SAFETY DATA SHEET

1. *PRODUCT AND COMPANY IDENTIFICATION*

Product Name: GALVANIZED STEEL WIRE

Synonyms: N/A

CAS Number: MIXTURE

Product Use: Various wire products.

Manufacturer/Supplier: WIRE-BOND

Address: 400 Rountree Road Charlotte, NC 28217

General Information: 704-525-5554

Transportation Emergency Number: CHEMTREC: 800-424-9300

2. *HAZARDS IDENTIFICATION:*

This product is gray-black with no odor.

Emergency Overview:

Steel Products sold by Mid South Wire are not hazardous per OSHA GHS 29 CFR 1910, 1915, 1926. However, individual customer processes (such as welding, sawing, brazing, grinding, abrasive blasting, and machining) may result in the formation of fumes, dust (combustible or otherwise), and/or particulate that may present the following hazards:

OSHA Hazards: **Carcinogen**
Skin Sensitizer
Target Organ Effect-Lungs

Classification: **Carcinogenicity (Category 2)**
Skin Sensitization (Category 1)
Specific Target Organ Toxicity-Repeated Exposure (Category 1)

Pictogram(s):

Signal Word: **Danger**

Hazard Statement(s)

Dust/Fumes may cause an allergic skin reaction.
Dust/Fumes suspected of causing cancer via inhalation.
Inhalation of dust/fumes causes damage to respiratory tract through prolonged or repeated exposure.

Precautionary Statement(s)

Do not handle until all safety precautions have been read and understood.
Avoid breathing dust/fumes.
Use personal protective equipment as required.
If exposed or concerned: Get medical advice/attention.

3. *COMPOSITION/INFORMATION*

The components listed below represent the chemical composition of the wire material:

Steel Wire Composition				
Element	**CAS NO.**	**Wt. %**	**OSHA PEL**	**ACGIH-TLV**
Iron	7439-89-6	BALANCE	10MG/M3	5MG/M3
Manganese	7439-96-5	0-1.0	5MG/M3	5MG/M3
Silicon	7440-21-3	0-1.5	10MG/M3	10MG/M3
Chromium	7440-47-3	0-0.15	10MG/M3	5MG/M3
Molybdenum	7439-98-7	0-1.0	5MG/M3	5MG/M3
Carbon	7440-44-0	0-1.0	3.5MG/M3	Non-Listed
Nickel	7440-02-0	0-0.15	10MG/M3	5MG/M3
Sulfur	7704-34-9	0-1.0	N/AV	N/AV
Tin	7440-31-5	0-1.0	N/AV	N/AV
Phosphorus	7723-14-0	0-1.0	N/AV	0.1MG/M3
Copper	7440-50-8	0-1.0	3.5MG/M3	0.2MG/M3
Aluminum	7429-90-5	<0.10	N/AV	10MG/M3
Vanadium	7440-62-2	0-1.0	6MG/M3	0.5MG/M3
Titanium	7440-32-6	<0.10	N/AV	N/AV
Boron	7440-42-8	<0.10	6.5MG/M3	N/AV
Lead	7439-92-1	<0.001	10MG/M3	10MG/M3
No other elements or compounds exceed 1%			N/AV=Not Available	

Surface Coating				
Element	**CAS NO.**	**Wt. %**	**OSHA PEL**	**ACGIH-TLV**
Zinc	7440-66-6	0-14*	5MG/M3	5MG/M3
Lead	7439-92-1	0-0.01	0.005MG/M3	0.15MG/M3

Boron Salts	1303-96-4	0-0.20	N/A	N/A
Stearates	N/A	0-0.20	N/A	10MG/M3
Calcium Hydroxide	1305-62-0	0-0.20	N/A	10MG/M3
Zinc Oxide	1314-13-2	0-0.10	N/A	10MG/M3
Petroleum Dist.	8002-05-9	0-0.01	N/A	5MG/M3
Paraffinic Dist.	64742-65-0	0-0.01	N/A	5MG/M3

*See Zinc Table on Page 13

4. *FIRST AID MEASURES*

Description of First Aid Measures

Eye Contact: In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

Skin Contact: In case of overexposure to dusts or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs, flush area with cold water and get immediate medical attention.

Inhalation: In case of overexposure to dusts or fumes, remove to fresh air. Get immediate medical attention if symptoms described in the SDS develop.

Ingestion: Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

Notes to Physician: Inhalation of metal fume or metal oxides may produce an acute febrile state, with cough, chills, weakness, and general malaise, nausea, vomiting, muscle cramps, and remarkable

leukocytosis. Treatment is symptomatic, and condition is self-limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

5. ***FIRE FIGHTING MEASURES***

Flash Point (Method): Not applicable.

Flammable Limits (% volume in air): Not applicable.

Auto Ignition Temperature: Not applicable.

Extinguishing Media: For molten metal, use dry powder or sand. For steel dust use dry sand, water, foam, argon or nitrogen.

Special Fire Fighting Procedures: Do not use water on molten metal. Do not use Carbon Dioxide (CO2). Firefighters should not enter confined spaces without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

Unusual Fire or Explosion Hazards: Steel products doo not present fire or explosion hazards under normal conditions. Any non-oxidized fine metal particles/dust generated by grinding, sawing, abrasive blasting, or individual customer processes may produce materials that the customer should test for combustibility and other hazards in accordance with the applicable regulations. High concentrations of combustible metallic fines in the air may present an explosion hazard.

6. ***ACCIDENTAL RELEASE MEASURES***

Precautions if Material is Spilled or Released: Emergency response is unlikely unless in the form of combustible dust. Avoid inhalation, eye, or skin contact of dusts by using appropriate precautions outlined in this SDS (see section 8). Fine turnings and small chips should be swept or vacuumed and placed into appropriate disposable containers. Keep fine dust or powder away from sources of ignition. Scrap should be reclaimed for recycling. Prevent materials from entering drains,

sewers, or waterways. Specific standards and regulations may be applicable to materials generated by individual customer processes. As appropriate, these standards and regulations should be consulted for applicability.

Fire and Explosion Hazards: Some customer processes may generate combustible dust that may require specific precautions when cleaning spills or releases of dust.

Environmental Precautions: Some grades of steel may contain reportable quantities of alloying elements. See Section 15 for additional information.

Waste Disposal Methods: Dispose of used or unused product in accordance with applicable Federal, State, and local regulations. Please recycle.

7. ***HANDLING AND STORAGE***

Storage Temperatures: Stable under normal temperatures and pressures.

Precautions to be taken in Handling and Storing: Store away from strong oxidizers. Dusts and/or powders, alone, or combined with process specific fluids, may form explosive mixtures with air. Applicable Federal, state and local laws and regulations may require testing dust generated from processing of steel products to determine if it represents a fire or explosion hazard and to determine appropriate protection methods. Avoid breathing dust or fumes.

8. ***EXPOSURE CONTROLS/PERSONAL PROTECTION***

Operations with potential for generating high concentrations of airborne particulates or fumes should be evaluated and controlled as necessary.

Eye Protection: Use safety glasses. Dust resistant safety goggles are recommended under circumstances where particles could cause mechanical injury such as grinding or cutting. Face shields should be used when welding or cutting.

Skin: Appropriate protective gloves should be worn as necessary. Good personal hygiene practices should be followed including cleansing exposed skin several times daily with soap and water and laundering or dry cleaning soiled work clothing.

Respiratory Protection: NIOSH/MSHA approved dust/fume/mist respirator should be used to avoid excessive exposure. See Section 3 for component material information exposure limits. If such concentrations are sufficiently high that this respirator is inadequate, or high enough to cause oxygen deficiency, use a positive pressure self-contained breathing apparatus (SCBA). Follow all applicable respirator use, fitting, and training standards and regulations.

Ventilation: Provide general and/or local exhaust ventilation to control airborne levels of dust or fumes below exposure limits.

Exposure Guidelines: No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel, See Section 3 for component materials. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

9. *PHYSICAL AND CHEMICAL PROPERTIES*

Appearance and Odor: Silver grey to grey black with metallic luster.

Boiling Point: Not applicable.

Melting Point: Approximately 2800o F.

pH: Not applicable.

Specific Gravity (at 15.6o C): Not applicable.

Density (at 15.6o C): Not applicable.

Vapor Pressure: Not applicable.

Vapor Density (air=1): Not applicable.

% Volatile, by Volume: Not applicable.

Solubility in Water: Insoluble.

Evaporation Rate (Butyl Acetate=1): Not applicable.

Other Physical and Chemical Data: None.

10. STABILITY AND REACTIVITY

Stability: **Stable.**

Conditions to Avoid: **Steel at temperatures above melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fume.**

Hazardous Polymerization: **Will not occur.**

Incompatibility (Materials to Avoid): **Reacts with strong acids to form hydrogen gas. Do not store near strong oxidizers.**

Hazardous Decomposition Products: **Metallic fumes may be produces during welding, burning, grinding, and possibly machining or any situation with the potential for thermal decomposition. Refer to ANSI Z49.1.**

11. TOXICOLOGOCAL INFORMATION

The primary component of this product is iron. Long term exposure to iron dusts or fumes can result in a condition called siderosis which is considered to be a benign pneumoconiosis. Symptoms may include chronic bronchitis, emphysema, and shortness of breath upon exertion. Penetration of iron particles in the skin or eye may cause an exogenous or ocular siderosis which may be characterized by a red-brown pigmentation of the affected area. Ingestion overexposures to iron may affect the gastrointestinal, nervous, and hematopoietic system and the liver. Iron and steel founding, but not iron or iron oxide, has been listed as carcinogenic (Group 1) by IARC.

When this product is welded, fumes are generated. Welding fumes may be different in composition from the original welding product, with the chief component being ordinary oxides of the metal being welded. Chronic health effects (including cancer) have been associated with the fumes and dusts of individual component metals (see above), and welding fumes as a general category have been listed by IARC as a carcinogen (Group 2B). There is also limited evidence that welding fumes may cause adverse reproductive and fetal effects.

Evidence is stronger where welding materials contain known reproductive toxins, e.g. lead, which may be present in the coating material of this product.

Breathing fumes of dusts of this product may result in metal fume fever, which is an illness produced by inhaling metal oxides. These oxides are produced by heating various metals including cadmium, zinc, magnesium, copper, antimony, nickel, cobalt, manganese, tin, lead, beryllium, silver, chromium, aluminum, selenium, iron, and arsenic. The most common agents involved are zinc and copper.

This product may contain small amounts of manganese. Prolonged exposure to manganese dusts or fumes is associated with "manganism", a Parkinson-like syndrome characterized by a variety of neurological symptom including muscle spasms, gait disturbances, tremors, and psychoses.

This product may contain small amounts of cadmium. Primary target organs for cadmium overexposure are the lung and the kidney. Because of its cumulative nature, chronic cadmium poisoning can cause serious disease which takes many years to develop and may continue to progress despite cessation of exposure. Progression of the disease may not reflect current exposure conditions. It is also capable of causing a painful osteomalacia called "Itai-Itai" in postmenopausal women, and has caused developmental effects and/or reproductive effects in male and female animals. Cadmium is a listed carcinogen by NTP, OSHA, and IARC (Group 1).

This product may contain small amounts of chromium. Prolonged and repeated overexposure to chromium dusts or fumes may cause skin ulcers, nasal irritation and ulceration, kidney damage and cancer of the respiratory system. Chromium is a skin sensitizer. Cancer is generally attributed to the hexavalent (+6) form of chromium which is listed as a carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of nickel. Prolonged and repeated contact with nickel may cause sensitization dermatitis. Inhalation of nickel compounds has caused lung damage as well as sinus, nasal and lung cancer in laboratory animals. Nickel is a listed carcinogen by NTP and IARC (Group 1).

This product may contain small amounts of vanadium. Adverse effects from dermal, inhalation or parenteral exposure to various vanadium compounds have been reported. The major target for vanadium pentoxide toxicity is the respiratory tract. Fumes or dust can cause severe eye and respiratory irritation and systemic effects. Chronic bronchitis, green tongue, conjunctivitis, pharyngitis, rhinitis, rales, chronic productive cough, and tightness of the chest have been reported following overexposure. Allergic reactions resulting from skin and inhalation exposures have also been reported. A statistical association between vanadium air levels and lung cancer has been suggested, but vanadium currently is not regarded as a human carcinogen.

This product may contain small amounts of lead. Lead can accumulate in the body. Consequently, exposure to fumes or dust may produce signs of polyneuritis, diminished vision and peripheral neuropathy, such as tingling and loss of feeling in fingers, arms and legs. Lead is a known reproductive and developmental toxin. It is also associated with the central nervous system disorders, anemia, and kidney dysfunction and neurobehavioral abnormalities. The brain is a major target organ for lead exposure. Elemental lead is listed as an IARC 2B carcinogen.

This product may contain small amounts of copper. Copper dust and fumes can irritate the eyes, nose and throat causing coughing, wheezing, nosebleeds, ulcers and metal fume fever. Other effects from repeated inhalation of copper fumes include a metallic or sweet

taste, and discoloration of skin, teeth or hair. Copper also may cause an allergic skin reaction. Overexposure to copper can affect the liver. This product may contain zinc. Subjecting zinc or alloys containing zinc to high temperatures in the presence of oxygen (such as occurs during welding) will cause the formation of zinc oxide. Exposure to zinc oxide fumes or dusts can result in a flu-like illness called metal fume fever. Early symptoms may include a sweet or metallic taste in the mouth, dryness and irritation of the throat and coughing. These symptoms may progress to shortness of breath, headache, fever, chills, muscle aches, nausea, vomiting, weakness, fatigue and profuse sweating. The attack may last 6-48 hours and is more likely to occur after a period away from the work area.

This product may contain small amounts of silicon. Silicon exposure may produce X-ray changes in the lungs without disability.

12. *ECOLOGOCAL INFORMATION*

Aquatic Eco toxicological Data: No specific information available on this product.

Environmental Fate Data: No specific information available on this product.

13. *DISPOSAL CONSIDERATIONS*

Recovery and reuse, rather than disposal, should be the ultimate goal of handling efforts. Dispose in accordance with federal, state, and local health and environmental regulations. Prevent materials from entering drains, sewers, or waterways.

14. *TRANSPORT INFORMATION*

DOT Proper Shipping Name: Not regulated.

DOT Hazard Classification: Not regulated.

UN/NA Number: Not applicable.

DOT Packing Group: Not applicable.

Labeling Requirements: Not applicable.

Placards: Not applicable.

DOT Hazardous Substance: **Not applicable.**

DOT Marine Pollutant: **Not applicable.**

15. ***REGULATORY INFORMATION***

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be combustible or hazardous and require protection to comply with applicable federal, state and local laws and regulation.

California Proposition 65: This product contains chemicals (Antimony [oxide], Arsenic, Beryllium, Chromium [hexavalent] Cobalt, Cadmium, Lead, Nickel) known to the State of California to cause birth defects or other reproductive harm.

Massachusetts Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc.

Pennsylvania Hazardous Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc.

New Jersey Hazardous Substance List: Aluminum, Antimony, Arsenic, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Magnesium, Manganese, Molybdenum, Nickel, Nitrogen, Phosphorus, Selenium, Silicon, Sulfur, Tin, Titanium, Tungsten, Vanadium, Zinc.

16. *OTHER INFORMATION*

NFPA HAZARD RATING: **Health: 1**
Fire: 0
Reactivity: 0

ZINC TABLE:

Class (ASTM)	Weight (%)
Brite	0
Regular	0.1-2.0
Class 1	0.5-3.0
Class 3 or A	3.0-10.0
Class B	6.0-12.0
Class C	8.0-14.0

Date Previous Revision: None.
Date This Revision: 5/20/2015.
Revision Summary: New SDS.

The preceding information is believed to be correct and current as of the date of preparation of this Safety Data Sheet. Since the use of this information and the conditions of use of this product are not within the control of WIRE-BOND, it is the user's obligation to assure safe use of this product.