SAFETY DATA SHEET

ARC WELDING ELECTRODES
WE1020, WE1025, WE1032, WE2516, WE2520, WE2525, WE2532, WE2540, WE5016, WE5020, WE5025, WE5032, WE5040.

1. SUPPLIER

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2. APPLICATION

Product Name: Arc Welding Electrode.
Product Specification: AWS A5.1-91.
Product Classification: E6013.
Recommended use: Shielded Arc Welding of plain carbon steels.

3. COMPOSITION/INFORMATION OF INGREDIENTS

These products are one type of mild steel electrode.

Coating Ingredients	Weight	CAS#	EINECS#	Hazard Class 1	IARC 2	NTP 3	OSHA List 4
Aluminium Silicate	1-2	12141-46-7	235-253-8	No	-	-	-
Fluorides	15-20	7789-75-5	232-188-7	No	-	-	-
Iron	30-40	7439-89-6	231-096-4	No	-	-	-
Limestone	20-30	1317-65-3	215-279-6	No	-	-	-
Manganese	2-5	7439-96-5	231-105-1	No	-	-	-
Quartz	1-2	14808-60-1	238-878-4	T; R45	1	K	-
Silicon	2-5	7440-21-3	231-130-8	No	-	-	-
Silicates	5-10	1344-09-8	215-687-4	No	-	-	-
Titanium Oxide	5-10	13463-67-7	236-675-5	No	2B	-	-

(1) Hazard Classification according to European Council Directive 67/548/EEC, for R-phrases see Section 16.
(2) Evaluation according to the International Agency for Research on Cancer. 1-Carcinogenic to humans. (2A) Probably carcinogenic to humans. (2B) Possibly carcinogenic to humans.
(3) Classification according to the 11th Report on Carcinogens, published by the US National Toxicology Program.
K-Known to be a Human Carcinogen. S-Suspect Carcinogen.
(4) Carcinogen listing according to OSHA, Occupational Safety & Health Administration (USA)

4. HAZARD IDENTIFICATION

Emergency Overview: Coated metal rods in varying colours. This product is normally not considered hazardous as shipped. Gloves should be worn when handling to prevent contaminating hands with product dust. This product contains titanium dioxide which is possibly carcinogenic. This product contains quartz, but normally not in inhalable form. Quartz can cause silicosis and may cause cancer. Avoid eye contact or inhalation of dust from the product. Skin contact is not normally a hazard but should be avoided to prevent possible allergic reactions. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device. When this product is used in a welding process, the most important hazards are welding fumes, heat, radiation and electric shock.
Fumes: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function.
Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait.
Heat: Spatter and melting metal can cause burn injuries and start fires.
Radiation: Arc rays can severely damage eyes and skin.
Electricity: Electric shock can kill.

5. FIRST AID MEASURES

Accidental Inhalation: If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.
Eye contact: For radiation burns due to arc flash, see physician. To remove dusts or fumes flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.
Skin contact: For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist. To remove dust or particles wash with mild soap and water.

Electric shock: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If not detectable pulse, begin Cardio Pulmonary Resuscitaion (CPR). Immediately call a physician.
General: Move to fresh air and call for medical aid.

6. FIRE-FIGHTING MEASURES

Specific recommendations for welding consumables: Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation. Wear self-contained breathing apparatus as fumes or vapours may be harmful.

7. ACCIDENTAL RELEASE MEASURES

Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handing these materials. Do not discard as refuse.
Personal precautions: refer to section 9.
Environmental precautions: refer to section 14.

8. STORAGE AND HANDLING

Handling: Handle with care to avoid stings and cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. Retain all warning and identity labels.
Storage: Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions.

9. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures: Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Keep working place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate conductive parts. Check condition of protective clothing and equipment on a regular basis.
Personal protective equipment: Use respirator or air supplied respirator when working in a confined space or where conditions may lead to emission of harmful substances when welding. Wear hand, head, eyes, ear and body protection like welders gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry.
Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. The following limits can be used as guidance. For information about welding fume analysis refer to Section 11.

Substance	**CAS#**	**ACGIH TLV 1**	**OSHA PEL 2**
		mg/m³	**mg/m³**
Aluminum Silicate	12141-46-7	1**	15*,5**
Fluorides	7789-75-5	2,5(F)	2,5(F)
Iron	7439-89-6	5**	10(f)
Limestone	1217-65-3	-	15*,5**
Manganese	7439-96-5	0,2	5(celil)
Quartz	14808-60-7	0,025**	10mg/m³/(%SiO_2+2)**
Silicon	7440-21-3	-	15*,5**
Silicates	1344-09-8	-	-
Titanium oxide	13463-67-7	10	15*

(1) Threshold Limit Values according to American Conference of Governmental Industrial Hygienists,2005
(2) Permissible Exposure Limits according to the Occupational Safety & Health Administration(USA)
(3) *Total dust, ** Respirable fraction, *** Inhalable fraction, (f) fume, (d) dust, (m) mist, (ceil) celling.

10. PHYSICAL & CHEMICAL PROPERTIES

Appearance: Solid, non-volatile with varying colour
Melting point: >1300°C/ >2300°F

11. STABILITY & REACTIVITY

General: This product is only intended for normal welding purposes.
Stability: This product is stable under normal conditions.
Reactivity: Contact with chemical substances like acids or strong bases could cause generation of gas. When this product is used in a welding process, hazardous decomposition products would include those from the volatilization, reaction or oxidation of the materials listed in section 3 and those from the base metal and coating.
The amount of fumes generated from manual metal arc welding varies with welding parameters and dimensions, but is generally no more than 5 to 15g/kg consumable. Fumes from this product contain compounds of the following chemical elements. The rest is not analyzed, according to available standards.

Fume analysis	Fe	Mn	F	Pb	Cu	Ni	Cr
Weight% less than	20	10	25	0.1	0.1	0.1	0.1

Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in Section 9. Manganese has a low exposure limit, in some countries, that may be easily exceeded.
Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

12. TOXICOLOGICAL INFORMATION

Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).
Acute toxicity: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eye.

Chronic toxicity: Overexposure to welding fumes may affect pulmonary function. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait. Prolonged inhalation of titanium dioxide above safe exposure limits can cause cancer. Inhalable quartz is a respiratory carcinogen however the process of welding converts crystalline quartz to the amorphous form which is not considered to be a carcinogen.

13. ECOLOGICAL INFORMATION

Welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater.

14. DISPOSAL CONSIDERATIONS

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local regulations. Use recycling procedures if available.
This product is not considered hazardous waste if discarded.
Residues from welding consumables and processes could degrade and accumulate in soils and groundwater. Welding slag from this product typically contains mainly the following components originating from the coating of the electrode.

Slag analysis:	SiO_2	CaO	F	Fe_2O_3	K_2O	MnO	TiO_2	Na_2O
% less than:	25	55	20	10	5	5	10	2

15. TRANSPORT INFORMATION

No international regulations or restrictions are applicable.

16. REGULATORY INFORMATION

- Health and Safety at Work Act 1974.
- The Management of Health and Safety at Work Regulations 1992.
- L5 Control of Substances Hazardous to Health. The Control of Substances Hazardous to Health Regulations 2002. Approved codes of practice and guidance. (ISBN 0717625346).
- Guidance Note EH40 - Occupational Exposure Limits (ISBN 0717621944).
- BS EN ISO 10882-1:2001 - Health and Safety in Welding and Allied Processes - sampling of airborne particles and gases in the operator's breathing zone - part 1: - sampling of airborne particles.
- HSG 37 - An introduction to Local Exhaust Ventilation. (ISBN 0717610012).
- L25 Personal Protective Equipment at Work. Guidance on Regulations, Personal Protective Equipment at Work Regulations 1992. (ISBN 0717604152).
- L23 Manual Handling. Manual Handling Operations Regulations 1992 (as amended).
- BS EN 169:2002 - Personal Eye-protection - filters for welding and related techniques - transmittance requirements and recommended use.
- BS EN 379:2003 - Personal Eye-protection - automatic welding filters.
- BS EN 12477:2001. Protective Gloves for Welders.
- HSG 118 - Electrical Safety in Arc Welding (ISBN 0717607046).

17. OTHER INFORMATION

This Safety Data Sheet has been revised due to modifications to several paragraphs and / or new format. This Safety Data Sheet supersedes Issue 1 dated 05/11/10
Refer to:
UK: WMA Publication 236 and 237, “Hazards from Welding fume”, “The arc welder at work, some general aspects of health and safety”.

Sealey UK requests the users of this product to study this Safety Data Sheet (SDS) and become aware of product hazards and safety information. To promote safe use of this product a user should:
Notify its employees, agents and contractors of the information on this SDS and any product hazards/safety information.
Furnish this same information to each of its customers for the product.
Request such customers to notify employees and customers for the same product hazards and safety information. The information herein is given in good faith and based on technical data that Sealey UK believes to be reliable.
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