

## DW-A55E

Version number: 1.0

Date of compilation: 2019-11-26

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

#### 1.1 Product identifier

Trade name	<b>DW-A55E</b>
Registration number (REACH)	not relevant (mixture)

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

Relevant identified uses	Welding and soldering product
Specific process or activity	welding (welding process)

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

 Kobelco Welding of Europe B.V.  
 Eisterweg 8  
 6422 PN Heerlen Netherlands

 Telephone: +31(0)45-5471111  
 Telefax: +31(0)45-5471100  
 info@kobelcowelding.nl

e-mail (competent person)	info@kobelcowelding.nl
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#### 1.4 Emergency telephone number

Emergency information service	+31(0)45-5471111 This number is only available during the following office hours: Mon-Fri 09:00 - 17:00
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Poison centre		
Country	Name	Telephone
Ireland	National Poisons Information Centre (NPIC)	Consumer: 01 809 2166 (8am-10pm)   Healthcare Professional: 1 809 2566 (24/7)

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

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

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.4S	skin sensitisation	1	Skin Sens. 1	H317
3.6	carcinogenicity	2	Carc. 2	H351
3.9	specific target organ toxicity - repeated exposure	2	STOT RE 2	H373

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure.

#### 2.2 Label elements

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

- signal word	Warning
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- pictograms

GHS07, GHS08



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### - hazard statements

- |      |  |
|------|--|
| H317 | May cause an allergic skin reaction.                               |
| H351 | Suspected of causing cancer.                                       |
| H373 | May cause damage to organs through prolonged or repeated exposure. |

### - precautionary statements

- |           |   |
|-----------|---|
| P260      | Do not breathe dust/fume/gas/mist/vapours/spray.  |
| P280      | Wear protective gloves/protective clothing/eye protection/face protection.                          |
| P308+P313 | IF exposed or concerned: Get medical advice/attention.  |
| P314      | Get medical advice/attention if you feel unwell.  |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention.                                    |
| P501      | Dispose of contents/container in accordance with local/regional/national/international regulations. |

### - hazardous ingredients for labelling

Nickel

## 2.3 Other hazards

Avoid breathing dust. Avoid contact with eyes. Avoid skin contact.

When this product is used in a welding process, the most significant hazards are electric shock, fumes, gases, radiation, spatter, slag and heat.

Shock: electric shock can kill.

Fumes: Overexposure to welding fumes may result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function and nervous system.

Gases: gases may cause gas poisoning.

Radiation: arc rays can severely damage eyes or skin.

Spatter, slag and heat: spatter and slag can damage eyes. Spatter, slag, melting material, arc rays and hot welds can cause burn injuries and start fires.

#### Substance(s) formed under the conditions of use.

The welding fumes produced from this welding electrode may contain the listed constituent(s) of Sec.3 and/or their complex metallic oxides as well as solid particles or other constituents from the consumables, base metal, or base metal coating not listed Sec.3. The welding fumes may contain Mn, Ni, Cr(VI) and their compounds. Refer to Sec.8 and 10.

### Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.



## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not relevant (mixture)

### 3.2 Mixtures




The product does not contain any (other) ingredients which are classified according to present knowledge of the supplier and contribute to the classification of the product and hence require reporting in this section.

Name of sub-stance	Identifier	Wt%	Classification acc. to GHS	Picto-grams	Notes	Specific Conc. Limits	M-Factors
Nickel	CAS No 7440-02-0  EC No 231-111-4  REACH Reg. No 01- 2119438727 -29-xxxx	≤ 1	Skin Sens. 1 / H317 Carc. 2 / H351 STOT RE 1 / H372 Aquatic Chronic 3 / H412	 	IARC: 2B		

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Name of sub- stance	Identifier	Wt%	Classification acc. to GHS	Picto- grams	Notes	Specific Conc. Limits	M-Factors
Magnesium	CAS No 7439-95-4  EC No 231-104-6  Index No 012-001-00-3  REACH Reg. No 01- 2119537203 -49-xxxx	≤ 1	Pyr. Sol. 1 / H250 Water-react. 1 / H260		GHS- HC T(a)		
Dipotassium hexafluorosilic- ate	CAS No 16871-90-2  EC No 240-896-2  Index No 009-012-00-0  REACH Reg. No 01- 2119539421 -45-xxxx	≤ 1	Acute Tox. 3 / H301 Acute Tox. 3 / H311 Acute Tox. 2 / H330		A(a) GHS- HC		
Respirable Crystalline Silica	CAS No 14808-60-7  EC No 238-878-4	≤ 1	STOT RE 1 / H372		IARC: 1 IOELV		

### Notes

A(a): The name of substance is a general description. It is required that the correct name is stated on the label  
 GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)  
 IARC: 1: IARC group 1: carcinogenic to humans (International Agency for Research on Cancer)  
 IARC: IARC group 2B: possibly carcinogenic to humans (International Agency for Research on Cancer)  
 2B:  
 IOELV: Substance with a community indicative occupational exposure limit value  
 T(a): This substance is marketed in a form which has the physical properties as indicated

### Remarks

For full text of H-phrases: see SECTION 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth. Disconnect and turn off the power. If the victim is semi- or unconscious, open the airway. If the victim cannot breathe, give artificial respiration. If there is no pulse, massage the chest and apply artificial respiration.

#### Electrical shock

Disconnect and turn off the power. If the victim is semi- or unconscious, open the airway. If the victim cannot breathe, give artificial respiration. If there is no pulse, massage the chest and apply artificial respiration.

#### Following inhalation

Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. If experiencing respiratory symptoms: Call a doctor.

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**Following skin contact**

Rinse skin with water/shower. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.

**Following eye contact**

Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**Following ingestion**

Rinse mouth with water (only if the person is conscious). Call a POISON CENTER or doctor if you feel unwell.

**4.2 Most important symptoms and effects, both acute and delayed****Symptoms.**

Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).

Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects. Refer to Section 11 for more information.

**Hazards.**

Welding hazards are complex and may include physical and health hazards such as but not limited to electric shock, physical strains, radiation burns (eye flash), thermal burns due to hot metal or spatter and potential health effects of overexposure to welding fume or dust. Refer to Section 11 for more information.

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

Treat symptomatically.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

As shipped, this product is non flammable. However, welding arc and spark can ignite combustible and flammable products, Co-ordinate firefighting measures to the fire surroundings, Dry extinguishing powder, Carbon dioxide (CO<sub>2</sub>), Water spray

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

No further relevant information available.

**Hazardous combustion products**

During fire hazardous fumes/smoke could be produced.

**5.3 Advice for firefighters**

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

**Special protective equipment for firefighters**

Self-contained breathing apparatus (SCBA). Standard protective clothing for firefighters.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures****For non-emergency personnel**

Remove persons to safety.

**For emergency responders**

Wear breathing apparatus if exposed to vapours/dust/spray/gases. Use personal protective equipment as required. If airborne dust and/or fume is present, use adequate engineering controls and, if needed, personal protection to prevent overexposure. Refer to recommendations in Section 8.

**6.2 Environmental precautions**

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

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

Advice on how to contain a spill

Covering of drains. Take up mechanically.

Advice on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

**6.4 Reference to other sections**

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Keep away from fire.

Recommendations

**Reduction of fumes and dusts.**

Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Read and understand the manufacturer's instruction and the possible precautionary label on the product.

**Prevention of electric shock.**

Do not touch live electrical parts such as the welding wire and welding machine terminals. Wear insulated gloves and safety boots. If welding must be performed in damp locations or with wet clothing, on metal structures or when in cramped positions such as sitting, kneeling or lying, or if there is a high risk of unavoidable or accidental contact with workpiece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control.

**Prevention of fire and explosion.**

Remove flammable and combustible materials and liquids.

**Prevention of harm when handling welding consumables.**

Handle with care to avoid stings and cuts. Hold the welding wire manually when loosening the wire.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

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

Managing of associated risks

- explosive atmospheres

Removal of dust deposits.

- flammability hazards

Keep away from fire. Keep away from combustible material.

- incompatible substances or mixtures

Acids, Alkalies, Oxidisers

Control of effects

Protect against external exposure, such as

High temperatures, Humidity

Consideration of other advice

Store in a well-ventilated place. Keep container tightly closed.

- general rule

Store welding consumables inside a room without humidity. Do not store welding consumables directly on the ground or beside a wall. Keep welding consumables away from chemical substances like acids which could cause chemical reactions.

- ventilation requirements

Use local and general ventilation.

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### 7.3 Specific end use(s)

Welding (welding process).

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Notation	Source
EU	silica, crystalline	14808-60-7	IOELV		0.1			r	2017/2398/EU
EU	manganese	7439-96-5	IOELV		0.2			i	2017/164/EU
IE	dusts non-specific		OELV		10			i	S.I. No. 619 of 2001
IE	dusts non-specific		OELV		4			r	S.I. No. 619 of 2001
IE	titanium dioxide	13463-67-7	OELV		10			i	S.I. No. 619 of 2001
IE	titanium dioxide	13463-67-7	OELV		4			r	S.I. No. 619 of 2001
IE	quartz	14808-60-7	OELV		0.1			r	S.I. No. 619 of 2001
IE	manganese	7439-96-5	OELV		0.2		3	fume, i	S.I. No. 619 of 2001
IE	manganese	7439-96-5	OELV		0.02			fume, r	S.I. No. 619 of 2001
IE	manganese	7439-96-5	OELV		0.2			i	S.I. No. 619 of 2001
IE	manganese	7439-96-5	OELV		0.05			r	S.I. No. 619 of 2001
IE	nickel	7440-02-0	OELV		0.5				S.I. No. 619 of 2001

#### Notation

fume	as fume
i	inhalable fraction
r	respirable fraction
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

#### Relevant DNELs/DMELs/PNECs and other threshold levels

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Nickel	7440-02-0	DNEL	0.05 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
Nickel	7440-02-0	DNEL	0.05 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects

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Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Nickel	7440-02-0	DNEL	0.05 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
Nickel	7440-02-0	DNEL	11.9 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - local effects
Magnesium	7439-95-4	DNEL	10 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Dipotassium hexafluorosilicate	16871-90-2	DNEL	2.5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
Dipotassium hexafluorosilicate	16871-90-2	DNEL	2.5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - systemic effects
Dipotassium hexafluorosilicate	16871-90-2	DNEL	2.5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects
Dipotassium hexafluorosilicate	16871-90-2	DNEL	2.5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	acute - local effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Nickel	7440-02-0	PNEC	7.1 µg/l	aquatic organisms	freshwater	short-term (single instance)
Nickel	7440-02-0	PNEC	8.6 µg/l	aquatic organisms	marine water	short-term (single instance)
Nickel	7440-02-0	PNEC	0.33 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Nickel	7440-02-0	PNEC	109 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Nickel	7440-02-0	PNEC	109 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Nickel	7440-02-0	PNEC	29.9 mg/kg	terrestrial organisms	soil	short-term (single instance)
Magnesium	7439-95-4	PNEC	1.4 mg/l	aquatic organisms	water	intermittent release
Magnesium	7439-95-4	PNEC	0.41 mg/l	aquatic organisms	freshwater	short-term (single instance)
Magnesium	7439-95-4	PNEC	0.41 mg/l	aquatic organisms	marine water	short-term (single instance)
Magnesium	7439-95-4	PNEC	10.8 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Magnesium	7439-95-4	PNEC	268 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Magnesium	7439-95-4	PNEC	268 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Magnesium	7439-95-4	PNEC	268 mg/kg	terrestrial organisms	soil	short-term (single instance)
Dipotassium hexafluorosilicate	16871-90-2	PNEC	0.9 mg/l	aquatic organisms	freshwater	short-term (single instance)
Dipotassium hexafluorosilicate	16871-90-2	PNEC	0.9 mg/l	aquatic organisms	marine water	short-term (single instance)

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Relevant PNECs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Dipotassium hexafluoro-silicate	16871-90-2	PNEC	51 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Dipotassium hexafluoro-silicate	16871-90-2	PNEC	11 mg/kg	terrestrial organisms	soil	short-term (single instance)

### 8.2 Exposure controls

#### Appropriate engineering controls

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLVs in the worker's breathing zone and the general area. Use extra ventilation when welding galvanized plate or coated plate. Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits.

#### Individual protection measures (personal protective equipment)

##### Eye/face protection



Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

##### Skin protection

Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Wear dry gloves free of holes or split seams. Train the welder not to permit electrically live parts or electrodes to contact skin or clothing or gloves if they are wet. Insulate yourself from the work piece and ground using dry plywood, rubber mats or other dry insulation.

##### - hand protection



Wear suitable gloves. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The exact break through time should be requested at the protective glove manufacturer and must be observed.

##### - breakthrough times of the glove material

Use gloves with a minimum breakthrough times of the glove material: >480 minutes (permeation: level 6).

##### - other protection measures



Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling. Wear head, hand and body protection which help to prevent injury from radiation, sparks and electric shock. At a minimum this includes welder's gloves and protective face shield and may include arm protectors, aprons, hats, shoulder protection as well as dark substantial clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

##### Respiratory protection



Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. Use respirable fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV. Keep head out of the fumes and gases.

##### Ear protection



Wear earplugs or earmuffs when using engine driven arc welding machine or pulsed arc welding machine that generates high-level noise.



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### Advice on hygiene measures

Do not eat, drink or smoke when using this product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

### Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

Physical state	solid wire or rod
Colour	grey
Odour	odourless

#### Other safety parameters

pH (value)	not applicable
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	non-combustible
Vapour pressure	not determined
Density	not determined
Vapour density	this information is not available
Relative density	information on this property is not available
Solubility(ies)	not determined

#### Partition coefficient

- n-octanol/water (log KOW)	this information is not available
Auto-ignition temperature	information on this property is not available
Viscosity	not relevant (solid matter)
Explosive properties	none
Oxidising properties	none

### 9.2 Other information

There is no additional information.

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### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Contact with chemical substances could cause generation of gas.

#### 10.2 Chemical stability

See below "Conditions to avoid".

#### 10.3 Possibility of hazardous reactions

Contact with acids, alkalis and oxidizing agents could cause reaction and generation of gas.

#### 10.4 Conditions to avoid

Keep away from heat Acids Alkalis Oxidisers.

#### 10.5 Incompatible materials

Oxidisers, Acids, Alkalis

#### 10.6 Hazardous decomposition products

Manganese has a low exposure limit, in some countries, that may be easily exceeded. Welding fumes and gases are generated as byproducts during the welding. The composition and quantity of fumes and gases cannot be recognized simply. The composition and quantity of the fumes and gases are dependent upon the base metal being welded (included coating such as solvent, paint, plating), the welding process, welding procedure, welding parameter and electrodes used. Other conditions which also influence the quantity of the fumes and gases to which workers may be exposed include the number of welding spots, the volume of the worker area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.). The fumes and gases are different in percent and form from the ingredients listed in Section 3. The fumes and gases include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc., as noted above. Reasonably expected fume constituents produced during arc welding include the oxides of iron, manganese and other metals present in the welding consumable or base metal. And, it is known that these metal oxides are complex oxides, not single compounds. Hexavalent chromium compounds may be in the welding fume of consumables or base metals which contain chromium. Nickel compounds may be in the welding fume of consumables or base metals which contain Nickel. Gaseous and particulate fluoride may be in the welding fume of consumables which contain fluoride. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

Inhalation of welding fumes and gases can be dangerous to your health. The composition and quantity of both are dependent upon the material being worked, the process, procedures and consumables used.

##### Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

##### Classification according to GHS (1272/2008/EC, CLP)

##### Acute toxicity

Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).

**Ni:** The presence of nickel compounds in fume can cause metallic taste, nausea, tightness of chest, fever.

**F:** Exposure to the fluoride ion in welding fumes may cause hypocalcemia-calcium deficiency in the blood that can result in muscle cramps and inflammation and necrosis of mucous membranes.

**Gases:** Some toxic gases associated with welding may cause pulmonary edema, asphyxiation, and death.

- acute toxicity of components of the mixture

Acute toxicity estimate (ATE) of components of the mixture			
Name of substance	CAS No	Exposure route	ATE
Dipotassium hexafluorosilicate	16871-90-2	oral	100 mg/kg
Dipotassium hexafluorosilicate	16871-90-2	dermal	300 mg/kg
Dipotassium hexafluorosilicate	16871-90-2	inhalation: dust/mist	0.05 mg/l/4h

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Acute toxicity of components of the mixture					
Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Nickel	7440-02-0	oral	LD50	>9,000 mg/kg	rat
Magnesium	7439-95-4	oral	LD50	>2,000 mg/kg	rat
Dipotassium hexafluorosilicate	16871-90-2	oral	LD50	<2,000 mg/kg	rat
Dipotassium hexafluorosilicate	16871-90-2	inhalation: dust/mist	LC50	2.021 mg/l/4h	rat

### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

### Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

### Respiratory or skin sensitisation

May cause an allergic skin reaction.

**Ni:** Nickel and its compounds are skin sensitizers with symptoms ranging from slight itch to severe dermatitis.

### Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

### Carcinogenicity

Suspected of causing cancer.

### Reproductive toxicity

Shall not be classified as a reproductive toxicant.

### Summary of evaluation of the CMR properties

Welding fumes (not otherwise specified) are possibly carcinogenic to humans.

**SiO<sub>2</sub>:** Crystalline silica is classified as a human carcinogen (Group I) by the IARC (International Agency for Research on Cancer).

**Ni:** Nickel is considered carcinogenic. Long term overexposure to nickel fumes may also cause pulmonary fibrosis and oedema.

**Arc rays:** Skin cancer has been reported.

Name acc. to inventory	CAS No	Wt%	Classification	Remarks	Number	Date indication
nickel	7440-02-0	2.9	2B			1990
Silica dust, crystalline	14808-60-7	0.9	1	in the form of quartz or cristobalite		2012

#### Legend

1 Carcinogenic to humans  
2B Possibly carcinogenic to humans

### Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

### Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Long term exposure to welding and allied processes gasses, dusts and fumes may contribute to pulmonary irritation or pneumoconiosis and other pulmonary effects. The severity of the change is proportional to the length of the exposure. The changes may be caused by non-work factors such as smoking, etc.

**Ni:** Nickel is considered carcinogenic. Long term overexposure to nickel fumes may also cause pulmonary fibrosis and oedema.

**Mn:** Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languor, sleepiness, muscular weakness, emotional disturbances and spastic gait. The effect of manganese on the nervous system is irreversible.

**Fe:** Inhalation of too much iron oxide fume over a long time can cause siderosis, sometimes called "iron pigmentation" of the lung, which can be seen on a chest x-ray but causes little or no disability. Chronic overexposure to iron (>50-100 mg Fe per day) can

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result in pathological deposition of iron in body tissues of which are fibrosis of the pancreas, diabetes mellitus and liver cirrhosis.

**SiO<sub>2</sub>**: Overexposure to crystalline silica present in dust from flux can cause severe lung damage (silicosis). Respiratory overexposure to airborne crystalline silica is known to cause silicosis, a form of disabling pulmonary fibrosis which can be progressive and may lead to death.

**F**: Chronic fluoride absorption can result in osseous fluorosis, increased radiographic density of the bones and mottling of the teeth.

### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

### Other information

Organic polymers may be used in the manufacture of various welding consumables. Overexposure to their decomposition byproducts may result in a condition known as polymer fume fever. Polymer fume fever usually occurs within 4 to 8 hours of exposure with the presentation of flu like symptoms, including mild pulmonary irritation with or without an increase in body temperature. Signs of exposure can include an increase in white blood cell count. Resolution of symptoms typically occurs quickly, usually not lasting longer than 48 hours.

## SECTION 12: Ecological information

### 12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components of the mixture					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Nickel	7440-02-0	LC50	15.3 mg/l	fish	96 h
Nickel	7440-02-0	EC50	406 µg/l	aquatic invertebrates	24 h
Nickel	7440-02-0	ErC50	237 µg/l	algae	72 h
Nickel	7440-02-0	NOEC	0.5 mg/l	aquatic invertebrates	72 h
Nickel	7440-02-0	LOEC	>4,407 µg/l	aquatic invertebrates	48 h
Nickel	7440-02-0	growth (EbCx) 10%	662.6 µg/l	aquatic invertebrates	48 h
Nickel	7440-02-0	growth rate (ErCx) 10%	18.3 µg/l	algae	72 h
Magnesium	7439-95-4	LC50	2,800 mg/l	fish	48 h
Magnesium	7439-95-4	ErC50	>12 mg/l	algae	72 h
Magnesium	7439-95-4	EC50	>12 mg/l	algae	72 h
Magnesium	7439-95-4	NOEC	2,480 mg/l	aquatic invertebrates	48 h
Dipotassium hexafluoro-silicate	16871-90-2	EC50	35.4 mg/l	aquatic invertebrates	48 h
Dipotassium hexafluoro-silicate	16871-90-2	ErC50	19.6 mg/l	algae	72 h
Dipotassium hexafluoro-silicate	16871-90-2	NOEC	25 mg/l	fish	96 h
Dipotassium hexafluoro-silicate	16871-90-2	LOEC	50 mg/l	aquatic invertebrates	48 h

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Aquatic toxicity (chronic) of components of the mixture					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Nickel	7440-02-0	ErC50	8,363 µg/l	fish	40 d
Nickel	7440-02-0	LC50	≤144 µg/l	aquatic invertebrates	21 d
Nickel	7440-02-0	EC50	≤108 µg/l	aquatic invertebrates	21 d
Nickel	7440-02-0	EbC50	6.2 µg/l	aquatic invertebrates	30 d
Nickel	7440-02-0	NOEC	0.057 mg/l	fish	32 d
Nickel	7440-02-0	LOEC	0.12 mg/l	fish	32 d
Nickel	7440-02-0	growth (EbCx) 10%	404.3 µg/l	aquatic invertebrates	10 d
Magnesium	7439-95-4	LC50	190 mg/l	aquatic invertebrates	21 d
Magnesium	7439-95-4	EC50	125 mg/l	aquatic invertebrates	21 d
Magnesium	7439-95-4	growth (EbCx) 16%	82 mg/l	aquatic invertebrates	21 d
Dipotassium hexafluoro-silicate	16871-90-2	EC50	216 mg/l	microorganisms	3 h

### 12.2 Persistence and degradability

No further relevant information available.

### 12.3 Bioaccumulative potential

No further relevant information available.

### 12.4 Mobility in soil

Not mobile.

### 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

### 12.6 Other adverse effects

No further relevant information available.

#### Endocrine disrupting potential

None of the ingredients are listed.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment.

#### Waste treatment of containers/packages

Handle contaminated packages in the same way as the substance itself.

#### Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

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### SECTION 14: Transport information

- 14.1 UN number** not subject to transport regulations
- 14.2 UN proper shipping name** not relevant
- 14.3 Transport hazard class(es)** none
- 14.4 Packing group** not assigned to a packing group
- 14.5 Environmental hazards** non-environmentally hazardous acc. to the dangerous goods regulations
- 14.6 Special precautions for user**  
There is no additional information.
- 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code**  
No data available.

#### Information for each of the UN Model Regulations

##### Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

Not subject to ADR, RID and ADN.

##### International Maritime Dangerous Goods Code (IMDG)

Not subject to IMDG.

##### International Civil Aviation Organization (ICAO-IATA/DGR)

Not subject to ICAO-IATA.

### SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- Relevant provisions of the European Union (EU)**
- Restrictions according to REACH, Annex XVII**

Dangerous substances with restrictions (REACH, Annex XVII)				
Name of substance	Name acc. to inventory	CAS No	Restriction	No
nickel powder (particle diameter < 1mm)	nickel	7440-02-0	R27	27

#### Legend

- R27
- Shall not be used:
    - in any post assemblies which are inserted into pierced ears and other pierced parts of the human body unless the rate of nickel release from such post assemblies is less than 0,2 µg/cm<sup>2</sup>/week (migration limit);
    - in articles intended to come into direct and prolonged contact with the skin such as:
      - earrings,
      - necklaces, bracelets and chains, anklets, finger rings,
      - wrist-watch cases, watch straps and tighteners,
      - rivet buttons, tighteners, rivets, zippers and metal marks, when these are used in garments,
 if the rate of nickel release from the parts of these articles coming into direct and prolonged contact with the skin is greater than 0,5 µg/cm<sup>2</sup>/week.
    - in articles referred to in point (b) where these have a non-nickel coating unless such coating is sufficient to ensure that the rate of nickel release from those parts of such articles coming into direct and prolonged contact with the skin will not exceed 0,5 µg/cm<sup>2</sup>/week for a period of at least two years of normal use of the article.
  - Articles which are the subject of paragraph 1 shall not be placed on the market unless they conform to the requirements set out in that paragraph.
  - The standards adopted by the European Committee for Standardisation (CEN) shall be used as the test methods for demonstrating the conformity of articles to paragraphs 1 and 2.

#### List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

None of the ingredients are listed.

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### Seveso Directive

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
	not assigned		

### Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

Pollutant release and transfer registers (PRTR)			
Name of substance	CAS No	Remarks	Threshold for releases to air (kg/year)
nickel powder (particle diameter < 1mm)	7440-02-0	(8)	50

#### Legend

(8) All metals shall be reported as the total mass of the element in all chemical forms present in the release

### Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

Water Framework Directive (WFD)			
Name of substance	CAS No	Listed in	Remarks
nickel powder (particle diameter < 1mm)	7440-02-0	Annex X	

#### Legend

annex X List of priority substances in the field of water policy

### Regulation 98/2013/EU on the marketing and use of explosives precursors

None of the ingredients are listed.

## 15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out for this mixture.

## SECTION 16: Other information

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2017/164/EU	Commission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
2017/2398/EU	Directive of the European Parliament and of the Council amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
Acute Tox.	Acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
Carc.	Carcinogenicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)

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Abbr.	Descriptions of used abbreviations
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EbC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LOEC	Lowest Observed Effect Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
Pyr. Sol.	Pyrophoric solid
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
S.I. No. 619 of 2001	Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001
Skin Sens.	Skin sensitisation
STEL	Short-term exposure limit



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Abbr.	Descriptions of used abbreviations
STOT RE	Specific target organ toxicity - repeated exposure
SVHC	Substance of Very High Concern
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative
Water-react.	Material which, in contact with water, emits flammable gases

### Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

### Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

### List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H250	Catches fire spontaneously if exposed to air.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H317	May cause an allergic skin reaction.
H330	Fatal if inhaled.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

### Disclaimer

The information given in this SDS is based on the present level of our knowledge and experience. This information is believed to be accurate as of the revision date shown above. However, no warranty, expressed or implied, is given. Because the conditions or methods of use are beyond KOBELCO STEEL, LTD.'s control, we assume no liability resulting from the use of this product. Regulatory requirements are subject to change and may differ between various locations. Compliance with all applicable Federal, State, Provincial, and local laws and regulations remain the responsibility of the user. If necessary, consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product.

### Warning text on the label

WARNING: PROTECT yourself and others. Read and understand this information.

FUMES AND GASES can be hazardous to your health.

ARC RAYS can injure eyes and burn skin.

ELECTRIC SHOCK can KILL.

- Before use, read and understand the manufacturer's instructions, Material Safety Data Sheets (MSDSs), and your employer's safety practices.
- Keep your head out of the fumes.
- Use adequate ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone and the general area.
- Wear correct eye, ear, and body protection.
- Do not touch free electrical parts.