The legal issue values and limitations are to be paid attention!

**SECTION 9: Physical and chemical properties**

• **9.1 Information on basic physical and chemical properties**

• **General Information**

• **Appearance:**

Form:	Strip
Colour:	Metallic
Odour:	Odourless

• **pH-value:** Not applicable.

• **Change in condition**

Melting point/Melting range (approx.): 900-1000 °C

• **Auto-ignition temperature:** Not applicable

• **Explosive properties:** Not applicable

• **Vapour pressure:** Not determined.

• **Density (approx.) at 20 °C:** 7.7 g/cm<sup>3</sup>

• **Relative density** Not determined.

• **Solubility in / Miscibility with water:**

Insoluble.

• **9.2 Other information**

No further relevant information available.

**SECTION 10: Stability and reactivity**

• **10.1 Reactivity** No further relevant information available.

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- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**  
Hydrogen is released in contact with acid which can cause explosive gas mixtures.  
Phosphin (toxic gas) can form in contact with acids!
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

## SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **LD/LC50 values:**

The following applies for the **pure substances**:

The following applies for the pure substance (here: nickel):

<b>7440-02-0 nickel</b>		
Oral	LD50	> 9000 mg/kg (rat)
<b>7440-42-8 boron</b>		
Oral	LD50	650 mg/kg (rat)
<b>7440-48-4 cobalt</b>		
Oral	LD50	550 mg/kg (rat)
Inhalative	LC50/4 h	--- mg/l (rat) siehe zusätzlicher toxikologischer Hinweis / see additional toxicological information

- **Primary irritant effect:**
- **Skin corrosion/irritation** see sensitization
- **Serious eye damage/irritation**  
Irritation of the eyes in the case of massive direct contact will be mainly due to mechanical effects depending on the grain size.
- **Respiratory or skin sensitisation**  
May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
May cause an allergic skin reaction.
- **Subacute to chronic toxicity:**  
Nickel in the form of a respirable dust is under suspicion as a possible cause of cancer in humans (Carc.2)

Additional Information for Cobalt:

Currently in the EU cobalt metal is not classified as carcinogenic according to Annex VI of the CLP regulation (EC No. 1272/2008). German law classified cobalt metal in the form of respirable dusts/aerosols within Category 3 (DSD; RL 67/548/EWG). At the time of EU regulations becoming effective the positive results of the cobalt metal study carried out by the NTP 1\* were not available. A new classification within EU regulations based on the results of that study is deemed necessary by German authorities. Since this will be a time consuming process cobalt metal in the form of respirable dusts/aerosols has been classified within German national regulations (TRGS 905) as category 2 (DSD) and category 1B (CLP) in the meanwhile.

\* [http://ntp.niehs.nih.gov/ntp/about\\_ntp/trpanel/2013/october/draft\\_tr-581.pdf](http://ntp.niehs.nih.gov/ntp/about_ntp/trpanel/2013/october/draft_tr-581.pdf)

- **Additional toxicological information:**

Subsequent users should be aware of the fact that Co-metal fine powder are classified as "acute toxic if inhaled, Category 1" (no legal classification); LC50 4hr ≤ 0,05 mg/l.  
In case the subsequent use of product generates fine Co-metal particles (e.g. dust), protection measures such as described in Chapter 7 and 8 of this information sheet must be applied.

- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.

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- **Carcinogenicity**  
May cause cancer by inhalation.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure**  
Causes damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation** Observe official regulations.
- **Uncleaned packaging:** Not applicable

### SECTION 14: Transport information

- **Transport/Additional information:**
- **Land transport ADR/RID (cross-border):**
- **Remarks:** Non-hazardous goods from the standpoint of the specified regulations
- **Maritime transport IMDG:**
- **Remarks:** Non-hazardous goods from the standpoint of the specified regulations
- **Air Transport ICAO-TI and IATA-DGR:**
- **Remarks:** Non-hazardous goods from the standpoint of the specified regulations

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 27
- **National regulations:**
- **Other regulations, limitations and prohibitive regulations**  
e.g.
  - guidelines 67/548/ECC, 1999/45/EC
  - 1272/2008/EG (CLP)
  - 1907/2006/EG (REACH)
  - German Hazardous Substances

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• **15.2 Chemical safety assessment:** Void (for articles)

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## SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

### • Relevant phrases

Wording of the hazard warnings mentioned (Chapter 3) for pure substances:

- H225 Highly flammable liquid and vapour.
- H228 Flammable solid.
- H302 Harmful if swallowed.
- H317 May cause an allergic skin reaction.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H350i May cause cancer by inhalation.
- H351 Suspected of causing cancer.
- H361f Suspected of damaging fertility.
- H372 Causes damage to organs through prolonged or repeated exposure.
- H412 Harmful to aquatic life with long lasting effects.
- H413 May cause long lasting harmful effects to aquatic life.

### • Department issuing SDS:

Department HT-F  
Tel. 06181/38-2045

### • Contact:

Environmental Protection Department  
Tel. 06181/38-2359

### • Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
 ICAO: International Civil Aviation Organisation  
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 DNEL: Derived No-Effect Level (REACH)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 Flam. Liq. 2: Flammable liquids – Category 2  
 Flam. Sol. 1: Flammable solids – Category 1  
 Acute Tox. 4: Acute toxicity – Category 4  
 Resp. Sens. 1: Respiratory sensitisation – Category 1  
 Skin Sens. 1: Skin sensitisation – Category 1  
 Carc. 1B: Carcinogenicity – Category 1B  
 Carc. 2: Carcinogenicity – Category 2  
 Repr. 2: Reproductive toxicity – Category 2  
 STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1  
 Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3  
 Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4