



Castle Metals®

Since 1890

ATTENTION: Hazard Communication Coordinator

RE: Material Safety Data Sheets

Enclosed please find Material Safety Data Sheets (MSDS's) for all materials provided by Castle Metals. These Data Sheets were prepared in response to the OSHA Hazardous Communication Rule (1910.1200) which requires that distributors of metal products provide MSDS's, which contain health and safety information, on the products they sell and on the ingredients of those products.

We have attempted to comply with these new OSHA regulations as efficiently as possible so that you can meet your obligation to inform your employees of potential hazards in the workplace. It should be noted that the materials provided by Castle Metals are not, in themselves, identified as hazardous substances. However, the burning, welding, cutting or grinding of these materials may emit dust or fumes which must be maintained below the permissible exposure levels established by OSHA.

The Material Safety Data Sheets prepared by Castle Metals summarize the product health and safety information provided to us by our vendors. Should you require original MSDS's, please contact your local Castle office or write to: A.M. Castle & Co., 3400 N. Wolf Road, Franklin Park, Illinois 60131, Attn: Corporate Safety Manager.

We appreciate the business you have given Castle in the past and look forward to meeting your future material needs.

If we can be of further assistance, please feel free to call.

Sincerely,
A.M. Castle & Co.

Richard E. Ryan, P.E.
Corporate Safety Manager

PREPARED BY DISTRIBUTOR:

**Castle Metals®**

A. M. Castle & Co.
3400 N. Wolf Road
Franklin Park, IL 60131

MATERIAL SAFETY DATA SHEET

(This product contains one or more toxic chemicals subject to the reporting requirements of section 313 of the EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT of 1986 and of 40CFR72).

ISSUE DATE

November 25, 1985

REVISED

May 1, 2004

For Information or In An Emergency
Call: (847) 455-7111

Section 1 - Product Identification

Manufacturer's Name

Various

Product Name / Trade Name

Alloy Steel - HR & CR
Alloy Leaded Steel

Common Name / Grade

Alloy Steel i.e. 4130, 4140, 4340, 8620
Alloy Leaded i.e. 86L20

Section 2 - Hazardous Ingredients

NOTE: Products Under Normal Conditions Do Not Represent An Inhalation, Ingestion or Contact Health Hazard.

Base Metal, Alloying Elements
And Metallic Coatings

CAS#

WT % (1) OSHA PEL (mg/g³) (3) ACGIH TLV TWA (Unless Noted Otherwise) (mg/m³) (2)

Base Metal

Iron (Fe)

7439-89-6

86-99

10

5 (As Iron Oxide)

Alloying Elements

Nickel (Ni)

7440-02-0

<5

1

0.5

Chromium (Cr)

7440-47-3

<5

0.5

.5

Silicon (Si)

7740-21-3

<5

15

10 (Total Dust)

Manganese (Mn)

7439-96-5

<2

5

0.2

Carbon (C)

7440-44-0

<2

N.E.

3.5 (As Carbon Black)

Molybdenum (Mo)

7439-98-7

<2

15

10 (Insoluble Compound)

Vanadium (V)

7440-62-2

<2

0.5

.05 (Respirable Dust)

Aluminum (Al)

7429-90-5

<2

15

10 (Total Dust)

Sulfur (S)

7704-34-9

<2

13

5 (As SO₂)

Phosphorus (P)

7723-14-0

<1

.1

.1 (Yellow)

Bismuth (Bi)

7440-69-9

<1

N.E.

N.E.

Copper (Cu)

7440-50-8

<1

1

1 (Dust & Mist)

Leaded Alloy

Lead (Pb)

7439-92-1

<1

.05

0.05

(1) % Of Alloying Material Varies With Grade Of Material.

(2) 1996 ACGIH Threshold Limit Value.

(3) 1993 OSHA Permissible Exposure Limit.

Section 3 - Physical Data

Material Is (At Normal Conditions)

Solid

Appearance and Odor

Gray-Black, Odorless

Melting Point (Base Metal)

>2500° F

Specific Gravity

Approximately 7

Section 4 - Fire And Explosion

Extinguishing Media

NA

Special Firefighting Procedures

Steel products in the solid state present no fire or explosion hazard.

Unusual Fire and Explosion Hazards

NA

Section 5 - Reactivity Data

Stability

Stable

Incompatibility (Materials to Avoid)

Reacts with strong acids to produce hydrogen gas.

Conditions to Avoid

NA

Hazardous Decomposition Products

Metallic dust or fumes may be produced during welding, burning, grinding and possibly machining.
Refer to ANSI Z49.1

Section 6 - Health Hazard Data

NOTE: STEEL PRODUCTS IN THE NATURAL STATE DO NOT PRESENT AN INHALATION, INGESTION OR CONTACT HAZARD. HOWEVER, OPERATIONS SUCH AS BURNING, WELDING, SAWING, BRAZING AND GRINDING MAY RELEASE FUMES AND/OR DUSTS WHICH MAY PRESENT HEALTH HAZARDS IF TLV'S ARE EXCEEDED

MAJOR EXPOSURE HAZARD

☒ Inhalation

☒ Skin Contact

☐ Skin Absorption

☐ Eye Contact

☒ Ingestion

Effects of Overexposure

Short term exposure to fumes/dust may produce irritation of eyes and respiratory system. Inhalation of high concentrations of freshly formed oxide fumes of iron, manganese, copper and lead may cause metal fume fever, characterized by a metallic taste in the mouth, dryness and irritation of the throat and influenzalike symptoms.

Chronic inhalation of high concentrations of iron oxide fumes or dust may lead to a benign pneumoconiosis (siderosis). Inhalation of high concentrations of ferric oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

Inhalation or ingestion of lead particles may result in lead induced systemic toxicity. Symptoms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposure can cause behavioral changes, kidney damage, CNS damage and reproductive effects.

Chromium and nickel and their compounds are listed in the 3rd Annual Report on Carcinogens, as prepared by the National Toxicology Program (NTP). Exposure to high concentrations of dust and fumes can cause sensitization dermatitis, inflammation and/or ulceration of upper respiratory tract and possibly cancer of nasal passages and lungs.

Recent epidemiological studies of workers melting and working alloys containing nickel/chromium have found no increased risk of cancer.

Suspected Cancer Agent? ☐ NO: This product's ingredients are not found in the lists below.

☒ YES: ☐ Federal OSHA ☒ NTP ☐ IARC

Emergency and First Aid Procedures

If exposed to excessive levels of metal fumes, remove to fresh air, seek medical aid immediately.

Eyes - Flush with water for at least 15 minutes.

Section 7 - Spill or Leak Procedures

Spill or Leak Procedures

NA

Waste Disposal Methods

According to local, state and federal regulations

Section 8 - Special Protection

Respiratory

NIOSH/MSHA - Approved dust and fume, respirator should be used to avoid excessive inhalation of particulates when exposure exceeds TLV's.

Ventilation

Local exhaust ventilation should be utilized when welding, burning, sawing, brazing, grinding or machining when exposure exceeds TLV's.

Eye Protection and Protective Clothing

Safety glasses or goggles should be utilized as required by exposure. Other protective equipment should be utilized as required by the welding standards.

Section 9 - Special Precautions

In welding, precautions should be taken for airborne contaminants which may originate from components of the welding rod.

Arc or spark generated when welding or burning could be a source of ignition for combustible and flammable materials.

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or warranty, express or implied, regarding the accuracy or correctness.

The conditions or methods of handling storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

Data sheets of individual manufacturers may be obtained by contacting A. M. Castle & Co., 3400 N. Wolf Road, Franklin Park, IL 60131 Attn: Corp. Safety Mgr.