

BETHLEHEM STEEL -- GALVANIZED STEEL PRODUCTS  
MATERIAL SAFETY DATA SHEET

BETHLEHEM STEEL

AS OF January 1999

NSN: 952000N043387

Manufacturer's CAGE: 70983

Part No. Indicator: A

Part Number/Trade Name: GALVANIZED STEEL PRODUCTS

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General Information  
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Company's Name: BETHLEHEM STEEL CORP

Company's Street: 701 E 3RD ST

Company's City: BETHLEHEM

Company's State: PA

Company's Country: US

Company's Zip Code: 18016

Company's Emerg Ph #: 215-694-5105; 215-694-7066

Company's Info Ph #: 215-694-5105; 215-694-7066

Record No. For Safety Entry: 001

Tot Safety Entries This Stk#: 001

Status: SMJ

Date MSDS Prepared: 01NOV90

Safety Data Review Date: 03JUN97

MSDS Serial Number: CDWHP  
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Ingredients/Identity Information  
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Proprietary: NO

Ingredient: BASE METAL: (CONSISTING OF INGS 2 - 7)

Ingredient Sequence Number: 01

NIOSH (RTECS) Number: 9999999ZZ

OSHA PEL: N/K (FP N)

ACGIH TLV: N/K (FP N)  
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Proprietary: NO

Ingredient: IRON

Ingredient Sequence Number: 02

Percent: BALANCE

NIOSH (RTECS) Number: NO4565500

CAS Number: 7439-89-6

OSHA PEL: 10 MG/M3 (MFR)

ACGIH TLV: 5 MG/M3 (MFR)  
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Proprietary: NO

Ingredient: MANGANESE (SARA 313)

Ingredient Sequence Number: 03

Percent: 0.25-2

NIOSH (RTECS) Number: 009275000

CAS Number: 7439-96-5

OSHA PEL: 5 MG/M3 DUST, C

ACGIH TLV: 5 MG/M3 DUST  
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Proprietary: NO

Ingredient: CHROMIUM (SARA 313) (CERCLA) (MFR'S INVALID CAS #7740-47-3)

Ingredient Sequence Number: 04

Percent: 0.01-2

NIOSH (RTECS) Number: GB4200000

CAS Number: 7440-47-3  
OSHA PEL: 1 MG/M3  
ACGIH TLV: 0.5 MG/M3

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Proprietary: NO  
Ingredient: NICKEL (SARA 313) (CERCLA)  
Ingredient Sequence Number: 05  
Percent: 0.01-1  
NIOSH (RTECS) Number: QR5950000  
CAS Number: 7440-02-0  
OSHA PEL: 1 MG/M3  
ACGIH TLV: 1 MG/M3

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Proprietary: NO  
Ingredient: COPPER (SARA 313) (CERCLA)  
Ingredient Sequence Number: 06  
Percent: 0.01-1  
NIOSH (RTECS) Number: GL5325000  
CAS Number: 7440-50-8  
OSHA PEL: 0.1MG/M3 FUME;1 DUST  
ACGIH TLV: 0.2 MG/M3 FUME

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Proprietary: NO  
Ingredient: TRACE INGREDIENTS; (TRACE ELEMENTS)  
Ingredient Sequence Number: 07  
Percent: <2  
NIOSH (RTECS) Number: 1003044TE  
OSHA PEL: N/K (FP N)  
ACGIH TLV: N/K (FP N)

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Proprietary: NO  
Ingredient: METALLIC COATING: (CONSISTING OF INGS 9 & 10)  
Ingredient Sequence Number: 08  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: N/K (FP N)  
ACGIH TLV: N/K (FP N)

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Proprietary: NO  
Ingredient: ZINC (SARA 313) (CERCLA)  
Ingredient Sequence Number: 09  
Percent: 99 MIN  
NIOSH (RTECS) Number: ZG8600000  
CAS Number: 7440-66-6  
OSHA PEL: 5 MG/M3 (MFR)  
ACGIH TLV: 5 MG/M3 (MFR)

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Proprietary: NO  
Ingredient: TRACE INGREDIENTS; (TRACE ELEMENTS)  
Ingredient Sequence Number: 10  
Percent: <1  
NIOSH (RTECS) Number: 1003044TE  
OSHA PEL: N/K (FP N)  
ACGIH TLV: N/K (FP N)

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Proprietary: NO  
Ingredient: EFTS OF OVEREXP:INCIDENCE OF PNEUMONIA, BRONCH & PNEUMONITIS.  
ANIMAL:MAY INCR SUSCEPTIBILITY TO BACTERIAL & (ING 12)

Ingredient Sequence Number: 11  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 11:VIRAL INFECTIONS. ING 4:ADVERSE EFTS ON SKIN MAY INCL  
ULCERATIONS, IRRITATIVE DERM & ALLERGIC SKIN RXNS. (ING 13)  
Ingredient Sequence Number: 12  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 12:ADVERSE EFTS ON RESP SYS MAY INCL BRONCHOSPASMS, EDEMA,  
HYPERSECRETION, BRONCH, IRRIT, ALLERGIC ASTHMATIC(ING 14)  
Ingredient Sequence Number: 13  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 13:RXNS & ULCERATION & PERFORATION OF NASAL SEPTUM. RESP  
SYMPMS MAY INCL COUGH & WHEEZING, SHORTNESS OF (ING 15)  
Ingredient Sequence Number: 14  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 14:BREATH & NASAL ITCH. EYE IRRIT/INFLAMM. EXPOS TO SOME  
HEXAVALENT CHROMIUM CMPDS HAVE ALSO BEEN SHOWN TO (ING 16)  
Ingredient Sequence Number: 15  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 15:BE ASSOC W/INCR RISK OF LUNG CANCER. ING 5:RESP IRRITS  
& MAY CAUSE SEV PNEUM. SKIN CONT MAY CAUSE (ING 17)  
Ingredient Sequence Number: 16  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 16:ALLERGIC DERM. RSLTG SKIN RASH IS OFTEN REFERRED TO AS  
"NICKEL ITCH". EYE IRRIT, PARTICULARLY ON (ING 18)  
Ingredient Sequence Number: 17  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 17:CONJUNCTIVA. ING 6:IRRIT OF EYES, NOSE & THROAT & FLU-  
LIKE ILLNESS CALLED METAL FUME FEVER; FEVER, MUSCLE(ING 19)  
Ingredient Sequence Number: 18

NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 18:ACHES, NAUS, CHILLS, DRY THROAT, COUGH & WEAK. MAY ALSO  
PRDCE METALLIC/SWEET TASTE & DISCOLORATION OF (ING 20)  
Ingredient Sequence Number: 19  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 19:SKIN & HAIR. ING 9:CAN RSLT IN FLU-LIKE ILLNESS CALLED  
METAL FUME FEVER; MAY INCL SWEET/METALLIC TASTE IN(ING 21)  
Ingredient Sequence Number: 20  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 20: MOUTH, DRYNESS & IRRIT OF THROAT & COUGH, SHORTNESS OF  
BREATH, HDCH, FEVER, CHILLS, MUSCLE ACHES, NAUS, (ING 22)  
Ingredient Sequence Number: 21  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Proprietary: NO  
Ingredient: ING 21:VOMIT, WEAK, FATG & PROFUSE SWEATING. FOR MORE SPECIFIC  
INFORMATION CONTACT NEHC (FP N).  
Ingredient Sequence Number: 22  
NIOSH (RTECS) Number: 9999999ZZ  
OSHA PEL: NOT APPLICABLE  
ACGIH TLV: NOT APPLICABLE

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Physical/Chemical Characteristics  
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Appearance And Odor: SOLID, SHINY METAL; ODORLESS.  
Boiling Point: N/A  
Melting Point: 2800F,1538C  
Vapor Pressure (MM Hg/70 F): N/A  
Vapor Density (Air=1): N/A  
Specific Gravity: 7.6-7.8  
Evaporation Rate And Ref: NOT APPLICABLE  
Solubility In Water: NOT APPLICABLE  
Percent Volatiles By Volume: N/A  
pH: N/A

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Fire and Explosion Hazard Data  
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Extinguishing Media: MEDIA SUITABLE FOR SURROUNDING FIRE (FP N).  
Special Fire Fighting Proc: USE NIOSH APPROVED SCBA & FULL PROTECTIVE  
EQUIPMENT (FP N).  
Unusual Fire And Expl Hazrds: NOT APPLICABLE

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Reactivity Data  
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Stability: YES

Cond To Avoid (Stability): NONE SPECIFIED BY MANUFACTURER.

Materials To Avoid: ACIDS.

Hazardous Decomp Products: WELDING/BURNING ON PROD MAY CAUSE GENERATION OF VARIETY OF NOXIOUS FUMES & GASES(CARBON MONOXIDE, ZINC OXIDE FUME, ETC).

Hazardous Poly Occur: NO

Conditions To Avoid (Poly): NOT RELEVANT  
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Health Hazard Data

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LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.

Route Of Entry - Inhalation: YES

Route Of Entry - Skin: YES

Route Of Entry - Ingestion: YES

Health Haz Acute And Chronic: STEEL PRODS IN THEIR USUAL PHYSICAL FORM DO NOT POSE ANY HLTH HAZS. HOWEVER, WHEN SUBJECTED TO WELDING, BURNING, GRINDING, CUTTING, ABRASIVE BLASTING, HEAT TREATMENT, PICKLING/SIMILAR OPERATIONS, POTNTLY HAZ FUMES/DUSTS MAY BE EMITTED. ING 2:BENIGN LUNG CNDTN KNOWN AS SILICOSIS. ING 3:MINOR IRRITS TO (EFTS OF OVEREXP)

Carcinogenicity - NTP: YES

Carcinogenicity - IARC: YES

Carcinogenicity - OSHA: NO

Explanation Carcinogenicity: NICKEL:IARC MONO ON EVAL OF CARCIN RISK OF CHEMS TO MAN, VOL 49, PG 257, 1990:GRP 2B. NTP 7TH ANNUAL RPT ON (SUPP DATA)

Signs/Symptoms Of Overexp: HLTH HAZ:EYES & RESP TRACT. MAY ADVERSELY EFT CNS; WEAK IN LOWER EXTREMS, SLEEPINESS, SALIVATION, NERVOUSNESS, APATHY, SEV MUSCULAR INCOORD, IMPAIRED SPEECH, APASTIC WALKING, MASK-LIKE FACIAL EXPRESSION & UNCONTROLLABLE LAUGHTER. METAL FUME FEVER; FLU-LIKE SYNDROME-DIZZ, CHILLS, FEVER, HDCH & NAUS. INCR (ING 11)

Med Cond Aggravated By Exp: CHRONIC DISEASES OR DISORDERS OF THE RESPIRATORY SYSTEM.

Emergency/First Aid Proc: INGEST:CALL MD IMMEDIATELY (FP N). INHAL: REMOVE TO FRESH AIR. SUPPORT BREATHING (GIVE O\*2/ARTF RESP) (FP N). REMOVE FROM EXCESSIVE EXPOSURE LEVELS UNLESS PROPER NIOSH APPROVED RESPIRATORY PROTECTION IS WORN. EYES:IMMEDIATELY FLUSH W/POTABLE WATER FOR A MINIMUM OF 15 MINUTES, SEEK ASSISTANCE FROM MD (FP N). SKIN:FLUSH W/COPIOUS AMOUNTS OF WATER. CALL MD (FP N).  
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Precautions for Safe Handling and Use

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Steps If Matl Released/Spill: NOT APPLICABLE

Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Method: ANY EXCESS PRODUCT CAN BE RECYCLED FOR FURTHER USE, DISPOSED OF IN A PERMITTED HAZARDOUS WASTE LANDFILL OR DISPOSED BY OTHER METHODS WHICH ARE I/A/W LOCAL, STATE & FEDERAL REGULATIONS.

Precautions-Handling/Storing: ARC OR SPARK GENERATED WHEN WELDING OR BURNING ON THESE PRODUCTS COULD BE A SOURCE OF IGNITION FOR COMBUSTIBLE OR FLAMMABLE MATERIALS.

Other Precautions: NONMETALLIC COATINGS MAY BE APPLIED (OFTEN AT CUSTOMER'S REQUEST TO SURF OF STEEL PRODS. THESE ARE USUALLY CLASSIFIED AS PROT COATINGS/LUBRICANTS. FOR GALVANIZED PRODS, TYPICAL NONMETALLIC COATINGS ARE RUST PREVENTIVE OILS, CHROMATE(SUPDAT)

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Control Measures  
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Respiratory Protection: WHEN ENGINEERING CONTROLS ARE NOT SUFFICIENT TO LOWER EXPOSURE LEVELS BELOW APPLICABLE EXPOSURE LIMIT, USE A NIOSH APPROVED RESPIRATOR FOR DUSTS & METAL FUME W/IN THE USE LIMITS OF THE RESPIRATOR.  
Ventilation: VENTILATION SHOULD BE SUFFICIENT TO MAINTAIN EXPOSURE LEVELS BELOW THE APPLICABLE EXPOSURE LIMIT.  
Protective Gloves: IMPERVIOUS GLOVES (FP N).  
Eye Protection: ANSI APPROVED CHEM WORKERS GOGGS (FP N).  
Other Protective Equipment: EYE WASH FOUNTAIN & DELUGE SHOWER WHICH MEET ANSI DESIGN CRITERIA (FP N).  
Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.  
Suppl. Safety & Health Data: EXPLAN OF CARCIN:CARCINS, 1994:ANTIC TO BE CARCIN. ANIMAL:LUNGS, NASAL CAVITIES. OTHER PREC:TREATMENT/PHOSPHATE, BORAX & STEARATE SOAPS. POSS PRESENCE OF THESE COATINGS SHOULD BE RECOGNIZED & CONSIDERED WHEN EVAL POTNTL EMPLOYEE HLTH HAZS & EXPOS DURING WELDING/OTHER DUST/FUME GENERATING ACTIVITIES.

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Transportation Data  
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Disposal Data  
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Label Data  
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Label Required: YES  
Technical Review Date: 24JUN97  
Label Date: 03JUN97  
Label Status: G  
Common Name: GALVANIZED STEEL PRODUCTS  
Chronic Hazard: YES  
Signal Word: CAUTION!  
Acute Health Hazard-Slight: X  
Contact Hazard-Slight: X  
Fire Hazard-None: X  
Reactivity Hazard-None: X  
Special Hazard Precautions: STEEL PRODUCTS IN THEIR USUAL PHYSICAL FORM DO NOT POSE ANY HEALTH HAZARDS. HOWEVER, WHEN SUBJECTED TO WELDING, BURNING, GRINDING, CUTTING, ABRASIVE BLASTING, HEAT TREATMENT, PICKLING OR SIMILAR FUMES GENERATED CAN IRRITATE EYES AND RESPIRATORY TRACT AND MAY AFFECT CENTRAL NERVOUS SYSTEM. SKIN CONTACT CAN CAUSE DERMATITIS. METAL FUME FEVER CAN OCCUR FROM EXPOSURE WITH FLU LIKE SYMPTOMS. CHRONIC:CANCER HAZARD. NICKEL IS LISTED AS AN ANIMAL NASAL CARCINOGEN (FP N). OVEREXPOSURE MAY AFFECT LUNG FUNCTION.  
Protect Eye: Y  
Protect Skin: Y  
Protect Respiratory: Y  
Label Name: BETHLEHEM STEEL CORP  
Label Street: 701 E 3RD ST  
Label City: BETHLEHEM  
Label State: PA  
Label Zip Code: 18016  
Label Country: US  
Label Emergency Number: 215-694-5105; 215-694-7066