

MATERIAL SAFETY DATA SHEET

SECTION I -- IDENTIFICATION

SUPPLIER NAME: VANGUARD STEEL LTD.	PRODUCT TYPE: COVERED ELECTRODE FOR STAINLESS STEEL
ADDRESS: 2160 MEADOWPINE BLVD., MISSISSAUGA ONTARIO CANADA	TRADE NAME: BONARC E316-16
TELEPHONE NUMBER: 905-821-1100	SIZE: ALL SIZES
DATE PREPARED: MARCH 6, 2012	CLASSIFICATION AWS E316-16

SECTION II -- HAZARDOUS MATERIALS

COVERING AND FLUX INGREDIENTS	WT. %	TLV mg/m ³	SUPPLEMENTAL INFORMATION
TITANIUM OXIDE	13.00	10	(*) NOT LISTED NUISANCE VALUE MAXIMUM 10 mg/m ³
LIMESTONE and/or CALCIUM CARBONATE	2.50	10	
MANGANESE and MANGANESE ALLOYS	1.00	5	
SILICON and SILICON ALLOYS	5.00	10 (*)	
CHROMIUM and CHROMIUM ALLOYS	3.00	0.5	
TOTAL-Fe	1.00	10 (*)	
NICKEL OXIDE	12.00	--	
SILICATE BINDER	4.50	10 (*)	
OTHERS	WT. %	TLV mg/m ³	
STAINLESS STEEL CORE WIRE	58.00		

SECTION III -- FIRE AND EXPLOSION HAZARD DATA

NON-FLAMMABLE: WELDING ARC AND SPARKS CAN IGNITE COMBUSTIBLES AND FLAMMABLE PRODUCTS SEE Z49.1 REFERENCED IN SECTION VI

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SECTION IV -- HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE:	MAXIMUM FUME EXPOSURE	5.0 mg/m ³
EFFECT OF OVEREXPOSURE:	WELDING FUME MAY RESULT IN DISCOMFORT SUCH AS DIZZINESS, NAUSEA OR IRRITATION OF NOSE, THROAT OR EYES ARC RAYS CAN INJURE EYES AND BURN SKIN, ELECTRIC SHOCK CAN KILL	
EMERGENCY AND FIRST AID PROCEDURES:	CALL FOR MEDICAL AID. IF BREATHING IS DIFFICULT GIVE OXYGEN. IN ALL CASES CALL A PHYSICIAN	

SECTION V -- REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	•	NOT NECESSARY
INCOMPATABILITY (MATERIALS TO AVOID): NOT NECESSARY			
HAZARDOUS DECOMPOSITION PRODUCTS: WELDING FUMES AND GASES CANNOT BE CLASSIFIED SIMPLY THE COMPOSITION AND QUANTITY OF BOTH ARE DEPENDANT ON THE METAL BEING WELDING, THE PROCESS, ELECTRODES USED AND PROCEDURE			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	•	NOT NECESSARY

SECTION VI -- SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIALS ARE RELEASED OR SPILLED:	NOT NECESSARY
WASTE DISPOSAL METHOD:	USE SCRAP DISPOSAL IN AN ENVIRONMENTALLY ACCEPTABLE MANNER ACCORDING TO LOCAL REGULATIONS UNLESS OTHERWISE NOTED.

SECTION VII -- SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: USE RESPIRABLE FUME RESPIRATOR WHEN WELDING IN CONFINED SPACE	
USE ENOUGH VENTILATION: EXHAUST AT THE ARC, OR BOTH, TO KEEP FUMES AND GASES AWAY FROM YOUR BREATHING ZONE AND THE GENERAL AREA.	
PROTECTIVE GLOVES: YES, WHEN WELDING	EYE PROTECTION: SHIELD NECESSARY WHEN WELDING
OTHER PROTECTIVE EQUIPMENT: MAY INCLUDE ARM PROTECTORS, APRONS, SHOULDER PROTECTION, HATS, AND DARK SUBSTANTIAL CLOTHING. DO NOT ALLOW LIVE ELECTRODES TO CONTACT SKIN.	

SECTION VIII -- SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HAULING AND STORING:	KEEP DRY
OTHER PRECAUTIONS: READ AND UNDERSTAND THE MANUFACTURER'S INSTRUCTION AND THE PRECAUTIONARY LABEL ON THE PRODUCT	