# Safety data sheet

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

*Printing date 12.11.2021* *Version number 54* *Revision: 12.11.2021*

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

· **1.1 Product identifier**

· **Trade name: BÖHLER Q T 308L**
· **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**
Rods and Wires for Welding
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 Germany GmbH
Hafenstr. 21
59067 Hamm, Germany
www.voestalpine.com/welding

· **Further information obtainable from:**

Research and Development
Helena Stabel
+49 2381 271 - 578;
Helena.Stabel@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.
· **vPvB:** Not applicable.



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## SECTION 3: Composition/information on ingredients

· ***3.2 Chemical characterisation: Mixtures***
· ***Description:*** *Mixture of substances listed below with nonhazardous additions.*

· ***Dangerous components:***

| | | |
|---|---|---|
| *CAS: 7440-47-3*<br>*EINECS: 231-157-5*<br>*Reg.nr.: 01-2119485652-31-XXXX* | *chromium*<br>*substance with a Community workplace exposure limit* | *12.5-25%* |
| *CAS: 7440-02-0*<br>*EINECS: 231-111-4*<br>*Index number: 028-002-00-7*<br>*Reg.nr.: 01-2119438727-29-XXXX* | *nickel*<br>*Carc. 2, H351; STOT RE 1, H372*<br>*Skin Sens. 1, H317* | *5-12.5%* |
| *CAS: 7439-96-5*<br>*EINECS: 231-105-1*<br>*Reg.nr.: 01-2119449803-34-XXXX* | *manganese*<br>*substance with a Community workplace exposure limit* | *0.1-2.5%* |

· ***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:*** *No special measures required.*
· ***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.*

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*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:** | |
|---|---|
| **7440-47-3 chromium** | |
| IOELV | Long-term value: 2 mg/m³<br>as Cr |
| **7439-96-5 manganese** | |
| IOELV | Long-term value: 0.2* 0.05** mg/m³<br>as Mn; *inhalable, **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:*** *Not determined.*
· ***Odour:*** *Odourless*

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| | |
|---|---|
| · **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 % |
| · **9.2 Other information** | No further relevant information available. |

## 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** No dangerous reactions known.
· **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.
· **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.

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· ***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:*** *Not hazardous for 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*** *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* |

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| | |
|---|---|
| · **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":** | -<br>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

· **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.

· **Regulation (EC) No 273/2004 on drug precursors**

| | | |
|---|---|---|
| 7723-14-0 | phosphorus | 2A |

· **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 | 2 |

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

## 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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**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*

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**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 IARC Monograph 118. 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 EWA website.*

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

| Class[1] | Process *(according to ISO 4063)* | Base Materials | Remarks | Ventilation / Extraction / Filtration[14] | PPE[2] DC<15% | PPE[2] DC>15% |
|---|---|---|---|---|---|---|
| | | | **Non-confined space[16]** | | | |
| I | GTAW *141* | All | Except Aluminum | GV low[3] | n.r. | n.r. |
| | SAW *12* | | | | | |
| | Autogenous *3* | | | | | |
| | PAW *15* | | | | | |
| | ESW/EGW *72/73* | | | | | |
| | Resistance *2* | | | | | |
| | Stud welding *78* | | | | | |
| | Solid state *521* | | | | | |
| | Gases Brazing 9 | All | Except Cd- alloys | GV low[3] | n.r. | n.r. |
| II | GTAW *141* | Aluminum | n.a. | GV medium[4] | n.a. | FFP2[5] |
| III | MMAW *111* | All | Except Be-, V- , Mn-, Ni- alloys and Stainless[6] | GV low[7] LEV low[12] | Improved helmet[16] | FFP2[5] |
| | FCAW *136/137* | All | Except Stainless and Ni- alloys [6] | | | |
| | GMAW *131/135* | All | Except Cu-, Be-, V-alloys[6] | | | |
| | Powder Plasma Arc *152* | All | Except Be-, V-, Cu- , Mn-, Ni-alloys and Stainless [6] | | | |
| IV | All processes class I | Painted / primed / oiled / galvanized | No Pb containing primer | GV low[3] | FFP2[5] | FFP3[8], TH2/P2, or LDH3 |
| | All processes class III | Painted / primed / oiled / galvanized | No Pb containing primer | GV low [7] LEV low[12] | | |
| V | MMAW *111* | Stainless, Ni-, Be-, and V-alloys | n.a. | LEV high[10] | TH3/P3, LDH3[11] | TH3/P3, LDH3[11] |
| | FCAW *136/137* | Stainless, Mn- and Ni-alloys | | | | |
| | GMAW *131* | Cu-alloys | | | | |
| | Powder Plasma Arc *152* | Stainless, Mn-, Ni-, and Cu-alloys | | | | |

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| Class[1] | Process (according to ISO 4063) | Base Materials | Remarks | Ventilation / Extraction / Filtration[14] | PPE[2] DC<15% | PPE[2] DC>15% |
|---|---|---|---|---|---|---|
| **Non-confined space[16]** | | | | | | |
| VI | GMAW 131<br>Powder Plasma Arc 152 | Be-, and V-alloys | n.a. | Reduced (negative) pressured area[9] LEV low[12] | TH3/P3, LDH3[11] | TH3/P3, LDH3[11] |
| VII | Self shielded FCAW 114 | Un-, high alloyed steel | Cored wire, not containing Ba | Reduced (negative) pressured area[9] LEV medium[13] | | |
| | Self-shielded FCAW 114 | Un-, high alloyed steel | Cored wire, containing Ba | Reduced (negative) pressured area[9] LEV high[10] | TH3/P3, LDH3[11] | TH3/P3, LDH3[11] |
| | All | Painted / primed / galvanized | Paint / Primer containing Pb | | | |
| | Arc Gouging and Cutting 8 | All | n.a. | | | |
| | Thermal Spray | All | n.a. | | | |
| | Gases Brazing 9 | Cd- alloys | n.a. | | | |
| **Closed system or Confined space[15]** | | | | | | |
| I | Laser Welding 52<br>Laser Cutting 84<br>Electron Beam 51 | All | Closed system | GV medium[4] | n.a. | n.a. |
| VIII | All | All | Confined space | LEV high[10] External air supply | LDH3[11] | LDH3[11] |

Notes:

1 Class: approximate ranking to mitigate risk by selecting process/material combinations with the lowest value. Identified collective and individual risk management measures shall be applied

2 Personal Protective Equipment (PPE) required avoiding exceeding the National Exposure Limit Value (DC: Duty cycle expressed on 8 hours)

3 General Ventilation (GV) Low. With additional Local Exhaust Ventilation (LEV) and extracted air to the outside, the GV or LEV capacity may be reduced to 1/5 of the original requirement.

4 General Ventilation (GV) Medium (double compared to Low)

5 Filtrating half mask (FFP2)

6 When an alloyed consumable is used, measures from "Class V" are required

7 General Ventilation (GV) Low. When no Local Exhaust Ventilation, the ventilation requirement is 5-fold

8 Filtrating half mask (FFP3), helmet with powered filters (TH2/P2), or helmet with external air supply (LDH2)

9 Reduced (negative) pressured Area: A separate, ventilated area where reduced (negative) pressure, compared to the surrounded area, is maintained

10 Local Exhaust Ventilation (LEV) High, extraction at source (includes table, hood, arm or torch 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, silos, vats, utility vaults, tanks, etc.

16 Improved helmet, designed to avoid direct flow of welding fumes inside

n.a. Not applicable

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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| | |
|---|---|
| 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 15609: | Specification and qualification of welding procedures for metallic materials - Welding procedure specification part1 -> part 6 |
| ISO 17916:2016 | Safety of thermal cutting machines |
| EN 149:2001+A1:2009 | Respiratory protective devices. Filtering half masks to protect against particles. Requirements, testing, marking |
| EN 14594:2018 | Respiratory protective devices. Continuous flow compressed air line breathing devices. Requirements, testing and marking |
| EN 12941:1998+A2:2008 | Respiratory protective devices. Powered filtering devices incorporating a helmet or a hood. Requirements, testing, marking |
| EN 143:2000 | 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 2017/164/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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**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 putting in place 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[1]]*
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:
Manufacture of consumables:

SU14 SU15 PC7 PC38 PROC5 PROC21 PROC22 PROC23 PROC24 PROC25 ERC 2 ERC3 AC7

Industrial and Professional welding:

SU15 SU17 PC7 PC38 PROC21 PROC22 PROC23 PROC24 PROC25 ERC5 ERC8c ERC8f AC1 AC2 AC7

| | |
|---|---|
| SU14 | Manufacture of basic metals, including alloys |
| SU15 | Manufacture of fabricated metal products, except machinery and equipment |
| SU17 | General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment |
| PC7 | Base metals and alloys |
| PC38 | Welding and soldering products, flux products |
| PROC5 | Mixing 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 |
| ERC3 | Formulation into solid matrix |
| ERC5 | Industrial use resulting in inclusion into or onto a matrix |
| AC1 | Vehicles |
| AC2 | Machinery, mechanical appliances, electrical/electronic articles |
| AC7 | Metal articles |

[1] *Guidance on Information Requirements and Chemical Safety Assessment*, Chapter R.12: Use description, Version 3.0 December 2015 (https://echa.europa.eu/documents/10162/13632/information_requirements_r12_en.pdf)

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European Welding Association

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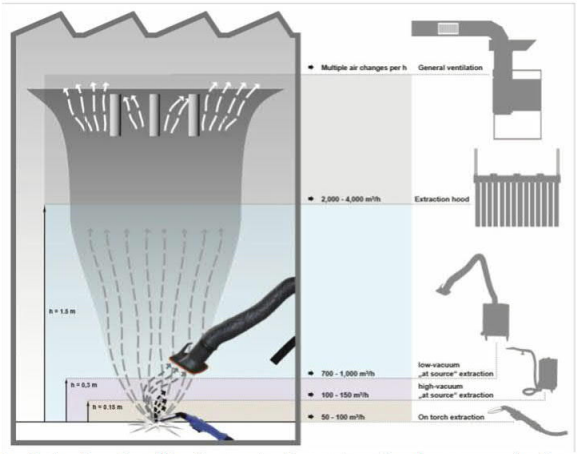
**Annex: Illustration of welding fume extraction systems (optional)**




Note: Illustration of welding fume extraction systems is only an example. Compliance, with national country legislation, is needed if different

*This document has been prepared by the members of EWA technical committees. These members are working for different European producers of welding equipment and welding consumables ( which are members of EWA). All EWA technical information documents are based on EWA members' experience and technical knowledge at the time of publication. Such technical information documents provide voluntary guidance and are not binding.*

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· ***Relevant phrases***

*H317 May cause an allergic skin reaction.*

*H351 Suspected of causing cancer.*

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*H372 Causes damage to organs through prolonged or repeated exposure.*

· ***Department issuing SDS:*** *R&D*
· ***Contact:*** *Helena Stabel*
· ***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)*
*PBT: Persistent, Bioaccumulative and Toxic*
*vPvB: very Persistent and very Bioaccumulative*
*Skin Sens. 1: Skin sensitisation – Category 1*
*Carc. 2: Carcinogenicity – Category 2*
*STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1*
· **** Data compared to the previous version altered.***