

# MATERIAL SAFETY DATA SHEET

## SECTION I -- IDENTIFICATION

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|--|---|
| <b>SUPPLIER NAME:</b><br>VANGUARD STEEL LTD.                         | <b>PRODUCT TYPE:</b> COVERED ELECTRODE<br>FOR STAINLESS STEEL |
| <b>ADDRESS:</b><br>2160 MEADOWPINE BLVD., MISSISSAUGA ONTARIO CANADA | <b>TRADE NAME:</b><br>BONARC E309-16                          |
| <b>TELEPHONE NUMBER:</b><br>905-821-1100                             | <b>SIZE:</b><br>ALL SIZES                                     |
| <b>DATE PREPARED:</b><br>MARCH 1, 2015                               | <b>CLASSIFICATION</b><br>AWS E309-16                          |

## SECTION II -- HAZARDOUS MATERIALS

| COVERING AND FLUX INGREDIENTS      | WT. % | TLV mg/m <sup>3</sup> | SUPPLEMENTAL INFORMATION  |
|------------------------------------|-------|-----------------------|---|
| TITANIUM OXIDE                     | 13.50 | 10                    | (* ) NOT LISTED<br>NUISANCE VALUE<br>MAXIMUM 10 mg/m <sup>3</sup> |
| LIMESTONE and/or CALCIUM CARBONATE | 2.50  | 10                    |   |
| MANGANESE and MANGANESE ALLOYS     | 1.00  | 5                     |   |
| SILICON and SILICON ALLOYS         | 4.50  | 10 (*)                |   |
| CHROMIUM and CHROMIUM ALLOYS       | 6.00  | 0.5                   |   |
| TOTAL-Fe                           | 1.00  | 10 (*)                |   |
| NICKEL OXIDE                       | 9.50  | --                    |   |
| SILICATE BINDER                    | 1.50  | 10 (*)                |   |
|                                    |       |                       |   |
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|                                    |       |                       |   |
|                                    |       |                       |   |
| OTHERS                             | WT. % | TLV mg/m <sup>3</sup> |   |
| STAINLESS STEEL CORE WIRE          | 60.50 |                       |   |
|                                    |       |                       |   |
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## SECTION III -- FIRE AND EXPLOSION HAZARD DATA

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| <b>NON-FLAMMABLE:</b><br>WELDING ARC AND SPARKS CAN IGNITE COMBUSTIBLES AND FLAMMABLE PRODUCTS<br>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 <sup>3</sup> |
| 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       |
| INCOMPATIBILITY (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

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

## SECTION VII -- SPECIAL PROTECTION INFORMATION

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| 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

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