KOBELCO SAFETY DATA SHEET

Product Name	Kobe RB-26
Part Number	100039, 100040, 100041,100042
SDS Document Number	SDS_Kobelco_RB-26_v1.0_311216
Issue Date	31/12/16

1 Product identifier & identity for the chemical

1.1 Product Identifier

Trade designation: RB-26

Part Numbers: 100039, 100040, 100041,100042

1.2 Other means of identification

Welding electrodes – High Titania type covered electrode.

1.3 Recommended use of the chemical and restrictions on use

For welding. Do not use except for welding.

1.4 Suppliers name, address and phone number

Supplier Name:	Dynaweld Industrial Supplies Pty Ltd
Address:	5 Sheridan Close, Milperra NSW 2214, Australia
Phone:	+61 2 9772 1144
Email:	sales@dynaweld.com.au
Web Site:	http://www.dynaweld.com.au/

1.5 Emergency phone number

Emergency Phone: +61 2 9772 1144 (Australia)

2 Hazard Identification

2.1 Classification of the hazardous chemical

This product is not classified as hazardous according to Globally Harmonized System of classification and labelling of chemicals (GHS).

2.2 Label elements, including precautionary statements

Signal Word:	Not applicable
Symbols:	Not applicable
Hazard Statements:	Not applicable
Precautionary Statements:	Not applicable

2.3 Other hazards which do not result in classification

General:	When this product is used in a welding process, the hazards are electric shock, fumes, gases, radiation, spatter, slag and heat. Read and understand this Safety Data Sheet, the manufacturer's instructions, and the precautionary labels before using this product.
Shock:	Electrical shock can kill.
Radiation:	Arc rays can injure eyes and burn skin.
Fumes:	Overexposure to welding fumes results in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect the respiratory system and nervous system. Substance(s) formed under the conditions of use - The welding fumes produced from this welding electrode may contain the listed constituent(s) of Section.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 in Section 3. The welding fumes may contain Mn, Ni, Cr(VI) and their compounds.

Product Name	Kobe RB-26
Part Number	100039, 100040, 100041,100042
SDS Document Number	SDS_Kobelco_RB-26_v1.0_311216
Issue Date	31/12/16

Note: Refer to Sections 8 and 10 for further information.

Gases: Gases may cause gas poisoning. Under conditions of use, gases may contain carbon oxides, nitrogen oxides, ozone etc.

Note: Refer to Sections 8 and 10 for further information.

Spatter, slag: Spatter, slag can damage eyes.

Heat: Spatter, slag, melting metal, hot welds, arc rays and sparks can cause burn injuries and ignite combustibles and flammable materials.

3 Composition/information on ingredients

3.1 Identity of chemical ingredients

Chemical Name	CAS No.	Concentration Range (%)
Iron	7439-89-6	Balance
Titanium dioxide	13463-67-7	8-18
Silicon dioxide	14808-60-7	＜8
Manganese	7439-96-5	＜3
Calcium Carbonate	471-34-1	＜3
Potassium oxide	12136-45-7	＜3
Starch	9005-25-8	＜3
Aluminum oxide	1344-28-1	＜3
Sodium oxide	1313-59-3	＜1
Wood Powder	-	＜1
Ferric Oxide	1309-37-1	＜1
Zirconium Oxide	1314-23-4	＜1
Carbon	7440-44-0	＜1
Ferrous Oxide	1345-25-1	＜1
Guar Gum	9000-30-0	＜1

3.2 CAS number and other unique identifiers

Note: See section 3.1

3.3 Concentration of ingredients

Note: See section 3.1

4 First Aid Measures

4.1 Description of necessary first aid measures

Inhalation: Remove person to fresh air, keep comfortable for breathing, and get medical advice/attention. If breathing has stopped, perform artificial respiration, and get immediate medical advice/attention.

Skin contact: Take off contaminated clothing, and rinse skin with soap and water [or shower]. If skin irritation occurs, get medical advice/attention. For reddened or blistered skin, or thermal burns, get medical advice/attention.

Product Name	Kobe RB-26
Part Number	100039, 100040, 100041,100042
SDS Document Number	SDS_Kobelco_RB-26_v1.0_311216
Issue Date	31/12/16

Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses (if present and easy to do). Continue rinsing. Get medical advice/attention.

Arc rays can injure eyes. If exposed to arc rays, move victim to dark room, remove contact lenses as necessary for treatment, cover eyes with a padded dressing and rest. If symptoms persist, get medical advice/attention.

Electric shock: Disconnect and turn off 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.

Ingestion: Unlikely due to form of product, except for granular materials. If ingested, Rinse mouth. Do NOT induce vomiting. Immediately contact the nearest poisons information centre 13 11 26 (Australia).

4.2 Symptoms caused by exposure

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.

Note: 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.

Note: Refer to Section 11 for more information.

4.3 Medical Attention and Special Treatment

Treat symptomatically.

5 Fire Fighting Measures

As shipped, this product is non-flammable. However, welding arc and sparks can ignite combustibles and flammable products. Read and understand *WTIA Technical Note No. 7 Health and Safety in Welding* before using this product.

5.1 Suitable extinguishing media

As shipped, the product will not burn. In case of fire in the surroundings, use CO2, powder or water spray. There is no unsuitable extinguishing media known.

5.2 Specific hazards arising from the chemical

None known.

5.3 Special protective equipment and precautions for fire fighters

Special protective equipment: Selection of respiratory protection for fire fighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special precautions: Use standard fire fighting procedures, and consider the hazards of other involved materials.

6 Accidental release measures

Unlikely due to form of product, except for granular materials. The welding fumes and slags may be released.

6.1 Personal precautions, protective equipment and emergency procedures

If airborne dust and/or fumes are present, use adequate engineering controls, and, if needed, personal protection to prevent overexposure.

Product Name	Kobe RB-26
Part Number	100039, 100040, 100041,100042
SDS Document Number	SDS_Kobelco_RB-26_v1.0_311216
Issue Date	31/12/16

Note: Refer to recommendations in Section 8.

6.2 Environmental precautions

Avoid release to the environment. Prevent further leakage or spillage if safe to do so.

6.3 Methods and materials for containment and cleaning up

Clean up spills immediately, observing precautions in the personal protective equipment in Section 8. Avoid generating dust. Prevent product from entering any drains, sewers or water sources.

Note: Refer to Section 13 for proper disposal.

7 Handling and Storage

7.1 Precautions for safe handling

Reduction of fumes and dusts: Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places were dust is formed. Read and understand the manufacturer's instruction and the precautionary label on the product. See WTIA Technical Note No. 7 Health and Safety in Welding.

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 work piece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced Voltage Control.

Prevention of fire & 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.

7.2 Conditions for safe storage, including any incompatibilities

Store welding consumables inside a room, which is not humid. 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. Store in accordance with local/regional/national regulations.

8 Exposure controls/personal protection

8.1 Control parameters – exposure standards, biological monitoring

For substances that may be included in welding fumes, gases and flux, occupational exposure values see Section 10 (information on potential fume constituents of health interest).

Keep exposure below exposure limits. Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) are values published by the American Conference of Government Industrial Hygienists (ACGIH). ACGIH Statement of Positions Regarding the TLVs and BEIs states that the TLV-TWA should be used as a guide in the control of health hazards and should not be used to indicate a fine line between safe and dangerous exposures.

8.2 Appropriate engineering controls

Ventilation: Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the exposure limits in the worker's breathing zone, and the general area. Keep exposure as low as possible.

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.

Note: See WTI Technical Note 7 – Health and Safety in Welding for further information / guidance.

Product Name	Kobe RB-26
Part Number	100039, 100040, 100041,100042
SDS Document Number	SDS_Kobelco_RB-26_v1.0_311216
Issue Date	31/12/16

8.3 Personal protective equipment (PPE)

Eye 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.
Hand protection:		Wear protective gloves. Suitable gloves can be recommended by the glove supplier.
Protective Clothing		Wear hand, head, and body protection which will 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.
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 exposure limits.
Ear protection:		Wear earplugs or earmuffs when using engine driven arc welding machine or pulsed arc welding machine that generates high-level noise.
Hygiene measures:		Do not eat, drink or smoke when using the 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.

Note: See WTI Technical Note 7 – Health and Safety in Welding for further information / guidance.

Product Name	Kobe RB-26
Part Number	100039, 100040, 100041,100042
SDS Document Number	SDS_Kobelco_RB-26_v1.0_311216
Issue Date	31/12/16

9 Physical and chemical properties

	Property	Product description
9.1	Appearance	Solid wire or rod, silver / copper colour
9.2	Odour	Odourless
9.3	Odour threshold	No further relevant information available
9.4	pH	Not applicable
9.5	Melting point/freezing point	No further relevant information available
9.6	Boiling point and boiling range	No further relevant information available
9.7	Flash point	Not applicable
9.8	Evaporation rate	Not applicable
9.9	Flammability	No further relevant information available
9.10	Upper/lower flammability or explosive limits	No further relevant information available
9.11	Vapour pressure	Not applicable
9.12	Vapour density	Not applicable
9.13	Relative density	No further relevant information available
9.14	Solubility(ies)	No further relevant information available
9.15	Partition coefficient: (n-octanol/water)	No further relevant information available
9.16	Auto-ignition temperature	No further relevant information available
9.17	Decomposition temperature	No further relevant information available
9.18	Viscosity	Not applicable
9.19	Specific heat value	No further relevant information available
9.20	Particle size	No further relevant information available
9.21	Volatile organic compounds content	No further relevant information available
9.22	% volatile	No further relevant information available
9.23	Saturated vapour concentration	No further relevant information available
9.24	Release of invisible flammable vapours and gases	No further relevant information available
	Additional parameters	
9.25	Shape and aspect ratio	No further relevant information available
9.26	Crystallinity	No further relevant information available
9.27	Dustiness	No further relevant information available
9.28	Surface area	No further relevant information available
9.29	Degree of aggregation or agglomeration	No further relevant information available
9.30	Ionisation (redox potential)	No further relevant information available
9.31	Biodurability or biopersistence	No further relevant information available

10 Stability and Reactivity

10.1 Reactivity

The product is non-reactive under normal conditions of storage and transport.

10.2 Chemical stability

Stable under normal conditions of storage and transport.

10.3 Conditions to avoid

Avoid heat or contamination of acids, alkalis and oxidising agents.

Product Name	Kobe RB-26
Part Number	100039, 100040, 100041,100042
SDS Document Number	SDS_Kobelco_RB-26_v1.0_311216
Issue Date	31/12/16

10.4 Incompatible materials and possible hazardous reactions

Avoid contact with acids, alkalis and oxidising agents. Contact with acids, alkalis and oxidising agents could cause reaction and generation of gas.

10.5 Hazardous decomposition products

Welding fumes and gases are generated as by products during welding. The composition and quantity of fumes and gases cannot be recognised 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 parameters 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 vapours 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 volatilisation, 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.

11 Toxicological information

Note: Classification not possible - Refer to Section 2.

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. Note: Refer to Section10 for further information.

11.1 Information on routes of exposure

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).

Cr: The presence of chromium/chromate in welding fumes can cause irritation of nasal membranes and skin.

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.

Chronic Toxicity – Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis, 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: Long term overexposure to nickel fumes may also cause pulmonary fibrosis and edema.

Cr: Chromates may cause ulceration, perforation of the nasal septum, and severe irritation of the bronchial tubes and lungs. Liver damage has also been reported. Chromates contain the hexavalent form of chromium.

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.

Cu: Overexposure to copper fumes may lead to copper poisoning, resulting in hermolytic anemia and liver, kidney and spleen damage.

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 (>50-100mg Fe per day) can result in pathological deposition of iron in body tissues, symptoms of which are fibrosis of the pancreas, diabetes mellitus, and liver cirrhosis.

SiO2: Respiratory exposure to the crystalline silica present in this welding electrode is not anticipated during normal use. 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.

Carginogenicity – Welding fumes (not otherwise specified) are possibly carcinogenic to humans. Welding fumes is on the IARC lists as posing a cancer risk.

SiO2: Crystalline silica is on the IARC (International Agency for Research on Cancer) and NTP (NationalToxicology Program) lists as posing a cancer risk to humans.

Ni: Nickel and its compounds are on the IARC and NTP lists as posing respiratory cancer risk.

Cr: Hexavalent chromium and its compounds are on the IARC and NTP lists as posing a cancer risk to humans.

Arc rays: Skin cancer has been reported.

Respiratory or Skin Sensitisation -

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

Cr: Chromates may cause allergic reactions, including skin rash. Asthma has been reported in some sensitised individuals. Skin contact may result in irritation, ulceration, sensitisation, and contact dermatitis.

Others - Organic polymers may be used in the manufacture of various welding consumables. Overexposure to their decomposition by-products 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.

11.2 Symptoms related to exposure

Note: See Section 11.1

11.3 Numerical measures of toxicity

No further information available

11.4 Immediate, delayed and chronic health effects from exposure

Note: See Section 11.1

11.5 Exposure Levels

Note: See Section 11.1

11.6 Interactive effects

Note: See Section 11.1

11.7 Data limitations

No further information available.

12 Ecological information

12.1 Ecotoxicity

Product - No further relevant information available.

12.2 Persistence and degradability

Product - No further relevant information available.

12.3 Bioaccumulative potential

Product - No further relevant information available.

Product Name	Kobe RB-26
Part Number	100039, 100040, 100041,100042
SDS Document Number	SDS_Kobelco_RB-26_v1.0_311216
Issue Date	31/12/16

12.4 Mobility in soil

Product - No further relevant information available.

12.5 Other adverse effects

No further information available.

13 Disposal considerations

13.1 Safe handling and disposal methods

The generation of waste should be avoided or minimised whenever possible. When practical, recycle in an environmentally acceptable, regulatory compliant manner.

13.2 Disposal of any contaminated packaging

Dispose of non-recyclable products in accordance with all applicable National, State, and Local requirements.

13.3 Environmental regulations

Discharge, treatment, or disposal may be subject to National, State, or Local laws.

14 Transport information

14.1 UN number

No further relevant information available

14.2 Proper shipping name

No further relevant information available

14.3 Transport hazard class(es)

No further relevant information available

14.4 Packing group

No further relevant information available

14.5 Environmental hazards

No further relevant information available

14.6 Special precautions during transport

No further relevant information available

14.7 Hazchem Code

Hazchem cdoe not relevant to this product

15 Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Regulations of each country are applied to substances / mixtures.

15.2 Poisons Schedule number

A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling

of Medicines and Poisons (SUSMP).

16 Other information

16.1 Date of preparation or review

31st December, 2016

16.2 Key abbreviations or acronyms used

BEI - Biological Exposure Indices

GHS - Globally Harmonized System of classification and labelling of chemicals.

IARC - International Agency for Research on Cancer

NTP - National Toxicology Program

PPE - Personal Protection Equipment

SUSMP - Standard for the Uniform Scheduling of Medicines and Poisons

TLVs - Threshold Limit Value

WTIA – Welding Technology Institute of Australia

Dynaweld Industrial Supplies Pty Ltd requires that all customers read this safety data sheet carefully so as to be informed about the risks implied in the use of the product, and provide any person involved with a copy of the same and/or adequate training on the use of the product.

Whilst Dynaweld Industrial Supplies Pty Ltd has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, Dynaweld Industrial Supplies accepts no liability for loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in the SDS,

END OF SAFETY DATA SHEET