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

· 1.1 Product identifier
· Trade name: BÖHLER Pipeshield 81 T8-FD
· CAS Number: -
· EINECS Number: -

· 1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.

· Application of the substance / the mixture
Flux cored wire
The product is a manufactured article in the sense of Article 3 No. 3, 1907/2006/EC (REACH). The purpose of the present safety data sheet is therefore to provide instruction on safe usage of the product.

· 1.3 Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
voestalpine Böhler Welding Austria GmbH
Böhler-Welding-St. 1
8605 Kapfenberg

Tel.: +43/50304/31-0
Fax: +43/50304/71-95193
www.voestalpine.com/welding

· Further information obtainable from:
Research and Development
Deniece Fiedler
+43/50304/31-28299;
Deniece.Fiedler@voestalpine.com

· 1.4 Emergency telephone number:
NCEC
+44 1235 239670

SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture
· Classification according to Regulation (EC) No 1272/2008
The Product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.

· 2.2 Label elements
· Labelling according to Regulation (EC) No 1272/2008 Void
· Hazard pictograms Void
· Signal word Void
· Hazard statements Void

· 2.3 Other hazards
· Results of PBT and vPvB assessment
· PBT: Not applicable.

(Contd. on page 2)
### SECTION 3: Composition/information on ingredients

#### 3.2 Chemical characterisation: Mixtures

**Description:** Mixture of substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>EINECS</th>
<th>Index Number</th>
<th>Reg. nr.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>barium fluoride</td>
<td>7787-32-8</td>
<td>232-108-0</td>
<td>056-002-00-7</td>
<td>01-2120767461-52-XXXX</td>
<td>5-12.5%</td>
</tr>
<tr>
<td>lithium fluoride</td>
<td>7789-24-4</td>
<td>232-152-0</td>
<td></td>
<td></td>
<td>2.5-5%</td>
</tr>
<tr>
<td>nickel</td>
<td>7440-02-0</td>
<td>231-111-4</td>
<td>028-002-00-7</td>
<td>01-2119438727-29-XXXX</td>
<td>0.1-2.5%</td>
</tr>
<tr>
<td>magnesium powder (pyrophoric)</td>
<td>7439-95-4</td>
<td>231-104-6</td>
<td>012-001-00-3</td>
<td>01-2119537203-49-XXXX</td>
<td>0.1-2.5%</td>
</tr>
<tr>
<td>aluminium</td>
<td>7429-90-5</td>
<td>231-072-3</td>
<td>013-001-00-6</td>
<td>01-2119529243-45-XXXX</td>
<td>0.1-2.5%</td>
</tr>
<tr>
<td>manganese substance with a Community workplace exposure limit</td>
<td>7439-96-5</td>
<td>231-105-1</td>
<td></td>
<td>01-2119494803-34-XXXX</td>
<td>0.1-2.5%</td>
</tr>
<tr>
<td>barium</td>
<td>7439-96-5</td>
<td>231-149-1</td>
<td></td>
<td></td>
<td>0.1-2.5%</td>
</tr>
</tbody>
</table>

**Additional information:** For the wording of the listed hazard phrases refer to section 16.

### SECTION 4: First aid measures

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

No further relevant information available.

**General information:** No special measures required.

**After inhalation:** Supply fresh air; consult doctor in case of complaints.

**After skin contact:** Generally the product does not irritate the skin.

**After eye contact:** Rinse opened eye for several minutes under running water.

**After swallowing:** Seek medical treatment.

#### 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: Suitable to surrounding conditions.

- 5.2 Special hazards arising from the substance or mixture
  No further relevant information available.

- 5.3 Advice for firefighters
  For deletion of fire just use dry powders. Don't use any water or halogenated containing extinguishing agents.

- Protective equipment: No special measures required.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures
  Ensure adequate ventilation
  Use respiratory protective device against the effects of fumes/dust/aerosol.

- 6.2 Environmental precautions:
  Do not allow to enter sewers/surface or ground water.

- 6.3 Methods and material for containment and cleaning up:
  Pick up mechanically.

- 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
  Ensure that suitable extractors are available on processing machines.
  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: None.

- 7.3 Specific end use(s)
  No further relevant information available.

SECTION 8: Exposure controls/personal protection

- 8.1 Control parameters
  Ingredients with limit values that require monitoring at the workplace:

  7787-32-8 barium fluoride
  IOELV Long-term value: 2.5 mg/m³ as F

  7789-24-4 lithium fluoride
  IOELV Long-term value: 2.5 mg/m³ as F

  7439-96-5 manganese
  IOELV Long-term value: 0.2* 0.05** mg/m³ as Mn; *inhaerable, **respirable fraction

- Additional information: The lists valid during the making were used as basis.
8.2 Exposure controls
- Personal protective equipment:
  - General protective and hygienic measures: Wash hands before breaks and at the end of work.
  - Respiratory protection: Filter P2
  - Protection of hands:
    EN 12477
    Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  - Material of gloves: Leather gloves
  - Penetration time of glove material
    The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  - Eye protection: Safety glasses
  - Body protection: Protective work clothing

SECTION 9: Physical and chemical properties
9.1 Information on basic physical and chemical properties
- General Information
  - Appearance:
    Form: Solid
    Colour: According to product specification
    Odour: Odourless
    Odour threshold: Not determined.
  - pH-value: Not applicable.
  - Flash point: Not applicable.
  - Flammability (solid, gas): Not determined.
  - Decomposition temperature: Not determined.
  - Auto-ignition temperature: Product is not selfigniting.
  - Explosive properties: Product does not present an explosion hazard.
  - Explosion limits:
    Lower: Not determined.
    Upper: Not determined.
  - Density:
    Not determined.
  - Relative density:
    Not determined.
  - Vapour density:
    Not applicable.
  - Evaporation rate:
    Not applicable.
  - Water:
    Insoluble.
  - Partition coefficient: n-octanol/water: Not determined.
  - Dynamic:
    Not applicable.
  - Kinematic:
    Not applicable.
  - Solvent separation test:

Solids content: 100.0 %
SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.
10.2 Chemical stability
   Thermal decomposition / conditions to be avoided:
   No decomposition if used and stored according to specifications.
10.3 Possibility of hazardous reactions Attacks materials containing glass and silicate.
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 relevant for classification:
   7787-32-8 barium fluoride
     Oral LD50 250 mg/kg (rat)
   Primary irritant effect:
     Skin corrosion/irritation Based on available data, the classification criteria are not met.
     Serious eye damage/irritation Based on available data, the classification criteria are not met.
     Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
   Additional toxicological information:
     Repeated dose toxicity
     Germ cell mutagenicity Based on available data, the classification criteria are not met.
     Carcinogenicity Based on available data, the classification criteria are not met.
     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 Based on available data, the classification criteria are not met.
     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: Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
     12.5 Results of PBT and vPvB assessment
       PBT: Not applicable.
       vPvB: Not applicable.
Trade name: BÖHLER Pipeshield 81 T8-FD

· **12.6 Other adverse effects** No further relevant information available.

**SECTION 13: Disposal considerations**

· **13.1 Waste treatment methods**
  · **Recommendation** Must be specially treated adhering to official regulations.
  · **European waste catalogue**
    12 01 13 welding wastes
  · **Uncleaned packaging:**
    · **Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

· **14.1 UN-Number** Void
  · ADR, ADN, IMDG, IATA Void
  · **14.2 UN proper shipping name**
    ADR, ADN, IMDG, IATA Void
  · **14.3 Transport hazard class(es)**
    ADR, ADN, IMDG, IATA Class Void
  · **14.4 Packing group**
    ADR, IMDG, IATA Void
  · **14.5 Environmental hazards:**
    · **Marine pollutant:** No
  · **14.6 Special precautions for user** Not applicable.
  · **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**
    Not applicable.
  · **Transport/Additional information:**
    Not dangerous according to the above specifications.

· **UN "Model Regulation"**
  · Void

**SECTION 15: Regulatory information**

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
  No further relevant information available.
  · **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
**Safety data sheet**

according to 1907/2006/EC, Article 31

Printing date 25.11.2021

Revision: 23.11.2021

Version number 9

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- **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**
  
  None of the ingredients is listed.

- **REGULATION (EU) 2019/1148**
  
  - **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**
    
    None of the ingredients is listed.
  
  - **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**
    
    None of the ingredients is listed.
  
    
    7723-14-0 phosphorus

  - **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**
    
    7723-14-0 phosphorus

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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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.

- **Additional information:**
  
  Recommendations for exposure scenarios, measures for risk management and identification of working conditions under which metals, metal alloys and products made of metal can be safely worked can be found attached.
  
  Detailed information can be found on our webpage www.voestalpine.com (Environment, REACH at voestalpine).

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Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: BÖHLER Pipeshield 81 T8-FD

Welding Exposure Scenario WES - ENGL

Guidance and Recommendations for Exposure Scenarios, Risk Management Measures and to Identify Operational Conditions under which metals, alloys and metallic articles and mixtures may be safely welded regarding welding fumes and gases exposure

Welding/Brazing produces fumes, which can affect human health. Welding and allied processes generate a varying mixture of fumes (airborne particles) and gases, which, if inhaled or swallowed, constitute a health hazard. The degree of risk will depend on the composition of the fume, the concentration of the fume and duration of exposure. The fume composition is dependent upon the material being worked, the process and consumables being used, coatings on the work such as paint, galvanizing or plating, oil or contaminants from cleaning and degreasing activities. The amount of fumes generated is dependent on the welding process, the welding parameters, the shielding gas, the type of consumable and the potential coating on the work.

A systematic approach to the assessment of exposure is necessary, taking into account the particular circumstances for the operator and ancillary worker that can be exposed.

General Rules to reduce exposure to welding fumes and gases

Considering the emission of fumes when welding brazing or cutting of metals, it is recommended to (1) arrange risk management measures through applying general information and guidelines provided by this document and (2) using the information provided by the Safety Data Sheet, issued in accordance with REACH, by the welding consumable manufacturer.

The employer shall ensure that the risk from welding fumes to the safety and health of workers is eliminated or reduced to a minimum. Start every new work with an Occupational Safety & Health Risk Inventory.

The following principles shall be applied, unless local regulation say otherwise:

1. Substitution:
   - Select the applicable process/base material combinations with the lowest emission, whenever possible
   - Set welding process with the lowest emission parameters (e.g. welding parameters/arc mode transfer, shielding gas composition)

2. Technological Means:
   - Apply the relevant collective protective measures (general ventilation, local exhaust ventilation) in accordance with class number.

3. Organizational Measures:
   - Limit the time a worker is exposed to welding fumes,
   - Establish and apply Welding Procedure Specifications

4. Personal Protective Equipment:
   - To protect the worker, wear the relevant personal protective equipment in accordance with the duty cycle

In addition, compliance with the national regulations regarding the exposure of welders and related personnel to welding fumes, their components with specific occupational exposure limit, and gaseous substances with specific occupational exposure limits shall be verified. It is therefore strongly recommended to seek clarification of specific national legislation that may apply.

* In MIG / MAG process, innovative waveform controlled processes generate less welding fumes and particles than conventional processes. The use of such processes can be an additional measure to reduce the exposure of the welder and or workers.
## Risk Management Measures for Individual Process/base Material Combinations

According to the welding or allied process and the base material to be welded, a general guidance on technological means is proposed in the table below. An approximate ranking to mitigate the risk of welding fumes and gases exposure is given for each welding or allied process/base material combination. The individual process/base material combinations are ranked from the lowest emission ones (Class I) to the highest emission ones (Class VIII).

**NOTE:** The International Institute of Welding (IIW) assessed the publication of ARC Monograph 138. Based on the current state of knowledge, IIW confirms its statement from 2011 on “lung cancer and welding” and encourages all those responsible to reduce the exposure to welding fume to a minimum. It also recommends that to eliminate the excess risk of lung cancer, welders and their managers must ensure that exposure to welding fume is minimized, at least to national guidelines. This IIW statement is posted both on IIW and IIW website.

For each class, general recommendations on Ventilation/Extraction/Filtration and Personal Protection Equipment are proposed.

<table>
<thead>
<tr>
<th>Class</th>
<th>Process (according to ISO 14175)</th>
<th>Base Materials</th>
<th>Remarks</th>
<th>Ventilation/Extraction/Filtration</th>
<th>PPE DC=15%</th>
<th>PPE DC=19%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>GTAW 141, SAW 12, Autogenous 3, FCAW 7T73, GasShield 7, Stick welding 70, Solid state 521</td>
<td>All</td>
<td>Except Aluminum</td>
<td>GV low⁴</td>
<td>n.r.</td>
<td>n.a.</td>
</tr>
<tr>
<td>II</td>
<td>GTAW 141, Aluminium</td>
<td>n.s.</td>
<td>GV medium⁵</td>
<td>n.s.</td>
<td>n.a.</td>
<td>FFPE⁷</td>
</tr>
<tr>
<td>III</td>
<td>MMAW 171, TIG, All</td>
<td>Except Be, V, Mn, Nb, alloys and intermetallics</td>
<td>GV low⁶</td>
<td>Improved exhaust⁶</td>
<td>FFPE⁷</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FCAW 17917, GMAW 17910</td>
<td>Except Stainless and Nb alloys⁴</td>
<td>LEV low⁷</td>
<td>FFPE⁷</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Powder Plasma Arc 152</td>
<td>Except Cu, Be, V, alloys⁴</td>
<td>FFPE⁷; TH3P, or LDH3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>All processes class I</td>
<td>Painted, primed, shielded, galvanized</td>
<td>No Pb containing primer</td>
<td>GV low⁸</td>
<td>FFPE⁷; TH3P, or LDH3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All processes class III</td>
<td>Painted, primed, shielded, galvanized</td>
<td>No Pb containing primer</td>
<td>GV low⁸</td>
<td>LEV low⁷</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>MMAW 171, Stainless, Mo, Cu- alloys</td>
<td>n.a.</td>
<td>LEV high⁹</td>
<td>TH3P, LDH3⁵; TH3P, LDH3⁵</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FGMAW 17917, Stainless, Nb, Mo and Ti-alloys</td>
<td>Co-alloys</td>
<td>n.a.</td>
<td>LEV high⁹</td>
<td>TH3P, LDH3⁵; TH3P, LDH3⁵</td>
<td></td>
</tr>
</tbody>
</table>

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## Safety data sheet

**according to 1907/2006/EC, Article 31**

**Trade name:** BÖHLER Pipeshield 81 T8-FD

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### Welding Exposure Scenario WES - ENGL

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<table>
<thead>
<tr>
<th>Class</th>
<th>Process (according to ISO 4063)</th>
<th>Base Materials</th>
<th>Remarks</th>
<th>Ventilation / Extraction / Filtration</th>
<th>PPE(^a) DC-15%</th>
<th>PPE(^a) DC-15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI</td>
<td>GMAW EF3</td>
<td>Be, and b- alloys</td>
<td>n.a</td>
<td>Reduced (negative) pressured area(^a) LEV small(^a)</td>
<td>TH3(S)P5</td>
<td>TH3(S)P5</td>
</tr>
<tr>
<td>VII</td>
<td>Self-shielded FCAW</td>
<td>Uln, high alloyed steel</td>
<td>Coated wire, not containing Ba</td>
<td>Reduced (negative) pressured area(^a) LEV medium(^a)</td>
<td>TH3(S)P5</td>
<td>TH3(S)P5</td>
</tr>
<tr>
<td></td>
<td>Self-shielded FCAW</td>
<td>Uln, high alloyed steel</td>
<td>Coated wire, containing Ba</td>
<td>n.a</td>
<td>n.a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>Painted / printed / galvanised</td>
<td>Paint / Primer containing Pb</td>
<td>Reduced (negative) pressured area(^a) LEV high(^a)</td>
<td>TH3(S)P5</td>
<td>TH3(S)P5</td>
</tr>
<tr>
<td></td>
<td>Arc gouging and Cutting</td>
<td>All</td>
<td>n.a</td>
<td>n.a</td>
<td>n.a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thermal Spray</td>
<td>All</td>
<td>n.a</td>
<td>n.a</td>
<td>n.a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gasco Brazing</td>
<td>Cu- alloys</td>
<td>n.a</td>
<td>n.a</td>
<td>n.a</td>
<td></td>
</tr>
</tbody>
</table>

**Closed system or Confined space\(^b\)**

- Laser Welding
- Laser Cutting
- Electrode Beam

<table>
<thead>
<tr>
<th>Class</th>
<th>Process (according to ISO 4063)</th>
<th>Base Materials</th>
<th>Remarks</th>
<th>Ventilation / Extraction / Filtration</th>
<th>PPE(^a) DC-15%</th>
<th>PPE(^a) DC-15%</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII</td>
<td>All</td>
<td>All</td>
<td>Closed system</td>
<td>HV medium(^a)</td>
<td>n.a</td>
<td>n.a</td>
</tr>
<tr>
<td>VIII</td>
<td>All</td>
<td>All</td>
<td>Confined space</td>
<td>LEV high(^a) / External air supply</td>
<td>LD3H(^a)</td>
<td>LD3H(^a)</td>
</tr>
</tbody>
</table>

### Notes:

1. Class: approximate ranking to mitigate risk by selecting process/material combinations with the lowest values. Identified collective and individual risk management measures shall be applied.
2. Personal Protective Equipment (PPE) required: avoiding exceeding the National Exposure Limit Value (NC) Duty cycle expressed in 8 hours.
3. General Ventilation (HV) Low, with additional Local Exhaust Ventilation (LEV) and extracted air to the outside, the HV or LEV capacity may be reduced to 1/5 of the original requirement.
4. General Ventilation (HV) Medium (double compared to Low)
5. Filtering half mask (FFP2)
6. When an alloyed consumable is used, measures from Class VI are required
7. General Ventilation (HV) Low, when no Local Exhaust Ventilation, the ventilation requirement is 5-fold.
8. Filtering half mask (FFP3), helmet with powered filters (TH3/P3), or helmet with external air supply (LDH3).
9. Reduced (negative) pressured Area: A separated, ventilated area where reduced (negative) pressure, compared to the surrounding area, is maintained.
10. Local Exhaust Ventilation (LEV) high, extraction at source (excludes table, hood, arm or booth extraction).
11. Helmet with powered filters (TH3/P3), or helmet with external air supply (LDH3).
12. Local Exhaust Ventilation (LEV) Low, extraction at source (includes table, hood, arm or torch extraction).
13. Local Exhaust Ventilation (LEV) Medium, extraction at source (includes table, hood, arm or torch extraction).
14. Recommended measures to comply with national maximum allowable limits. Extracted fumes, for all materials except unalloyed steel and aluminum, shall be filtered before release in the outside environment.
15. A confined space, despite its name, is not necessarily small. Examples of confined spaces include ship, silo, vault, utility vault, tank, etc.
16. Improved helmet, designed to avoid direct flow of welding fumes inside.
17. n.a. Not applicable
18. n.r. Not recommended

### International Standards & EU Regulations

The following ISO standards and European Union Directives address general information for risk assessments of exposure to welding fumes and gases released by welding and allied processes.

In addition, national regulations and recommendations need to be consulted and applied.

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Welding Exposure Scenario WES - ENGL

ISO 4063:2009
Welding and allied processes -- Nomenclature of processes and reference numbers

ISO EN 21904-1:2020
Health and safety in welding and allied processes -- Equipment for capture and separation of welding fume -- Part 1: General requirements

ISO EN 21904-2:2020
Health and safety in welding and allied processes -- Equipment for capture and separation of welding fume -- Part 2: Requirements for testing and marking of separation efficiency

ISO EN 21904-3:2018
Health and safety in welding and allied processes -- Requirements, testing and marking of equipment for air filtration -- Part 3: Determination of the capture efficiency of on-torch welding fume extraction devices

ISO EN 21904-4:2020
Health and safety in welding and allied processes -- Equipment for capture and separation of welding fume -- Part 4: Determination of the minimum air volume flow rate of capture devices

ISO 15607:2003
Specification and qualification of welding procedures for metallic materials -- General rules

EN ISO 15699:
Specification and qualification of welding procedures for metallic materials -- Welding procedure specification, part 1

ISO 37916:2016
Safety of thermal cutting machines

Respiratory protective devices. Filtering half masks to protect against particles. Requirements, testing, marking

EN 14504:2018
Respiratory protective devices. Continuous flow compressed air line breathing devices. Requirements, testing and marking

Respiratory protective devices. Powered filtering devices incorporating a helmet or a hood. Requirements, testing, marking

EN 141:2000
Respiratory protective devices. Particle filters. Requirements, testing, marking

Directive 98/24/EC
on the protection of the health and safety of workers from the risks related to chemical agents at work

Directive 2004/37/EC
on the protection of workers from the risks related to exposure to carcinogens or mutagens at work

Directive 2017/2398
Amending Directive 2004/37/EC on chromium VI exposure limit

Directive 2017/689/EU
indicative occupational exposure limit values for nitrogen oxides

Directive 2019/130
Amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work

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according to 1907/2006/EC, Article 31

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Trade name: BÖHLER Pipeshield 81 T8-FD

Welding Exposure Scenario WES - ENGL
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Use Descriptor System according to REACH Regulation

REACH use descriptor system is a system developed by ECHA\(^1\) to facilitate chemical risk assessment and supply chain communication.

Welding fumes and gases are secondary non-intentional byproducts generated during welding operations. As such, they are not considered as substances or mixtures under REACH definition. They are not intended to be used by workers or consumers.

However, occupational exposure to welding fumes and gases may represent a risk similar to the ones of the substances and mixtures regulated by REACH.

The identification of hazards, the evaluation of their risks and the posting in places of control measures to secure the health and safety can be implemented with REACH methodology.

This system has been applied to welding fumes and gases.

The system firstly describes the Life Cycle Stage. The EWA welding consumable manufacturers define 2 life cycle stages: a) manufacture of the product and b) the application at an industrial site.

In addition, REACH uses five descriptors:
- Sector of use (SU), [NOTE: previously listed SU3 and SU10 have been removed by ECHA\(^2\)]
- Process category (PROC),
- Product category (PC),
- Article category (AC) and
- Environmental release category (ERC)

to describe identified uses.

The applicable descriptors for welding consumables are:
- SU14 SU15 PC7 PC8 PRO5 PRO21 PRO22 PRO23 PRO24 PRO25 ERC 2 ERC3 AC7
- SU15 SU17 PC7 PC8 PRO21 PRO22 PRO23 PRO24 PRO25 ERC5 ERC6 ERC8 AC1 AC2 AC7
- SU14 Manufacture of basic metals, including alloys
- SU15 Manufacture of fabricated metal products, except machinery and equipment
- SU19 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
- PC7 Base metals and alloys
- PC8 Welding and soldering products, flux products
- PROC5 Molding or blending in batch processes
- PROC21 Low energy manipulation of substances bound in materials and/or articles
- PROC22 Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting
- PROC23 Open processing and transfer operations with minerals/metals at elevated temperature
- PROC24 High (mechanical) energy work-up of substances bound in materials and/or articles
- PROC25 Other hot work operations with metals
- ERC2 Formulation of preparations
- ERC5 Formulation into solid matrix
- ERC6 Industrial use resulting in inclusion into or onto a matrix
- AC1 Vehicles
- AC2 Machinery, mechanical appliances, electrical/Electronic articles
- AC7 Metal articles

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Relevant phrases
H228 Flammable solid.
H250 Catches fire spontaneously if exposed to air.
Safety data sheet
according to 1907/2006/EC, Article 31

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H261 In contact with water releases flammable gases.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.

Training hints:

Department issuing SDS: Research and Development
Contact: Deniece Fiedler

Abbreviations and acronyms:
NCEC - National Chemical Emergency Centre (=Carechem24)
ADR: Accord relatif au transport international 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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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)
TRGS: Technische Regeln für Gefahrstoffe (Technical Rules for Dangerous Substances, BAuA, Germany)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
tPvB: very Persistent and very Bioaccumulative
Flam. Sol. 1: Flammable solids – Category 1
Pyr. Sol. 1: Pyrophoric solids – Category 1
Water-react. 2: Substances and mixtures which in contact with water emit flammable gases – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

* Data compared to the previous version altered.