SAFETY DATA SHEET

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1. Product Information

Trade Name	Nickel Bronze / Nickel Silver
Standards	AWS/ASME-SFA A5.8/A5.27: RB CuZn-D AS/NZS 1167.1:2005
Product Type	Bare / Fluxcoated Rods
Classifcations	WTNB24.1, WTNB32.1, WTNBC24.1, WTNBC32.1

2. Hazardous Materials

Important	This section covers the material from which this product is manufactured giving a typical analysis. The fumes produced during normal use of this product are covered in Sec 6, 7, 9, 10.

ELEMENTS	%WT	ELEMENTS	%WT	COATINGS/OTHERS
C		Cu	Bal.	
Si	0.20	P		
Mn	0.20	S		
Cr		Mg		
Ni	10.0	Zn	43.50	
Fe		Sn		
Mo		Al		
Ti		V		
Nb/Ta		Be		
Co		N		
W		Pb		

3. Physical Data

Appearance	**Bronze Filler Rod**		
Boiling Point	N/A	Melting Point Temp.	910 ^{o}C
Vapour Pressure	N/A	Elongation	18%
Weld Metal Density	8.39 gms/cm^3	Hardness	170 HV
Specific Gravity	N/A	Ph	N/A
Odour	None		

4. Fire and Explosion Hazard Data

Flashpoint	N/A	**Auto-Ignition Temp.**	N/A
Hazard:	Welding Sparks can ignite flammable materials		

5. Handling and Storage

Good lifting practices should be employed when lifting most welding consumable cartons. The products are normally dense materials and even small cartons are relatively heavy. No special precautions need be taken when handling these products though it is possible that some individuals are allergic to substances normally regarded as inert. Store in dry, clean areas allocated for welding consumable.

6. Health Hazard Date

Occupational Exposure Limits - The Health and Safety Executive recommended general limit NOC (Not Otherwise Classified) is 5 Mg/M'. The OEL TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations of hazardous products.

Fumes and Gases may be dangerous to your health

Effects of Over Exposure - Arc and Gas welding may create on or more of the following health hazards. Short-term exposure to welding fumes may result in discomfort such as dryness or irritation to nose, throat or eyes, dizziness or nausea. Arc rays can injure eyes and burn skins (Sec. 9) Electric shock can kill (Sec. 9)

Emergency and First Aid Procedures - Call for medical aid. Employ first aid techniques recommended by British Red Cross.

7. Reactivity Data

Hazardous Decomposition Products - Classifying welding fumes and gases is not a simple procedure as the quantity and composition of fume or gas are dependent on many other variables. Fumes or gases are determined by the metal being welded, the process, the electrodes bring used. Other factors which create fumes or gases are coating, eg, painting, plating or galvanized material. Any cleaning or degreasing agent must be removed totally.

When the electrode/filler wire is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Sec. 2. Decomposition products of normal operation include those originating

7. Reactivity Data (continued)

from volatilization, reaction or oxidation of the materials shown in Sec. 2 plus those from the material and any coating etc as noted previously.

Reasonably expected fume constituents of this product would include:- gaseous reaction products such as monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation of an electric arc.

8. Spill or Leak Procedure

9. Special Precautions and Protection

Ventilation
The most effective method of removing welding fumes is at the source of the fume. This combined with good ventilation should keep the fumes and gases below the OEL's in the workers breathing zone and the general area of other workers.

Respiratory Protection
In confined spaces or areas where at source extraction or ventilation is inadequate, then approved air supplies respirators should be provided to keep below OEL recommendations.

Eye Protection
Only approved welding hand/head screens or goggles fitted with BS approved filter lenses should be used for welding and related processes. Anti-flash goggles are recommended for other workers working in an area in close proximity to any arc welding operation.

Protective Clothing
For all arc welding operations dark substantial clothing should be worn in addition to gloves and face screens. All areas of skin should be covered. Arc ray can burn.

10. Health and Safety Information

Modes of Exposure
Dust or fume can be generated by cutting, machining, grinding, welding or re-melting operations. The user should ensure that proper assessment is made under the C.O.S.H.H. regulations 1988. When carrying out this assessment

reference should be made to the C.O.S.H.H. approved codes of practice and the current ediction of Health & Safety executive Guidance Note EH40. **Inhalation :**
With inhalation of metal dust remove patient to fresh air and consult doctor.

10. Health and Safety Information (continued)

Ingestion :
Ingestion may result from pulmonary clearance following inhalation or from poor physical hygiene. Treat as above.
Skin :
Any dust or particals remove with soap and water.
Eyes :
Metal dust may cause irritation. Give patient an eye bath if substance is still not removed. Seek Prompt medical advice.

11. Other Health & Safety Information (Specific Products)

12. Exposure Limits

The range of products covered by this Data Sheet will contain one or more of the alloying elements listed below. Attention is drawn to the exposure limits given.

SUBSTANCE:	Long Term Maximum Exposure Limit (8 Hour TWA reference period)		Short Term Maximum Exposure Limit (10 minute reference period)	
	ppm	mg	ppm	mg
Carbon	NL		NL	
Silicon	NL		NL	
Manganese (fume)	-	1	-	3
Chromium (ii) (iii)	-	0.5	-	-
Chromium (iv)	-	0.05	-	-
Nickel	-	1	-	3
Iron Oxide (fume)	-	5	-	10
Molybdenum	-	5		10
Titanium	NL		NL	
Tantalum	-	5	-	10
Cobalt	-	0.1	-	-

Tungsten	-	1	-	3
Copper (fume)	-	0.2	-	-
Phosphours	NL		NL	
Sulphur	2	5	5	13
Magnesium (fume)	-	-1	-	-
Zinc Oxide (fume)	-	5	-	10
Tin (fume)	-	2	-	4
Aluminium Oxide	-	10	-	20
Vanadium (fume)	-	0.5	-	1.5
Beryllium	-	0.002	-	-
Lead (control)	-	0.15	-	-

All commercial metals contain residual or trace elements from raw or secondary materials used. These should be considered as they may add to the potential hazard.