1. Identification:

Order Code:	KEN-891-5110K, KEN-891-5120K, KEN-891-5130K.
Commercial Name:	TURBO-ROD
Other Names:	E7018 Electrodes
Intended Use:	Arc welding electrodes for mild and medium tensile steel.
Company:	Kennedy Tools, Wigston Works, Leicester, England, LE18 1AT Tel: 0116 288 8000 Fax: 0116 288 8222 Emergency Telephone Number: 0116 257 2445

2. Chemical composition:

This product is not considered to be hazardous but contains hazardous components.

Hazardous components:

Substance name	CAS No/EC No/EC Index	Value (%)
Iron	7439-89-6/231-096-4/---	70-78
Calcium carbonate	471-34-1/207-439-9/---	10-13
Calcium fluoride	7789-75-5/232-188-7/---	5-7
Titanium dioxide	13463-67-7/236-675-5/---	1-3
Manganese	7439-96-5/231-105-1/---	0.5-1.25
Silica (Quartz)	14808-60-7/238-878-4/---	1-2.25
Cellulose	---/---/---	0.5-1
Aluminium oxide	1344-28-1/215-691-6/---	<0.5
Aluminium powder (stabilised)	7429-90-5/231-072-3/013-002-00-1	<0.5
Magnesium powder (pyrophoric)	7439-95-4/231-104-6/012-001-00-3	<0.5
Titanium powder	7440-32-6/---/---	<0.5

3. Hazards Identification:

By delivery:	Not hazardous
Risk by welding use:	
- General:	Electric shock
- Inhalation:	Inhalation of welding fumes may cause respiratory irritation. Cough.
- Skin contact:	UV, IR radiation, Heat. May produce skin irritation. Slags can cause burns.
- Eye contact:	UV, IR radiation. Heat. May cause eye irritation. Slags can cause burns.

4. First aid measures:

- Inhalation:	Remove to fresh air.
- Skin contact:	Stop exposure.
- Eye contact:	Minimise exposure to light.
- Ingestion:	Ingestion-unlikely. Rinse mouth.
- Electric shock:	Electrical circuits must be shut off as soon as possible. Prepare to administer resuscitation in case of cardiac or respiratory failure. In case of respiratory arrest, administer artificial respiration.
General information:	In all cases: Obtain medical attention. If possible show this sheet.

5. Fire Precautions:

Flammable class:	The product is not flammable.
Prevention:	Welding hot slag or sparks may cause fire. Keep away from combustible material.
Surrounding fires:	Use water spray or fog for cooling exposed containers.
Protection against fire:	Wear proper protective equipment.

6. Spillage:

Personal precautions: Equip clean-up crew with proper protection.
After spillage and/or leakage: On land, sweep or shovel into suitable containers.

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7. Handling & Storage:

Storage: Store in dry protected location to prevent any moisture contact. Keep container closed when not in use.
Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

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8. Personal Protection:

- Respiratory protection: Do not breathe gas/fumes/vapour. In case of insufficient ventilation, wear suitable respiratory equipment.
- Hand protection: Welding gloves.
- Skin protection: Skin protection appropriate to the conditions of use should be provided.
- Eye protection: Use a protection mask equipped with suitable filter glasses. Interdiction to wear contact lenses.
- Ingestion: When using, do not eat, drink or smoke.
- Industrial hygiene: Provide local exhaust or general room ventilation to minimise fumes concentrations.

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9. Physical & Chemical properties:

Physical state: Solid.
Colour: Grey.
Odour: Odourless
Melting point (°C): ca 1500

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10. Stability & reactivity:

Stability: Stable under normal conditions. (<650°C)
Hazardous decomposition products: Formation of dangerous fumes during use. According to process conditions, hazardous decomposition products may be generated. such as:

	CAS No.	EC	TLV(mg/m3)
Al2O3	001344-28-1	215-691-6	10
CO	000630-08-0	211-128-3	29
CO2	000124-38-9	204-696-9	ll-9000
CaO	001305-78-8	215-138-9	2(Ca)
Cr	007440-47-3	231-157-5	0.5
Fe	007439-89-6	231-096-4	1(insoluble)
F	007789-96-5	232-188-7	2.5
MgO	001309-48-4	215-171-9	10
Mn	007439-96-5	231-105-1	0.2
Ni	007440-02-0	231-111-4	1 (insoluble)
Ni	007440-02-0	231-111-4	0.05(soluble)
Si	007440-21-3	231-130-8	10 (SiO2)
SiO2	014808-60-7	238-878-4	10
TiO2	013463-67-7	236-675-5	10
Cr (lll)	012018-00-7	------	0.5
Cr (Vl)	001308-39-9	------	0.05
K2O	012136-45-7	------	-
Na2O	001313-59-3	------	2(NaOH)
BaO	001304-28-5	------	0.5(Ba)

Threshold Limit Values (TLV_TWA) given according to ACGIH.
The TLV limit of the above elements is function of the national reglementation.

Hazardous properties:
Welding fumes are a classified Carcinogen by the ICRC (International Centre of Research on Cancer):
Group: 2B. Cancer suspected agent.

Standard NF A-81-040	Emission level of the fumes (mg/mn)	Fume Class
Electrode Diameter 2.5mm:	286	B4
Electrode Diameter 3.2mm:	451	B4
Electrode Diameter 4.0mm:	486	B4

Emission rate and analysis of fumes: FUME ANALYSIS ACCORDING TO EN ISO 15011-4 (see chapter 16)
-(Standard EN 15011-4:2006)

Materials to avoid: Avoid contact with: Acids. Oxidising agent.

Other information: In case of work on parts covered by coatings such as :
Lubricant, Solvent, Paint, Metallic compounds, Grease, etc…
The thermal or photochemical decomposition products of these elements cumulate with the dusts and fumes emitted by the melting of the welding product.
The solution to adopt must be, in any case, preceeded by a spot study.
Refer to the “Health and Safety in Welding” published by the International Institute of Welding (IIS/IIW).

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11. Toxicological information: (Solvent only)

Toxicity information: This material or its emissions may induce an allergic or sensitisation reaction and thereby aggravate existing systemic disease.

Acute toxicity: Overexposure to welding fumes may cause :
Fever, Nausea. Giddiness. Eye irritation. Irritation to the respiratory tract and to other mucous membranes.

Chronic toxicity: Overexposure to welding fumes may cause :
Pulmonary/bronchial disease and/or cause breathing difficulty.
Overexposure to : Manganese(Mn). This material or its emissions may attack the nervous systems and/or aggravate pre-existing disorders.
Quartz inhalation : May cause lung damage. May cause cancer.

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12. Ecological information:

Ecological effects information: This product contains no hazardous components for the environment. Avoid release to the environment.

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13. Safe Disposal:

Disposal: Comply with local regulations for disposal.
Apply the same procedure for slags remaining from welding.

Slags analysis	—	(%)
Al2O3	<	2
F	<	-
MgO	<	2
SiO2	<	25
CaO	<	50
Fe	<	5
MnO	<	5
TiO2	<	8
Cr203	<	-
K2O	<	3
Na2O	<	2

Industrial waste number: 120113 Welding wastes
120101 Ferrous metallic scraps

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14. Transport information:

General information : Not regulated.

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15. Regulatory information:

Not required.

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16. OTHER INFORMATION:

Warning: Fumes and gases emitted during welding may by dangerous.
Good ventilation of the workplace required. Electric rays may burn eyes and skin.
Electric shocks can kill. Wear proper protective equipment.

Fume Data Sheet: FUME ANALYSIS ACCORDING TO EN ISO 15011-4

Standard(s) to which consumable manufactured : AWS A5.1:2004 : E 7018/EN 499 : E424 B35 H5

Test Conditions: Test Laboratory observations:
Diameter 4.0mm
Type of current and polarity : dc +
- Power source: SAF: Presto 250

Electrode Diameter:	Current (A):	Voltage(V):
2.5mm	85	22
5.0mm	210	24

Fumes Emission Rate according to EN ISO 15011-4:2006:

Electrode Diameter:	Fume emission rate (mg/s):
2.5mm	2.6
3.2mm	5.1
4.0mm	6.7

Electrode Diameter:	Fume emission rate (g/h):
2.0mm	7.2
3.2mm	18.4
4.0mm	24.1

Principal components of welding Fume:

	Chemical composition % (m/m)
F:	20.00
Al:	0.39
S:	0.05
Ca:	8.70
CrVI:	-
Ni:	<0.05
Zr:	<0.05
Pb:	<0.05
Na:	2.30
Si:	2.70
Cl:	0.21
Ti:	0.49
Ms:	5.60
Cu:	<0.05
Sn:	-
Bi:	<0.05
Mg:	<0.05
P:	<0.05
K:	20.00
Cr:	<0.05
Fe:	16.90
Zn:	0.11
Sb:	-
V:	-

Directive 2002/95/CE (ROHS):	Can be used in the fabrication of electric and Electronic devices
Training advice:	Ensure of an accident or an emergency.
Recommended uses and restrictions :	Contact your supplier in case of doubt.
Product information:	www.safety-welding.com

This Safety Date sheet has been inspired by the European Directives currently in force.

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