

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:U

S

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 METALLUGICAL

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:4

6904-9013  
Country:US  
Phone:318-263-2002;765-456-6614  
CAGE:80357

=====  
===== 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  
R  
TECS #: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

MS 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 CANCERS. ALUMINUM & IRON HAVE BEEN INDICATED TO CAUSE GASTRO-INTESTINAL DISORDERS IN THE LUNG.

Medical Cond 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.

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

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.

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

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 GRAP

HITE 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 UTILIZI NG HEPA FILTER SYSTEM. CAUTION SHOULD BE TAKEN TO MINIMIZE AIRBORNE G  
ENERATION OF POWDER/DUST,AVOID  
CONTAMINATION OF AIR & WATER. CLEANUP PESONNEL 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 PRODUC T 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 & E YES.

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

Respiratory Protection:USE NIOSH APPROVED RESPIRATORS AS SPEICIFIED BY AN INDUSTRIAL HYGIENIST/QUALIFIED SAFETY PROFESSIONAL. LUNG FUNCTION TEST

RECOMMENDED FOR USERS OF NEGATIVE PRESSURE DEVICES.

USE FUME RESPIRATOR OR AI R 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 Pro

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

ALLOYS 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. INGEST

ION: 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 =====

n =====

Ecological:IN SOLID FORM THIS MATERIAL POSES NO SPECIAL ENVIRONMENTAL  
PROBLEMS. METAL POWDERS, FUMES, OR DUSTS MAY HAVESIGNIFICANT 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 THE

AST 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(SAR

A TITLE 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 SUB

STANCE 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 W

HICH 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 =====

=====

Disclaimer (provided with this information by the compiling agencies):  
This information is formulated for use by elements of the Department of Defense. The United States of America in no manner whatsoever, expressly or implied, warrants this information to be accurate and disclaims all liability for its use. Any person utilizing this document should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation.