

HAYNES INTERNATIONAL INC SUB OF CABOT CORP -- HAYNES 625 ALLOY, N06625 --
3439-01-054-9641

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

Product ID:HAYNES 625 ALLOY, N06625

MSDS Date:07/31/1999

FSC:3439

NIIN:01-054-9641

Status Code:A

MSDS Number: CLNSC

=== Responsible Party ===

Company Name:HAYNES INTERNATIONAL INC SUB OF CABOT CORP

Address:1020 W PARK AVE

Box:9013

City:KOKOMO

State:IN

ZIP:46901

Country:US

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Info Phone Num:318-263-2002;765-456-6694

Emergency Phone Num:765-456-6894

Resp. Party Other MSDS Num.:H2071-3

Chemtrec Ind/Phone:(800)424-9300

CAGE:80357

=== Contractor Identification ===

Company Name:ASTROLITE ALLOYS DIV OF ASTRO METALLURGICAL

Address:709 VIA ALONDRA

Box:City:CAMARILLO

State:CA

ZIP:93010-8714

Country:US

Phone:805-484-3621

Contract Num:SP0490-00-D-40690

CAGE:2R602

Company Name:HAYNES INTERNATIONAL INC SUB OF CABOT CORP

Address:1020 W PARK AVE

Box:9013

City:KOKOMO

State:IN

ZIP:4690

4-9013
Country:US
Phone:318-263-2002;765-456-6614
CAGE:80357

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

Ingred Name:COBALT
CAS:7440-48-4
RTECS #:GF8750000
Fraction by Wt: 1% MAX
Other REC Limits:NONE RECOMMENDED
OSHA PEL:0.1 MG/M3
ACGIH TLV:0.02 MG/M3; A3; 9596

Ingred Name:CHROMIUM
CAS:7440-47-3
RTECS #:GB4200000
= Wt:21.
Other REC Limits:NONE RECOMMENDED
OSHA PEL:1 MG/M3
ACGIH TLV:0.5 MG/M3; 9596
EPA Rpt Qty:1 LB
DOT Rpt Qty:1 LB

Ingred Name:IRON
CAS:7439-89-6
RTEC
S #:NO4565500
Fraction by Wt: 5% MAX
Other REC Limits:NONE RECOMMENDED

Ingred Name:MANGANESE
CAS:7439-96-5
RTECS #:OO9275000
Fraction by Wt: 0.5% MAX
Other REC Limits:NONE RECOMMENDED
OSHA PEL:C, 5 MG/M3 (FUME)
ACGIH TLV:0.2 MG/M3; 9596

Ingred Name:NICKEL
CAS:7440-02-0
RTECS #:QR5950000
= Wt:62.
Other REC Limits:NONE RECOMMENDED
OSHA PEL:1 MG/M3
ACGIH TLV:1 MG/M3; 9596

Ingred Name:SILICON
CAS:7440-21-3
RTECS #:VW0400000
Fraction by Wt: 0.5% MAX
Other REC Limits:NONE RECOMMENDED
OSHA PEL:15 MG

/M3 TDUST
ACGIH TLV:10 MG/M3 TDUST; 9596

Ingred Name:ALUMINUM
CAS:7429-90-5
RTECS #:BD0330000
Fraction by Wt: 0.4% MAX
OSHA PEL:15 MG/M3
ACGIH TLV:10 MG/M3

Ingred Name:COLUMBIUM + TANTALUM
= Wt:3.7

Ingred Name:TITANIUM
CAS:7440-32-6
RTECS #:XR1700000
Fraction by Wt: 0.4% MAX

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

Reports of Carcinogenicity:NTP:YES IARC:YES OSHA:YES
Health Hazards Acute and Chronic:ACUTE: INHALATION-INHALED PARTICULATE
MAY IRRITATE THE
RESPIRATORY TRACT. EXCESSIVE INHALATION OF
ALUMINUM, COBALT, COPPER, MAGNESIUM, NICKEL & ZINC CAN CAUSE
RESPIRATORY IRRITATION, COUGH, BRONCHITIS , CHILLS, "METAL FUME
FEVER" & ASTHMA-LIKE SYMPTOMS. INGESTION-INGESTION OF LARGE DOSES
MAY CAUSE NAUSEA, VOMITING, & DIARRHEA. SKIN-MAY CAUSE IRRITATION &
IN SOME INDIVIDUALS AN ALLERGIC DERMATITIS WHEN ELEMENTS SUCH AS
CHROME, COBALT, COPPER & NICKEL ARE PRESENT. EYES-CONTACT WITH
PARTICULATE METAL (DUST, FUME OR POWDER)
MAY INFLAME THE
CONJUNCTIVA.

Explanation of Carcinogenicity:CHROMIUM, COBALT & NICKEL-OSHA REQUIRES
THAT CHROMIUM & ITS COMPOUNDS, COBALT & ITS COMPOUNDS, & NICKEL &
ITS COMPOUNDS BE CONSIDERED AS CARCINOGENS BECAUSE THEY ARE SO
CLASSIFIED BY IARC &/OR NTP. WELDING FUMES-OSHA REQUIRES THAT
WELDING FUMES BE CONSIDERED AS CARCINOGENS BECAUSE THEY ARE SO
CLASSIFIED BY IARC.

Effects of Overexposure:CHRONIC HEALTH EFFECTS OF
OVEREXPOSURE-RESPIRATORY DISEASE WITH SYMPTOMS

RANGING FROM

SHORTNESS OF BREATH & COUGH TO PERMANENT DISABILITY DUE TO LOSS OF LUNG FUNCTION; SENSITIZATION OR HYPERSENSITIVITY & FIBROSIS OF SUBSEQUENT EFFECTS ON THE HEART MAY BE CAUSED BY EXCESSIVE EXPOSURE TO DUST OR FUMES CONTAINING COBALT, NICKEL, TITANIUM & TUNGSTEN. CENTRAL NERVOUS SYSTEM DEPRESSION HAS BEEN IDENTIFIED WITH EXCESSIVE MANGANESE EXPOSURE. INSOLUBLE NICKEL COMPOUNDS & HEXAVALENT CHROMIUM COMPOUNDS HAVE BEEN LINKED TO NASAL, BRONCHIAL & LUNG

GASTROINTESTINAL DISORDERS IN THE LUNG.

Medical Condition Aggravated by Exposure: INDIVIDUALS WHO MAY HAVE HAD AN ALLERGIC REACTION OR SENSITIVITY TO METALS SUCH AS CHROMIUM, COPPER, COBALT & NICKEL MAY ENCOUNTER SKIN RASH OR DERMATITIS IF SKIN CONTACT WITH THIS PRODUCT OCCURS.

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First Aid Measures
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First Aid: INHALATION-BREATHING DIFFICULTY CAUSED BY INHALATION OF DUST OR FUME,

MOVE INDIVIDUAL TO FRESH AIR & ADMINISTER OXYGEN AS NEEDED. IF BREATHING HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. OBTAIN MEDICAL AID AT ONCE. INGEST-CONTACT POISON CONTROL CENTER. UNLESS POISON CONTROL ADVISES OTHERWISE, HAVE CONSCIOUS PERSON DRINK 1-2 GLASSES OF WATER. DO NOT INDUCE VOMITING UNLESS LARGE AMOUNTS ARE INGESTED. OBTAIN AID. SKIN-CUTS & ABRASIONS CAN BE TREATED BY STANDARD FIRST AID. IF IRRITATION DEVELOPS, OBTAIN MEDICAL AID. EYES-FLUSH DUST

OR POWDER FROM EYE WITH WATER FOR 15 MINS. IF IRRITATION OR REDNESS OCCURS, OBTAIN MEDICAL AID.

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Fire Fighting Measures
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Flash Point: NONE

Autoignition Temp: Autoignition Temp Text: NP

Lower Limits: NONE

Upper Limits: NONE

Extinguishing Media: THESE ALLOYS IN SOLID WROUGHT FORM ARE NONCOMBUSTIBLE. USE EXTINGUISHING MEDIA APPROPRIATE TO THE SURROUNDING FIRE.

Fire Fighting Procedures: TO EXTINGUISH A METAL POWDER FIRE USE DRY SAND, DRY GRAPHIT

E OR OTHER CLASS "D" FIRE EXTINGUISHING POWDER.

Unusual Fire/Explosion Hazard:NO UNUSUAL FIRE OR EXPLOSION HAZARDS.

===== Accidental Release Measures =====

Spill Release Procedures:SOLID MATERIAL POSES NO CLEAN-UP PROBLEMS. IF MATERIAL IN POWDER/DUST FORM NOTIFY SAFETY PERSONNEL, ISOLATE AREA AND DENY ENTRY. DO NOT SWEEP, CLEANUP SHOULD BE CONDUCTED WITH A VACUUM SYSTEM UTILIZING HEPA FILTER SYSTEM. CAUTION SHOULD BE TAKEN TO MINIMIZE AIRBORNE GENERATION OF POWDER/DUST, AVOID CONTAMINATION OF AIR & WATER. CLEANUP PERSONNEL PROTECT AGAINST EXPOSURE. FOLLOW OSHA 29CFR 190.120.

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

Handling and Storage Precautions:STORAGE-- IN SOLID FORM THIS MATERIAL POSES NO SPECIAL PROBLEMS. TO ENSURE PERFORMANCE OF THE PRODUCT, STORE IN A WARM, DRY ENVIRONMENT AWAY FROM IGNITION SOURCES & INCOMPATIBLES. HANDLING-THIS PRODUCT MUST BE HANDLED ACCORDING TO THE SIZE, SHAPE & QUANTITY OF MATERIAL INVOLVED.

Other Precautions:HANDLING-POWDERS SHOULD BE MOVED OR TRANSPORTED TO MINIMIZE SPILL OR RELEASE POTENTIAL. AVOID DUST INHALATION & EYE OR SKIN CONTACT. WEAR PERSONAL PROTECTIVE EQUIPMENT TO PREVENT CONTACT WITH SKIN & EYES.

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

Respiratory Protection:USE NIOSH APPROVED RESPIRATORS AS SPECIFIED BY AN INDUSTRIAL HYGIENIST/QUALIFIED SAFETY PROFESSIONAL. LUNG FUNCTION TEST RECOMMENDED FOR USERS OF NEGATIVE PRESSURE DEVICES.

USE FUME RESPIRATOR OR AIR SUPPLIED RESPIRATOR WHERE LOCAL EXHAUST OR GENERAL VENTILATION DOES NOT KEEP EXPOSURE BELOW OSHA LIMITS FOR AIR CONTAMINATION.

Ventilation:LOCAL EXHAUST VENTILATION SHOULD BE USED TO KEEP FUMES AND GASES FROM THE WORKER'S BREATHING ZONE AND THE GENERAL AREA.

Protective Gloves:WEAR GLOVES TO PREVENT METAL CUTS & ABRASIONS.

Eye Protection:WEAR SAFETY GLASSES WHEN RISK OF EYE INJURY IS PRESENT.

Other Protection:

Protective Equipment: PROTECTIVE CLOTHING SUCH AS UNIFORMS, DISPOSABLE COVERALLS SAFETY SHOES, ETC., MAY BE REQUIRED DURING METAL HANDLING OPERATIONS AS APPROPRIATE TO THE CIRCUMSTANCES OF EXPOSURE.

Work Hygienic Practices: PRACTICE GOOD HOUSEKEEPING TECHNIQUES THAT MINIMIZE ACCUMULATION OF DUST. PRACTICE GOOD HYGIENE AFTER HANDLING OF DUST/POWDER FORMS OF THIS MATERIAL, ESPECIALLY BEFORE EATING, DRINKING, SMOKING, ETC.

Supplemental Safety and Health

MEDICAL SURVEILLANCE: LUNG FUNCTION

TESTS, CHEST X-RAYS AND ROUTINE

PHYSICAL EXAMINATIONS MAY BE USEFUL TO DETERMINE EFFECTS OF DUST OR FUME EXPOSURE. ENVIRONMENTAL SURVEILLANCE: EXPOSURE TO THE ELEMENTS CAN BE BEST DETERMINED BY HAVING AIR SAMPLES TAKEN IN THE EMPLOYEE BREATHING ZONE, WORK AREA OR DEPARTMENT.

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

HCC:N1

Boiling Pt: B.P. Text: NA

Melt/Freeze Pt: =1329.4C, #####F

Decomp Temp: Decomp Text: NP

Vapor Pres: NA

Vapor Density: NA

Spec Gravity: 0.330

pH: NA

Viscosity: NP

Evaporation Rate & Reference: NA

Solubility in Water: NONE

Appearance and Odor: SOLID-SILVER GRAY COLOR OR NO COLOR.

Percent Volatiles by Volume: NONE

Corrosion Rate: NP

===== Stability and Reactivity Data =====

Stability Indicator/Materials to Avoid: YES

AVOID CONTACT WITH MINERAL ACIDS AND OXIDIZING AGENTS WHICH MAY GENERATE HYDROGEN GAS; THE EVOLUTION OF HYDROGEN MAY BE AN EXPLOSION HAZARD.

Stability Condition to Avoid: THESE ALL

OYS ARE STABLE MATERIALS.

Hazardous Decomposition Products: VARIOUS ELEMENTAL METALS & METAL OXIDES
MAY BE GENERATED FROM WELDING, CUTTING, GRINDING, MELTING OR DROSS
HANDLING OPERATIONS.

Conditions to Avoid Polymerization: DOES NOT OCCUR.

===== Toxicological Information =====

Toxicological Information: EYE: RABBIT (COBALT) UNKNOWN AMOUNT PRODUCED
SEVERE REACTION WITH ABSCESS INVOLVING LENS, CILARY BODY, VITREOUS
HUMOR & RETINA. SKIN: NO DATA. INGESTION

: GUINEA PIG (NICKEL):

LDLO=5 MG/KG. RAT (COBALT) : LD50=6171 MG/KG. RABBIT (COBALT):
LD50=750 MG/KG. HUMAN (COPPER): LDLO=120 UG/KG AFFECTS THE
GASTROINTESTINAL TRACT (NAUSEA OR VOMITING). HUMAN (CHROMIUM):
LDLO=71 MG/KG. INHALATION: GUINEA PIG (NICKEL) TCLO=15 M, G/M³ 91
WEEKS (INTERMITTENT). HUMAN (CHROMIUM VI): TCLO=110 UG/M³ 3 YEARS
(CONTINUOUS) TUMORIGENIC (CARCINOGENIC PER RTECS). HUMAN
(MANGANESE): TCLO=2300 UG/M³.

===== Ecological Information =====

Ecological: IN SOLID FORM THIS MATERIAL POSES NO SPECIAL ENVIRONMENTAL
PROBLEMS. METAL POWDERS, FUMES, OR DUSTS MAY HAVE SIGNIFICANT IMPACT
ON AIR AND WATER QUALITY. AIRBORNE EMISSIONS, SPILLS, AND RELEASES
TO THE ENVIRONMENT (DISCHARGE TO STREAMS, SEWERS SYSTEMS, GROUND
WATER, SURFACE SOIL, ETC.) SHOULD BE CONTROLLED IMMEDIATELY.
ECOTOXICITY: FEW PLANTS ACCUMULATE COBALT AT GREATER THAN 100 PPM,
THE LEVEL AT WHICH SEVERE PHYTOTOXICITY WOULD OCCUR
. THERE IS
LITTLE TENDENCY FOR CHROMIUM III BIOACCUMULATION ALONG THE FOOD
CHAIN.

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

Waste Disposal Methods: WHENEVER POSSIBLE, RECOVER ALLOYS FOR REUSE OR
RECYCLING. IF NECESSARY, DISPOSE OF WASTE MATERIAL IN ACCORDANCE
WITH LOCAL, STATE OR FEDERAL REGULATIONS. FOR SPECIFIC LABELING,
PACKING, STORAGE, TRANSPORTATION & DISPOSAL PROCEDURES, CONTACT AN
ENVIRONMENTAL ENGINEER OR CONSULTANT FAMILIAR WITH WASTE

E DISPOSAL
REGULATIONS.

===== MSDS Transport Information =====

Transport Information:SHIPPING NAME: NOT APPLICABLE. IDENTIFICATION NUMBER: NOT APPLICABLE. HAZARD CLASS: NOT APPLICABLE. LABELS REQUIRED: NOT APPLICABLE.

===== Regulatory Information =====

SARA Title III Information:FOLLOWING ARE THE HAZARD CATEGORIES FOR SARA SECTIONS 311 AND 312 OF THE SUPERFUND AMENDMENT AND REAUTHORIZATION ACT OF 1986(SARA T

ITLE III): IMMEDIATE HAZARD, DELAYED HAZARD.

CHEMICALS SUBJECTE TO TH E REPORTING REQUIREMENTS OF SECTION 313 OR TITLE III OF SARA AND 40 CFR PART 372: ALUMINUM (AS A FUME OR DUST), COBALT (FUME OR DUST), CHROMOMIUM, COPPER, MAGANESE, NICKEL (AS A POWDER OR DUST), VANAD IUM (AS A FUME OR DUST).

Federal Regulatory Information:OSHA: LISTED AS AN AIR CONTAMINANT(29 CFR 1910.1000). HAZARDOUS BY DEFINITION OF HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200). TSCA (TOXIC SUBSTA

NCE CONTROL ACT(:

COMPONENTS OF THIS MATERIAL ARE L ISTED ON THE TSCA INVENTORY.

CERCLA: HAZARDOUS SUBSTANCES (40 CFR 302.4): CHROMIUM (AS A POWDER), COPPER, NICKEL (AS A POWDER OR DUST). NOT LISTED AS EXTREMELY HAZARDOUS SUBSTANCE (40 CFR 355).

State Regulatory Information:CALIFORNIA'S "SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986" (PROPOSITION 65). DURING WELDING, THESE PRODUCTS MAY PRODUCE COBALT OXIDE, NICKEL COMPOUNDS,HEXAVALENT CHROMIUM COMPOUNDS WHIC

H ARE KNOWN TO STATE

OF CALIFORNIA TO CAUSE CANCER. STATE OF CALIFORNIA, HEALTH AND WELFARE AGENCY, 1600 NINTH STREET, ROOM 450, SACRAMENTO, CA 95914, PHONE (961) 455-6955. PENNSYLVANIA WORKER AND COMMUNIT Y RIGHT TO KNOW: ALUMINUM, COBALT,COPPER, CHROMIUM, MANGANESE, NICKEL, VANADIUM (FUME AND DUST) ARE DESIGNATED ENVIRONMENTAL HAZARDS ON HAZARDOUS SUBSTANCES LIST. TITLE 34,PART XIII, CHAPTER 323.

===== Other Information =====

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