# MATERIAL SAFETY DATA SHEET MSDSENG165

**INETUB B81T5-B2**

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|---|---|
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*in accordance to Commission Regulation (EU) 2020/878 of 18 June 2020*



## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

INETUB B81T5-B2

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Flux cored wire for gas shielded arc welding.

### 1.3 Details of the supplier of the safety data sheet

INE SpA, Via Facca 10, 35013 Cittadella (Padova), Italy
Tel. : +39 049/9481111
Fax: + 39 049/9400249
Internet: www.ine.it
E mail: ine@ine.it

### 1. 4 Emergency telephone number

INE SpA +39 049/9481111
Hours of operation: 8.30-12-30 and 13.30-17.30

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

This product doesn't meet the criteria of classification in any hazard class according to the applicable Regulations. However the form in which product is placed on the market does not present a danger, such preparations do not require a label.

### 2.2. Label elements

Labeling not applicable. The product, in its massive form, does not require labeling according to Regulation (EC) No. 1272/2008, if it is not classified as dangerous for health and the environment.

### 2.3 Other hazards

- Results of evaluation of PTB and vPvB substances: the flux cored wire does not meet the criteria for PBT or vPvB in accordance with Annex XIII.
- Heat: spatter and melting metal can cause burn injuries.
- Radiation: UV, IR radiations. Arc ray can severely damage eyes or skin.
- Fumes: formation of dangerous fumes during use. Inhalation of welding fumes may cause respiratory irritation. Cough. Excessive or prolonged inhalation of fumes may cause metal fume fever.
- Electricity: electric shocks can kill.
- Magnetic fields: persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer f the device.
- Noise: Noises generated by welding equipment could damage auditory system.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Non applicabile.

### 3.2 Mixtures

The substances in the preparation are as follows:

| Name of the substance | Range of concentration | CAS Number | EC Number | REACH Number | Hazard class | hazard statements |
|---|---|---|---|---|---|---|
| | | | | | According to European Regulation 1272/2008 | |
| Iron | 85 - 95 % | 7439-89-6 | 231-096-4 | 01-2119462838-24 | – | – |
| Calcium fluoride  GHS08 | 3 - 8 % | 7789-75-5 | 232-188-7 | – | STOT RE 1 | H372 |
| Manganese | 1 - 3 % | 7439-96-5 | 231-105-1 | 01-2119449803-34 | – | – |
| Silicon | < 1 % | 7440-21-3 | 231-130-8 | – | – | – |
| Potassium silicate  GHS05 GHS07 | < 1 % | 1312-76-1 | 215-199-1 | 01-2119456888-17 | Skin Corr. 1B<br>Eye Dam. 1<br>STOT SE 3 | H314<br>H318<br>H335 |
| Calcium carbonate | < 1 % | 1317-65-3 | 215-279-6 | – | – | – |
| Magnesium  GHS02 | < 0.5 % | 7439-95-4 | 231-104-6 | 01-2119537203-49 | Flam. Sol. 1<br>Self-heat. 1<br>Water-react. 2 | H228<br>H252<br>H261 |
| Chromium | 1.0 – 1.6 % | 7440-47-3 | 231-157-5 | 01-2119485652-31 | – | – |
| Molybdenum | 0.35 – 0.70 % | 7439-98-7 | 231-107-2 | 01-2119472304-43 | – | – |

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

Welding fume inhalation: assure fresh air breathing. Obtain medical attention if breathing difficulty persists.

Skin contact with hot metal: Flush with plenty of water. Seek medical advice. Seek medical attention if burns develop. Take off immediately all contaminated clothing.

Eye contact with hot metal: rinse immediately with plenty of water. Seek medical attention immediately. In case of burns from radiations, seek medical attention.

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

See 2.3.

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

No additional information available.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1 Extinguishing media

Suitable: powder, carbon dioxide.

Unsuitable: water.

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

The product for arc welding process is not flammable.

### 5.3 Advice for firefighters

Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

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

Not applicable.

### 6.2 Environmental precautions

Not applicable.

### 6.3 Methods and material for containment and cleaning up

Solid product: collect with mechanical equipments, sweep or shovel into suitable containers.

### 6.4 Reference to other sections

Section number 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1 Precautions for safe handling

No special precautions necessary the product. During its use, a system of aspiration system and/or ventilation such as to ensure the fulfillment of exposition standards shall be planned.

Do not eat, drink and smocking in the workplaces. Wash hands shower when leaving the working areas. Remove contaminated clothes and protective equipment before to enter in the areas where you eat.

### 7.2 Conditions for safe storage, including any incompatibilities

Avoid the contact with chemical substances like acids or bases

High-density solid product. Avoid storage in unstable positions

### 7.3 Specific end use(s)

Not applicable.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

The following substances may be produced during the welding process in the fume:

| Substance | CAS Number | TLV-TWA [mg/m³] * | Gestis Limit value (8 h) [mg/m³] ** |
|---|---|---|---|
| Fe oxides (powder and fumes as Fe) | 1309-37-1 | 5 | 5 |
| Manganese and inorganic compounds (as Mn) | 7439-96-5 | 0.1 | 0.2 |
| Manganese, fume or respirable dust | 7439-96-5 | | 0.2 |
| Ozone | 10028-15-6 | 0.1 | 0.1 |
| Fluorides (as F) | | 2.5 | 2.5 |
| Magnesium oxide, fume | 1309-48-4 | 10 | 10 |
| Cr, powder and inorganic compounds (as Cr) | 7440-47-3 | 0.5 | |
| Chromium, metal | 7440-47-3 | | 0.5 |
| Molybdenum, insoluble compounds and metal (as Mo) | 7439-98-7 | 10 | |
| Molybdenum compounds (as Mo) | 7439-98-7 | | 10 |
| Titanium oxides | 13463-67-7 | 10 | 10 |

* References of TLV limit values taken from “2021 TLVs and BEIs”, ACGIH ed. 2021.

** Reference IFA limit values taken from IFA ((Institute for Occupational Safety and Health). Date of update: April 2020.

### 8.2 Exposure controls

- Protection in case of insufficient ventilation: wear suitable respiratory equipment. Do not breathe gas/fumes/vapour.
- Hand protection: Welding gloves.
- Skin protection: Skin protection appropriate to the conditions of use should be provided.
- It is recommended to use of Exposure Scenario in addition to the provided information.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

| PROPERTIES | VALUE |
|---|---|
| Appearance: | Solid, grey |
| Odour | Odourless |
| Odour threshold; | Not applicable |
| pH | Not applicable |
| Melting point/freezing point [°C] | ca 1500 / Not applicable |
| Initial boiling point and boiling range | No data available |
| Flash point; | No data available |
| Evaporation rate; | No data available |
| Flammability (solid, gas); | No data available |
| Upper/lower flammability or explosive limits; | No data available |
| Vapour pressure; | No data available |
| Vapour density; | No data available |
| Relative density [kg/dm3] | ~ 7 |
| Solubility(ies); | No data available |
| Partition coefficient: n-octanol/water; | No data available |
| Auto-ignition temperature; | No data available |
| Decomposition temperature; | No data available |
| Viscosity; | No data available |
| Explosive properties | No data available |
| Oxidising properties. | No data available |

### 9.2 Other information

No additional information available.

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity

None under normal conditions.

### 10.2 Chemical stability

Stable under normal conditions (< 300°C).

### 10.3 Possibility of hazardous reactions

None under normal conditions.

### 10.4 Conditions to avoid

None under normal conditions.

### 10.5 Incompatible materials

Contact with chemical substances like acids or bases, this product could cause generation of gas.

### 10.6 Hazardous decomposition products

Formation of dangerous fumes during use. Welding fumes are classified carcinogen by the IARC (International Agency for Research on Cancer): Group 1, Carcinogenic to humans. The amount of fumes generated change with the welding parameters and the diameters of the consumable; it could be developed from the reaction of oxidation of the components listed in section 3 or included in the base material.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

| | |
|---|---|
| Acute toxicity | Not classified |
| Skin corrosion/irritation | Not classified |
| Serious eye damage/irritation | Not classified |
| Respiratory or skin sensitisation | Not classified |
| Germ cell mutagenicity | Not classified |
| Carcinogenicity | See Section 8 and 10 for welding fumes |
| Reproductive toxicity | Not classified |
| STOT-single exposure | Not classified |
| STOT-repeated exposure | See Section 8 and 10 for welding fumes |
| Aspiration hazard | Not classified |

### 11.2 Information on other hazards

No additional information available.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Toxicity

The flux cored wire, in massive form, don't present hazards to the environment. Avoid the condition that can lead to their corrosion and the release of the metals in the environment.

### 12.2 Persistence and degradability

The flux cored wire, in massive form, don't present hazards to the environment. Avoid the condition that can lead to their corrosion and the release of the metals in the environment.

### 12.3 Bioaccumulative potential

The flux cored wire, in massive form, don't present hazards to the environment. Avoid the condition that can lead to their corrosion and the release of the metals in the environment.

### 12.4 Mobility in soil

The flux cored wire, in massive form, don't present hazards to the environment. Avoid the condition that can lead to their corrosion and the release of the metals in the environment.

### 12.5 Results of PBT and vPvB assessment

The flux cored wire, in massive form, don't present hazards to the environment. Avoid the condition that can lead to their corrosion and the release of the metals in the environment.

### 12.6 Endocrine disrupting properties

It does not contain substances having endocrine disrupting properties with respect to non-target organisms as they do not meet the criteria in Section B of Regulation (EU) 2017/2100.

### 12.7 Other adverse effects

The flux cored wire, in massive form, don't present hazards to the environment. Avoid the condition that can lead to their corrosion and the release of the metals in the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Regional legislation (waste): Dispose in a safe manner in accordance with local/national regulations.
Waste code for the industrial waste according to Commission Decision 2014/955/EU:

- 12 01 02: powder and particulate of ferrous materials.
- 12 01 13: welding wastes.

## SECTION 14: TRANSPORT INFORMATION

**14.1 UN number or ID number:**

Product is not classified as dangerous good for transport and have no UN number

**14.2 UN proper shipping name**

Not applicable.

**14.3 Transport hazard class(es)**

Not applicable.

**14.4 Packing group**

Not applicable.

**14.5 Environmental hazards**

The product is not environmentally hazardous according to the criteria of the UN Model Regulations (as reflected in the IMDG Code, ADR, RID and ADN) and/or a marine pollutant according to the IMDG Code.

**14.6 Special precautions for user**

There are no any special precautions.

No additional information available.

**14.7 Maritime transport in bulk according to IMO instruments**

Not applicable.

## SECTION 15: REGULATORY INFORMATION

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

**EU regulations**

It does not contain substances subject to authorization according to REACH (Annex XIV).

It does not contain substances subject to REACH restrictions (Annex XVII).

Additional rules, limitations and legal prescriptions:

Directive 2015/863 / EU (RoHS III), Directive 2013/28 / EU: the product complies with the mentioned directives and the related applicable obligations.

**National regulations**

No data available.

**15.2 Chemical safety assessment**

No further information available.

## SECTION 16: OTHER INFORMATION

The contents and the format of this safety data sheet comply with the Commission Regulation (EU) 2020/878, Regulation (EC) No. 1907/2006 and Regulation (EC) No 1272/2008 (CLP Regulation).

**FULL TEXT OF HAZARD CLASSES AND HAZARD STATEMENT USED IN SECTION 3**

STOT RE 1: Specific target organ toxicity (repeated exposure), category 1;

Skin Corr. 1B: Skin corrosion/irritation Hazard category 1B;

Eye Dam. 1: Serious eye damage/eye irritation Hazard category 1;

STOT SE 3: Specific target organ toxicity - single exposure Hazard category 3;

Flam. Sol. 1: Flammable solid Hazard category 1;

Self-heat. 1: Self-heating substance or mixture Hazard category 1;
Water-react. 2: Substance or mixture which in contact with water emits flammable gas Hazard category 2;
H372: Causes damage to organs (lungs) through prolonged or repeated exposure (inhalation);
H314: Causes severe skin burns and eye damage;
H318: Causes serious eye damage;
H335: May cause respiratory irritation;
H228: Flammable solid;
H252: Self-heating in large quantities; may catch fire;
H261: In contact with water releases flammable gases.

**LEGEND:**

- ✓ PBT: persistent, bioaccumulative and toxic;
- ✓ vPvB: very persistent and very bioaccumulative;
- ✓ TLV-TWA: threshold limit value - time weighted average;

**BIBLIOGRAPHY**


- ✓ Commission Regulation (EU) 2020/878;
- ✓ Regulation (EC) No 1907/2006;
- ✓ Regulation (EC) No 1272/2008;
- ✓ Guidance on the compilation of safety data sheets, Version 4.0 December 2020;
- ✓ http://echa.europa.eu;
- ✓ http://limitvalue.ifa.dguv.de;
- ✓ European Welding Association: recommendations for Exposure Scenarios, Risk Management Measures and to Welding Exposure Scenario WES 2021;
- ✓ 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council Text with EEA relevance

## EXPOSURE SCENARIO

### 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 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 | | | | |

| 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* | Be-, and V-alloys | n.a. | Reduced (negative) pressured area[9] LEV low[12] | TH3/P3, LDH3[11] | TH3/P3, LDH3[11] |
| | Powder Plasma Arc *152* | | | | | |
| 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* | All | Closed system | GV medium[4] | n.a. | n.a. |
| | Laser Cutting 84 | | | | | |
| | Electron Beam *51* | | | | | |
| 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.

| | |
|---|---|
| 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 |

## 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

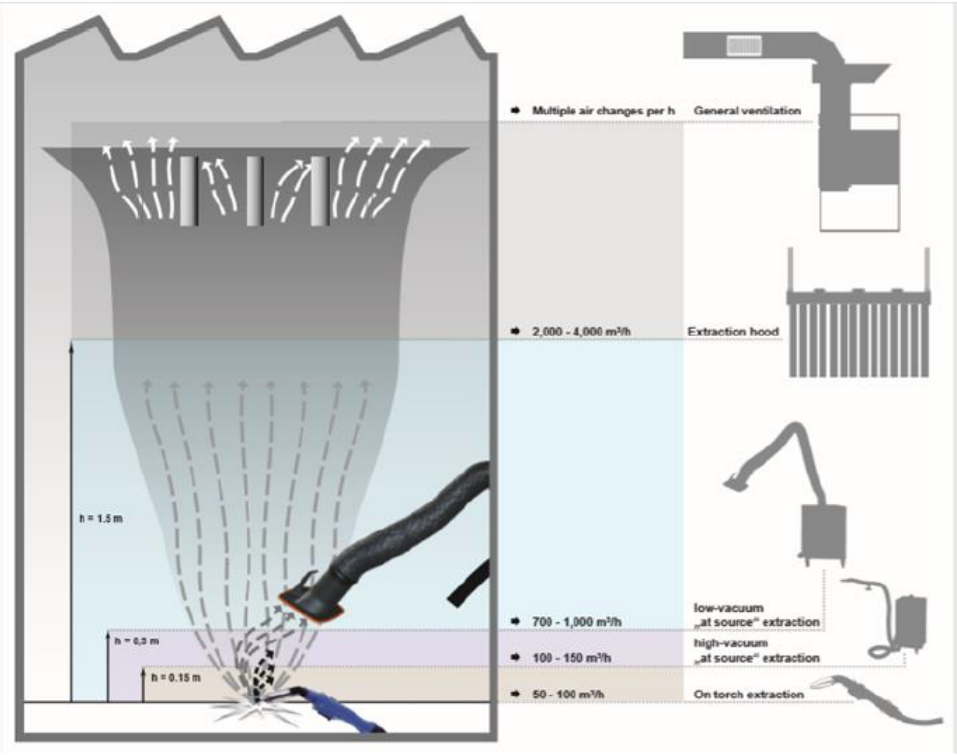
Industrial and Professional welding:

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)

## 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

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