MATERIAL SAFETY DATA SHEET

GENIUM PUBLISHING CORPORATION
1145 CATALYN ST., SCHENECTADY, NY 12303 USA (518) 377-8854

From Genium's MSDS Collection, to be used as a reference.

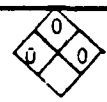
MSDS # N 163
STAINLESS STEEL/COBALT BASE
(Scrap-Generic)

Issued: December 1985
Revised:

SECTION 1. MATERIAL IDENTIFICATION

18

MATERIAL NAME: STAINLESS STEEL /COBALT BASE (Scrap-Generic)
OTHER DESIGNATIONS: H.S. 188; Rene 41, 77, 95; Lo05; N155
DESCRIPTION: An alloy of Iron, Nickel, Chromium, and Cobalt with possible traces of Tungsten, Carbon, Manganese, and Sulfur.



R 1
I 3
S 1
K 0

SECTION 2. INGREDIENTS AND HAZARDS

	%	HAZARD DATA	
		*PEL (OSHA)	**TLV(ACGIH)
BASE METAL: Cobalt (Co) CAS #7440 48 4	balance	0.1 mg/m^3	0.1 mg/m^3
ALLOY METALS: Chromium (Cr) CAS #7440 47 3	1-30	1 mg/m^3	0.5 mg/m^3
Nickel (Ni) CAS #7440 02 0	1-40	1 mg/m^3	1 mg/m^3
Iron (Fe) CAS #1309 37 1	1-20	10 mg/m^3***	5 mg/m^3***
		*** as iron oxide fume.	

* OSHA Permissible Exposure Limit (PEL)
** American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs).
NOTE: Chromium, cobalt, and nickel in various chemical compounds have been identified as suspected human carcinogens by the IARC, NTP Annual Report.

SECTION 3. PHYSICAL DATA

Boiling Point @ 1 atm ..... Approx. 5000°F
Specific Gravity (H_2O=1) ..... approx. 8.0 (60°F)
Vapor Density (Air=1) ..... NA
Vapor Pressure @ 20°C, mm Hg... NA
% Volatile by Volume ..... NA
Melting Point ..... Approx. 2500°F
Solubility in Water ..... Insoluble
Evaporation Rate (BuAc=1) ... NA

APPEARANCE & ODOR: Various shapes, solid, odorless silver-colored metal.

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temp	Flammability Limits in Air	Lower	Upper
NONE	NONE	NONE	N/A	N/A

EXTINGUISHING MEDIA: Will not burn. Use water to cool.
UNUSUAL FIRE AND EXPLOSION HAZARDS: Fine metal particles produced when machined, sawed, etc., can burn. High concentration of fines (fine particles) in the air may present an explosion hazard. Good housekeeping and adequate ventilation are recommended. Use air-supplied or self-contained breathing apparatus if fires are in enclosed areas.

SECTION 5. REACTIVITY DATA

This material is stable under most conditions.
INCOMPATIBILITY: Reacts with strong acids to yield hydrogen (H_2) gas.
DECOMPOSITION PRODUCTS: Metallic oxides (chromates, iron oxide). See Section 9 for special precautions.

DO A 022001
CONFIDENTIAL

SECTION 6. HEALTH HAZARD INFORMATION

TLV See Section 2

Stainless steel is poorly absorbed through the skin or alimentary canal, and while in the solid state it is not considered an inhalation hazard. Operations such as welding, dust generation, or fume generation will allow exposure to the elements present in the alloy. Therefore, it is important to maintain exposure levels below the regulated levels as noted in Section 2. SHORT-TERM EXPOSURE: Symptoms include metallic taste, tightness of chest, fever, irritation to eyes, nose, throat, and skin. LONG-TERM EXPOSURE: Long-term exposure to steel fumes or dusts may cause skin sensitization (principally to cobalt and nickel) and respiratory diseases such as bronchial asthma, lung fibrosis, or pneumoconiosis. Iron oxide fume exposure may cause siderosis.

FIRST AID: EYE CONTACT: Protect eyes from particulates or fume. Wash exposed eye with large amounts of water for 15 minutes.

SKIN CONTACT: Protect skin from cuts or heat. Avoid prolonged contact to avoid cobalt/nickel dermatitis.

INHALATION: Move to fresh air. Restore or support breathing as required.

INGESTION: NA

SECTION 7. SPILL, LEAK AND DISPOSAL PROCEDURES

Sell as scrap or landfill. Clean up spills as an inert solid. Dispose of in accordance with OSHA, EPA, state, or local regulations.

SECTION 8. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: Use NIOSH/MSHA-approved air-purifying dust and fume respirator when airborne concentrations exceed the TLVs/PELs listed in Section 2 when cutting, grinding, welding, or remelting. Use air-supplied or self-contained breathing apparatus (SCBA) in confined spaces.

VENTILATION: Use local exhaust when cutting, grinding, welding, or remelting. Confined spaces require special attention to provide adequate ventilation.

EYE PROTECTION AND PROTECTIVE CLOTHING: Eye and face protection required when welding, grinding or remelting. Wear gloves and suitable flame-retardant clothing. When welding, wear proper shade number. Good personal hygiene and safe work practices must be maintained.

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Always maintain exposures below the established PELs/TLVs. Always use exhaust ventilation when feasible. Arc and sparks generated when welding could be a source of ignition for combustible and flammable materials. When grinding or welding cobalt-based stainless steel, always determine the potential of exceeding TLVs by Industrial Hygiene sampling.

This material is potentially contaminated with materials such as oil or other compounds. If the material is contaminated, precautions necessary to the contaminants should be considered when handling, welding, cutting, and/or heating or melting.

DATA SOURCE(S) CODE (See Glossary) 2,4,6,7,9,12.14,19,30.31.40,59. OW

APPROVALS RO Reviewed 3/86.

INDUST. HYGIENE/SAFETY [signature] 3-86

MEDICAL REVIEW: [signature] Mar 86

GENIUM PUBLISHING