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===== Product Identification =====

Product ID:HASTELLOY W

MSDS Date:04/01/1987

FSC:3439

NIIN:00-063-5203

MSDS Number: BCWXD

=== Responsible Party ===

Company Name:BOB MARTIN COMPANY

Address:2209 N SEAMAN AVENUE

City:SO. EL MONTE

State:CA

ZIP:91733

Info Phone Num:213-686-2220

Emergency Phone Num:213-686-2220

CAGE:JO950

=== Contractor Identification ===

Company Name:BOB MARTIN COMPANY

Address:2209 N SEAMAN AV

ENUE

Box:City:SO. EL MONTE

State:CA

ZIP:91733

Phone:213-686-2220

CAGE:JO950

Company Name:MARTIN BOB CO

Address:2209 N SEAMAN AVE

Box:City:SOUTH EL MONTE

State:CA

ZIP:91733-2630

Country:US

Phone:213-686-2220

CAGE:6K906

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===== Composition/Information on Ingredients =====

Ingred Name:COBALT (SARA III)

CAS:7440-48-4

RTECS #:GF8750000

Fraction by Wt: 2.5% MAX

OSHA PEL:0.1 MG/M3;AS CO

ACGIH TLV:0.05 MG/M3;DUST 9293

Ingred Name:CHROMIUM (SARA III)

CAS:7440-47-3

RTECS #:GB4200000

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raction by Wt: 5.0%
OSHA PEL:1 MG/M3
ACGIH TLV:0.5 MG/M3; 9192
EPA Rpt Qty:1 LB
DOT Rpt Qty:1 LB

Ingred Name:IRON OXIDE
CAS:1309-37-1
RTECS #:NO7400000
Fraction by Wt: 6.0%
OSHA PEL:10 MG/M3 (FE)
ACGIH TLV:5 MG/M3(FE),B2; 9293

Ingred Name:MANGANESE (SARA III)
CAS:7439-96-5
RTECS #:OO9275000
Fraction by Wt: 1.0% MAX
Other REC Limits:1.0MG/M3(FUME),ACGIH
OSHA PEL:(C) 5 MG/M3 DUST
ACGIH TLV:5 MG/M3 DUST 9293

Ingred Name:MOLYBDENUM
CAS:7439-98-7
RTECS #:QA4680000
Fraction by Wt: 24%
OSHA PEL:15
MG/M3 TDUST
ACGIH TLV:10 MG/M3; 9293

Ingred Name:NICKEL (SARA III)
CAS:7440-02-0
RTECS #:QR5950000
Fraction by Wt: 63.0%
OSHA PEL:1 MG/M3
ACGIH TLV:1 MG/M3; 9192

Ingred Name:SILICON
CAS:7440-21-3
RTECS #:VW0400000
Fraction by Wt: 1.0% MAX
Other REC Limits:5.0MG/M3;RESP. DUST
OSHA PEL:15 MG/M3 TDUST
ACGIH TLV:10 MG/M3 TDUST; 9293

Ingred Name:VANADIUM (SARA III)
CAS:7440-62-2
RTECS #:YW1355000
Fraction by Wt: 0.6% MAX
Other REC Limits:ABOVE FIG.FOR V*2O*5
OSHA PEL:C,0.5 MG V2O5/M3 RD
ACGIH TL

Ingred Name:GRAPHITE, SYNTHETIC
CAS:7440-44-0
RTECS #:FF5250100
Fraction by Wt: 0.12%
OSHA PEL:15 MG/M3 TDUST
ACGIH TLV:2 MG/M3 TDUST; 9293

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===== Hazards Identification =====

Routes of Entry: Inhalation:YES Skin:YES Ingestion:NO
Reports of Carcinogenicity:NTP:YES IARC:YES OSHA:YES
Health Hazards Acute and Chronic:ACUTE:METALLIC TASTE,NAUSEA,CHEST
TIGHTNESS,FEVER,DIZZINESS,DRYNESS,EYES,NOSE,THROAT
IRRITATION,ALLERGIC SKIN
REACTIONS,IRRITATION & DERMATITIS.
CHRONIC:BRONCHIAL ASTHMA,LUNG FIBROSIS,PNEUMOCONIOSIS.L UNG
CANCER(CR & NI EXPOSURE).CNS DEPRESSION(MN EXPOSURE),GI
DISORDERS(FE EXPOSURE).
Explanation of Carcinogenicity:CHROMIUM VI IS A HUMAN CARCINOGEN.
CHROMIUM III IS A SUSPECTED HUMAN CARCINOGEN. NICKEL IS A SUSPECTED
HUMAN CARCINOGEN.
Effects of Overexposure:SEE HEALTH HAZARDS.
Medical Cond Aggravated by Exposure:AGGRAVATION OF EXISTING RESPIRATORY
OR ALLERGIC CONDITIONS.HIGHER LEV
EL OF LUNG RELATED PROBLEMS AMONG
SMOKERS.SCREEN INDIVIDUALS WITH NERVOUS,CIRCULATORY,BLOOD OR KIDNEY
CONDITIONS.

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===== First Aid Measures =====

First Aid:REMOVE FROM EXPOSURE AND OBTAIN PROMPT MEDICAL ATTENTION.IF
NOT BREATHING,GIVE CPR.IF UNCONSCIOUS,GIVE OXYGEN;SKIN:WASH WITH
SOAP & WATER,IF IRR.PERSISTS,SEE DOCTOR;EYES:FLUSH WITH LARGE
AMOUNTS OF WA TER.IF IRR.PERSISTS,SEE DOCTOR.DO NOT WEAR CONTACT
LENSES;INGESTION:DRINK LARGE
QUANTITIES OF WATER.INDUCE VOMIT,SEE
DOCTOR IMMEDIATELY.

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===== Fire Fighting Measures =====

Extinguishing Media:USE MEDIA APPROPRIATE FOR SURROUNDING FIRE.
Fire Fighting Procedures:IF THIS MATERIAL IS REDUCED TO POWDER
FORM,CAUTION MUST BE USED TO PREVENT FIRE OR EXPLOSION. TO
EXTINGUISH USE DRY SAND,DRY GRAPHITE,OR OTHER CLASS"D"EXTINGSHR
Unusual Fire/Explosion Hazard:WELDING ARCS AND SPARKS CAN IGNITE
COMBUSTIBLE PRODUCTS

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Accidental Release Measures =====

Spill Release Procedures:IF IN SOLID FORM,SWEEP UP & PLACE IN APPROPRIATE DISPOSAL CONTAINER.IF IN POWDER FORM,VACUUM WITH HIGH EFF. PARTICULATE FILTRATION SYSTEM.MINIMIZE AIRBORNE GENERATION OF POWDER & AVOID WATER CONTAMINATION & PLACE IN APPROPRIATE DISPOSAL CONTAINER.

===== Handling and Storage =====

Other Precautions:TRAIN WELDER TO KEEP HIS HEAD OUT OF THE FUMES. MONITOR AIR TO ENSURE ACCEPTABLE EXPOSURES. AVOID ELECTRICAL SHOCK BY MAINTAINING DRY WORK AREA.

===== Exposure Controls/Personal Protection =====

Respiratory Protection:FUME RESPIRATOR OR AIR SUPPLIED RESPIRATOR IN CONFINED SPACES OR WHERE VENTILATION DOES NOT KEEP EXPOSURE BELOW TLV.

Ventilation:LOCAL EXHAUST TO MAINTAIN BELOW TLV.

Protective Gloves:WELDER'S GLOVES

Eye Protection:HELMET OR FACE SHIELD WITH FILTER LENS

Other Protective Equipment:SUBSTANTIAL DARK CLOTH,ARM PROTECTOR,APRON,HAT,SHOULDER PROTECTION.

Work Hygienic Practices:WASH HANDS THOROUGHLY BEFORE EATING,SMOKING,USING SANITARY FACILITIES.

Supplemental Safety and Health

MSDS INFORMATION OBTAINED FROM MSDS BY CABOT OF 01NOV85,CAGE 7T173.

===== Physical/Chemical Properties =====

HCC:N1

Melt/Freeze Pt:M.P/F.P Text:2400F,1316C

Spec Gravity:9.0

Solubility in Water:INSOLUBLE

Appearance and Odor:WELDING ROD,NO ODOR

Percent Volatiles by Volume:NONE

===== Stability

and Reactivity Data =====

Stability Indicator/Materials to Avoid: YES

MINERAL ACIDS & OXIDIZING AGENTS WHICH MAY GENERATE HYDROGEN GAS, WHICH IS EXPLOSIVE.

Hazardous Decomposition Products: FUMES OF METALS AND METAL OXIDES, CO, NO*2, O*3.

===== Disposal Considerations =====

Waste Disposal Methods: DISPOSE OF FUMES, FLUX OR WELD GRINDING RESIDUE FROM THE WORK AREA OR FROM FILTERS IAW ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

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