SAFETY DATA SHEET

Revision Date: 10/26/2015

SECTION 1: IDENTIFICATION

1(a) Product Identifier Used on Label: Coated Steel Sheet
1(b) Use Description: Coated Steel Sheet for thin gauge framing products.
1(c) Products: Steel framing components and accessories for drywall, curtain wall, load bearing, plaster and stucco construction.
1(d) Synonyms: Curved-Right®, Ready Products, Hot Band, Cold Rolled, P&O, Galvanized
1(e) Company Identification and Emergency Contact Information: Radius Track Corporation

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Radius Track Corporation
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SECTION 2: HAZARD(S) IDENTIFICATION

2(a) Classification of the chemical: Coated Sheel Sheet is considered an article under Reach regulation (REACH REGULATION (EC) No 1907/2006) and is not subject to classification under CLP regulation (REGULATION (EC) NO 1272/2008). However, Coated Steel Sheet is not exempt as an article under OSHA's Hazard Communication Standard (29 CFR 1010.1200) due to its downstream use, thus this product is considered a mixture and a hazardous material. Therefore, the categories of Health Hazards as defined in "GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS). Third revised edition ST/SG/AC/10/30/Rev.3" United Nations, New York.
2(b) Signal word, hazard statement(s), symbols and precautionary statement(s):

Hazard Symbol	Hazard Classification	Signal Word	Hazard Statement(s)
	Carcinogenicity - 2 Reproductive Toxicity - 2 Single Target Organ Toxicity (STOT) Repeat Exposure -1	**Danger**	Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Causes damage to lungs and central nervous system through prolonged or repeated inhalation exposure. Harmful if swallowed. May cause an allergic skin reaction. Harmful in contact with skin. May cause respiratory irritation. Causes eye irritation.
	Acute Toxicity-Oral - 4 Skin Sensitization - 1 STOT Single Exposure - 3		
NA	Eye Irritation-2B		

Precautionary Statement(s):		
Prevention	**Response**	**Storage/Disposal**
Do not breathe dusts / fume / gas / mist / vapor / spray. Wear protective gloves / protective clothing / eye protection / face protection. Contaminated work clothing must not be allowed out of the workplace. Use only outdoors or in well ventilated areas. Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not eat, drink or smoke when using this product.	If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed, concerned or feel unwell: Get medical advice/attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue Rinsing. If on skin: Wash with plenty of water. If irritation or rash occurs: Get medical advice/attention. Take off and wash contaminated clothing before reuse. Call a poison center/doctor if you feel unwell.	Dispose of contents in accordance with federal, state and local regulations.
2(c) Hazards not otherwise classified: None Known		
2(d) Unknown acute toxicity statement (mixture): None Known		

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Components		CAS No.	% Weight	Exposure Limits			
				ACGIH TLV (mg/m3)		OSHA PEL (mg/mg3)	
Base Metal:							
Iron	(Fe)	7439-89-6	Balance	5	Oxide Dust/Fume	10	Oxide Dust / Fume
Alloying Elements							
Aluminum	(Al)	7429-90-5	0-0.01	10	Dust	15	Dust
				5	Fume	5	Respirable fraction
Antimony	(Sb)	7440-36-0	<0.9	0.5	As Antimony	0.5	As Antimony
Arsenic	(As)	7440-38-2	<0.09	0.01	As Arsenic (A1 Carcinogen)	0.01	As Arsenic
Beryllium	(Be)	7440-41-7	<0.09	0.002	As Beryllium (A1 Carcinogen)	0.002	As Beryllium
				0.01	As Beryllium (STEL)	0.005	As Beryllium (Ceiling)
Boron	(B)	7440-42-8	<0.9	10	Oxide Dust	15	Oxide Dust
Cadmium	(Cd)	7440-43-9	<0.09	0.01	As Cadmium (A2 Carcinogen)	0.005	As Cadmium
				.002	Respirable fraction	.0025	As Cadmium (Action Level)
Calcium	(Ca)	1305-78-8	<0.9	2	Oxide Dust	5	Oxide Dust
Carbon	(C)	7440-44-0	0.04-0.95		Not Established		Not Established
Chromium	(Cr)	7440-47-3	0.01-1.0	.5	Metal	1	Metal
Cobalt	(Co)	7440-48-4	<0.09	.02	As Cobalt (A3 Carcinogen)	.1	Metal/Dust/Fume

Components		CAS No.	% Weight	Exposure Limits			
				ACGIH TLV (mg/m3)		OSHA PEL (mg/mg3)	
Copper	(Cu)	7440-50-8	<0.9	1	Dust	1	Dust
				.2	Fume	.1	Fume
Lead	(Pb)	7439-92-1	0.0-0.04	.05	Dust / Fume	.05	Dust / Fume
					(A3 Carcinogen)		
Magnesium	(Mg)	7439-95-4	<0.9		Not Established		Not Established
Manganese	(Mn)	7439-96-5	0.2-2	.2	Elemental Mn and	5	Dust / Fume
					Inorg Compounds		
Molybdenum	(Mo)	7439-98-7	<0.9	10	Insoluble Compounds	15	Insoluble Compounds
Niobium	(Nb)	3/1/7440	<0.9		Not Established		Not Established
Nickel	(Ni)	7440-02-0	0.01-0.1	1.5	Metal	1	Metal and Insoluable
							Compounds
Nitrogen	(N)	7727-37-9	<0.9		Simple Asphyxiant		Simple Asphyxiant
Phosphorus	(P)	7723-14-0	<0.9	.1	Phosphorus	.1	Phosphorus
Selenium	(Se)	7782-49-2	<0.9	.2	Selenium	.2	Selenium
Silicon	(Si)	7440-21-3	<0.9	10	Dust	15	Dust
Sulfur	(S)	7446-09-05	<0.9	5.2	Sulfur Dioxide	13	Sulfer Dioxide
				13	Sulfur Dioxide (STEL)		
Tin	(Sn)	7440-31-5	<0.9	2	Metal, Oxide and	2	Inorganic Compounds
					Inorganic Compounds		
Titanium	(Ti)	7440-32-6	<0.9		Not Established		Not Established
Tungsten	(W)	7440-33-7	<0.9	5	Insoluble Compounds		Not Established
					as W		
				10	Insoluble Compounds		
					as W (STEL)		
Vanadium	(V)	7440-62-2	<0.9	.05	Oxide Dust / Fume	0.5	Oxide Dust (Ceiling)
						0.1	Oxide Fume (Ceiling)
Zinc	(Zn)	7440-66-6	0.0-0.01	10	Oxide Dust	5	Oxide Fume
				5	Oxide Fume	10	Oxide Dust
				10	Oxide Fume (STEL)		
Coatings and							
Finishing Treatments:							
Hydrochloric Acid	(HCl)	7647-01-0	<3				
Petroleum, Natural		Mixture	<0.1	5	Mist	5	Mist
or Synthetic oils							
Anhydrous Potassium		1310-58-3	<0.01	2	Ceiling	2	Ceiling
Hydroxide							
Glycine,nn-1,2-		60-00-4	<0.01				
ethanediylbis							
Polyalkylene glycol		Mixture	<0.01				
Sodium nitrite		7632-00-0	<0.01				
Zinc (galvanized)		7440-66-6	0.4 - 10	10	Oxide Dust		
				5	Oxide Fume	5	Oxide Fume
				10	Oxide Fume (STEL)	10	Oxide Fume (STEL)

NOTE: No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. Various grades of steel will contain different combinations of these elements and/or trace materials. Exact specifications for specific products may be available upon request.

SECTION 4 – FIRST AID MEASURES

4(a) Description of necessary 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 this MSDS 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.

4(b) Most important symptoms/effects, acute and delayed (chronic):

- **Emergency Overview -** Warning! Welding, sawing, brazing, grinding, and machining may cause dusts and/or fume to be released. May be harmful if inhaled. May irritate the eyes, skin, and respiratory tract. Molten material may cause thermal burns.
- **Potential Health Effects -** Note: Steel products in their solid state under normal conditions, do not present an inhalation, ingestion or skin hazard. However, operations resulting in fume or particulate formation such as welding, sawing, brazing, grinding and machining may present health hazards. Molten steel also is hazardous.
- **Eye Contact -** Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. Contact with the heated material may cause thermal burns.
- **Skin Contact -** Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals (see Section 16 for additional information.) Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Contact with heated material may cause thermal burns.
- **Inhalation -** Dusts may cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dusts may result in metal fume fever, an influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue, muscle and joint pains, blurred vision, fever and chills. Typical symptoms last from 12 to 48 hours.
- **Ingestion -** Not expected to be acutely toxic via ingestion based on the physical and chemical properties of the product. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.
- **Chronic or Special Toxic Effects -** Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur. Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NTP, OSHA, or IARC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic, beryllium. See Section 11, for additional, specific information on effects noted above.
- **Target Organs -** Overexposure to specific components of this product that are generated in dusts or fumes may cause adverse effects to the following organs or systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.

- **Medical Conditions Aggravated by Exposure -** Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product.

SECTION 5: FIRE FIGHTING MEASURES

5(a) Suitable (and unsuitable) Extinguishing Media: Not Applicable for Coated Steel Sheet as sold/shipped. Use extinguishers appropriate for surrounding materials.
5(b) Specific Hazards arising from the chemical: Not Applicable for Coated Steel Sheet as sold/shipped. When burned, toxic smoke, fume and vapor may be emitted.
5(c) Special protective equipment and precautions for fire fighters: Do not use water on molten metal. Firefighters should not enter confined spaces without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment. Steel products do not present fire or explosion hazards under normal conditions. Fine metal particles such as produced in grinding or sawing can burn. High concentrations of metallic fines in the air may present an explosion hazard.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: Emergency response is unlikely unless in the form of dust. Avoid inhalation, eye, or skin contact of dusts by using appropriate precautions outlined in this MSDS (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.
6(b) Methods and materials for containment and clean up:

- **Environmental Precautions -** Some grades of steel may contain reportable quantities of alloying elements. See Section 15 for additional information.
- **Waste Disposal Methods -** Dispose used or unused product in accordance with applicable Federal, State, and Local regulations.

SECTION 7: HANDLING AND STORAGE

7(a) Precautions for safe handling: Not Applicable for Coated Steel Sheet as sold/shipped, however further processing (welding, burning, grinding, etc.) with the potential for generating high concentrations of airborne particulates should be evaluated and controlled as necessary. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use only outdoors or in well ventilated areas. Practice good housekeeping. Avoid breathing metal fumes and/or dust. Do not eat, drink or smoke when using this product. Cut resistant gloves and sleeves should be worn when working with steel products.
7(b) Conditions for safe storage, including any incompatibilities:

- **Storage Temperatures -** Stable under normal temperatures and pressures.
- **Precautions to be Taken in Handling and Storing -** Store away from strong oxidizers. Dusts or powders may form explosive mixtures with air. Avoid breathing dusts or fumes.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8(a) Occupational Exposure Limits (OELs): Coated Steel Sheet as sold/shipped in its physical form does not present an inhalation, ingestion or contact hazard, nor would any of the following exposure data apply. However, operations such as burning, welding (high temperature), sawing, brazing, machining,

grinding, etc. may produce fumes and/or particulates. The following exposure limits are offered as reference for an experienced industrial hygienist to review:

Ingredients	OSHA PEL[1]	ACGIH TLV[2]	NIOSH REL[3]	IDLH[4]
Iron	10 mg/m³ (as iron oxide fume)	5.0 mg/m³ (as iron oxide dust and fume)	5.0 mg/m³ (as iron oxide dust and fume)	2,500 mg Fe/m3
Manganese	(C) 5.0 mg/m³ (as Fume & Mn compounds)	0.2 mg/m³	(C) 5.0 mg/m³ 1.0 mg/m³ (as fume) (STEL) 3.0 mg/m³	500 mg Mn/m3
Nickel	1.0 mg/m³ (as Ni metal & insoluble compounds)	1.5 mg/m³ (as inhalable fraction5 Ni metal) 0.2 mg/m³ (as inhalable fraction Ni inorganic only insoluble and soluble compounds)	0.015 mg/m³ (as Ni metal & insoluble and soluble compounds)	10 mg/m³ (as Ni)
Silicon	15 mg/m³ (total dust, PNOR6) 5.0 mg/m³ (as respirable fraction, PNOR)	10 mg/m³	10 mg/m³ (as total dust) 5.0 mg/m³ (as respirable dust)	NE

8(a) Occupational Exposure Limits (OELs) Continued:

NE - None Established

1. OSHA Permissible Exposure Limits (PELs) are 8-hour TWA (time-weighted average) concentrations unless otherwise noted. A (C) designation denotes a ceiling limit, which should not be exceeded during any part of the working exposure unless otherwise noted. A Peak is defined as the acceptable maximum peak for a maximum duration above the ceiling concentration for an eight-hour shift. A skin notation refers to the potential significant contribution to the overall exposure by the cutaneous route, either by contact with vapors or, of probable greater significance, by direct skin contact with the substance. A Short Term Exposure Limit (STEL) is defined as a 15-minute exposure, which should not be exceeded at any time during a workday. An Action level (AL) is used by OSHA and NIOSH to express a health or physical hazard. They indicate the level of a harmful or toxic substance/activity, which requires medical surveillance, increased industrial hygiene monitoring, or biological monitoring. Action Levels are generally set at one half of the PEL but the actual level may vary from standard to standard. The intent is to identify a level at which the vast majority of randomly sampled exposures will be below the PEL.
2. Threshold Limit Values (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted. A Short Term Exposure Limit (STEL) is defined as the maximum concentration to which workers can be exposed for a short period of time (15 minutes) for only four times throughout the day with at least one hour between exposures. A “skin” notation refers to the potential significant contribution to the overall exposure by the cutaneous route, either by contact with vapors or, of probable greater significance, by direct skin contact with the substance. ACGIH-TLVs are only recommended guidelines based upon consensus agreement of the membership of the ACGIH. As such, the ACGIH TLVs are for guideline use purposes and are not legal regulatory standards for compliance purposes. The TLVs are designed for use by individuals trained in the discipline of industrial hygiene relative to the evaluation of exposure to various chemical or biological substances and physical agents that may be found in the workplace.
3. The National Institute for Occupational Safety and Health Recommended Exposure Limits (NIOSH-REL)-Compendium of Policy and Statements. NIOSH, Cincinnati, OH (1992). NIOSH is the federal agency designated to conduct research relative to occupational safety and health. As is the case with ACGIH TLVs, NIOSH RELs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes.
4. The "immediately dangerous to life or health air concentration values (IDLHs)" are used by NIOSH as part of the respirator selection criteria and were first developed in the mid- 1970's by NIOSH. The Documentation for Immediately Dangerous to Life or Health Concentrations (IDLHs) is a compilation of the

rationale and sources of information used by NIOSH during the original determination of 387 IDLHs and their subsequent review and revision in 1994.
5. Inhalable fraction. The concentration of inhalable particulate for the application of this TLV is to be determined from the fraction passing a size-selector with the characteristics defined in the ACGIH 2013 TLVs ® and BEIs ® (Biological Exposure Indices) Appendix D, paragraph A.
6. PNOR (Particulates Not Otherwise Regulated). All inert or nuisance dusts, whether mineral, inorganic, or organic, not listed specifically by substance name are covered by a limit which is the same as the inert or nuisance dust limit of 15 mg/m3 for total dust and 5 mg/m3 for the respirable fraction.

8(b) Appropriate Engineering Controls - 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 shield 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 2 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 2 for component materials. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9(a) Appearance (physical state, color, etc.): Solid, Metallic Gray
9(b) Odor: Odorless
9(c) Odor Threshold: NA
9(d) pH: NA
9(e) Melting Point/Freezing Point: ~2750 ºF (~1510 C)
9(f) Initial Boiling Point and Boiling Range: ND
9(g) Flash Point: NA
9(h) Evaporation Rate: NA
9(i) Flammability (solid, gas): Non-flammable, non-combustible
NA - Not Applicable
ND - Not Determined for product as a whole

9(j) Upper/lower Flammability or Explosive Limits: NA
9(k) Vapor Pressure: NA
9(l) Vapor Density (Air = 1): NA
9(m) Relative Density: 7.85
9(n) Solubility(ies): Insoluble
9(o) Partition Coefficient n-octanol/water: ND
9(p) Auto-ignition Temperature: NA
9(q) Decomposition Temperature: ND
9(r) Viscosity: NA

SECTION 10: STABILITY AND REACTIVITY

10(a) Reactivity: Not Determined (ND) for product in a solid form. Do not use water on molten metal.
10(b) Stability - Stable
10(c) Hazardous Polymerization - Will not occur.
10(d) Conditions to Avoid: Steel at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements. Avoid generation of airborne fume. Avoid storage with strong acids or calcium hypochlorite.

10(e) Incompatibility (Materials to Avoid) - Reacts with strong acids to form hydrogen gas. Do not store near strong oxidizers.
10(f) Hazardous Decomposition Products - Metallic fumes may be produced during welding, burning, grinding, and possibly machining or any situation with the potential for thermal decomposition. Refer to ANSI Z49.1.

SECTION 11: TOXICOLOGICAL INFORMATION

11 Information on toxicological effects: The following toxicity data has been determined for Coated Steel Sheet when further processed using the information available for its components applied to the guidance on the preparation of an SDS under the GHS requirements of OSHA and the EU CPL:

Hazard Classification	Hazard Category		Hazard Symbols	Signal Word	Hazard Statement
	EU	OSHA			
Acute Toxicity Hazard (covers Categories 1-4)	NA*	4a		**Warning**	Harmful if swallowed
Eye Damage/ Irritation (covers Categories 1, 2A and 2B)	NA*	**2B[c]**	No Pictogram	**Warning**	Causes eye irritation.
Skin/Dermal Sensitization (covers Category 1)	NA*	1d		**Warning**	May cause an allergic skin reaction.
Carcinogenicity (covers Categories 1A, 1B and 2)	NA*	2g		**Warning**	Suspected of causing cancer.
Toxic Reproduction (covers Categories 1A, 1B and 2)	NA*	2h		**Warning**	Suspected of damaging fertility or the unborn child.
Specific Target Organ Toxicity (STOT) Following Single Exposure (covers Categories 1-3)	NA*	3i		**Warning**	May cause respiratory irritation.
STOT following Repeated Exposure (covers Categories 1-2)	NA*	1j		**Danger**	Causes damage to lungs and central nervous system through prolonged or repeated inhalation exposure.
*Not Applicable - Semi-formed steel products are considered articles under Reach regulation (REACH REGULATION (EC) No 1907/2006) and are not subject to classification under CLP regulation (REGULATION (EC) No 1272/2008).					

Toxicological data listed below are presented regardless to classification criteria. Individual hazard classification categories where the toxicological information has met or exceeded a classification criteria threshold are listed above.

a. No LC50 or LD50 has been established for **Coated Steel Sheet**. The following data has been determined for the components:

- **Iron:** Rat LD50 =98.6 g/kg (REACH)
  Rat LD50 =1060 mg/kg (IUCLID)
  Rat LD50 =984 mg/kg (IUCLID)
  Rat LD50 > 9000 mg/kg (NLM Toxnet)
  Rabbit LD50 =890 mg/kg (IUCLID)
  Guinea Pig LD50 =20 g/kg (TOXNET)
- **Nickel:** LD50 >9000 mg/kg (Oral/Rat)
- **Silicon:** LD50 = 3160 mg/kg (Oral/Rat)
- **Manganese:** Rat LD50 > 2000 mg/kg (REACH)

b. No Skin (Dermal) Irritation data available for **Coated Steel Sheet** as a as a mixture or its components.

c. No Eye Irritation data available for **Coated Steel Sheet** as a mixture. The following Eye Irritation information was found for the components:

- **Iron:** Causes eye irritation.
- **Silicon:** Slight eye irritation in rabbit protocol
- **Nickel:** Slight eye irritation from particulate abrasion only.

d. No Skin (Dermal) Sensitization data available **Coated Steel Sheet** as a mixture. The following Skin (Dermal) Sensitization information was found for the components:

- **Nickel:** May cause allergic skin sensitization.

e. No Respiratory Sensitization data available for **Coated Steel Sheet** as a mixture or its components.

f. No Germ Cell Mutagenicity data available for **Coated Steel Sheet** as a mixture. The following Mutagenicity and Genotoxicity information was found for the components:

- **Iron:** IUCLID has found some positive and negative findings in vitro.
- **Nickel:** EU RAR has found positive results in vitro and in vivo but insufficient data for classification.

g. Carcinogenicity: IARC, NTP, and OSHA do not list **Coated Steel Sheet** as carcinogens. The following Carcinogenicity information was found for the components:

- **Welding Fumes -** IARC Group 2B carcinogen, a mixture that is possibly carcinogenic to humans.
- **Chromium (as metal and trivalent chromium compounds)** – IARC Group 3 carcinogens, not classifiable as to their human carcinogenicity.
- **Nickel and certain nickel compounds –** Group 2B - metallic nickel Group 1 - nickel compounds ACGIH confirmed human carcinogen. Nickel – EURAR Insufficient evidence to conclude carcinogenic potential in animals or humans; suspect carcinogen classification Category 2 Suspected of causing cancer.

h. No Toxic Reproduction data available for **Coated Steel Sheet** as a mixture. The following Toxic Reproductive information was found for the components:

- **Nickel**: Effects on fertility.

i. No Specific Target Organ Toxicity (STOT) following a Single Exposure data available for **Coated Steel Sheet** as a mixture. The following STOT following a Single Exposure data was found for the components:

- **Iron**: Irritating to Respiratory tract.

j. No Specific Target Organ Toxicity (STOT) following Repeated Exposure data was available for **Coated Steel Sheet** as a whole. The following STOT following Repeated Exposure data was found for the components:

- **Manganese**: Inhalation of metal fumes - Degenerative changes in human Brain; Behavioral: Changes in motor activity and muscle weakness (Whitlock *et al.,* 1966).

• **Nickel**: Rat 4 wk inhalation LOEL 4 mg/m3 Lung and Lymph node histopathology. Rat 2 yr inhalation LOEL 0.1 mg/ m3 Pigment in kidney, effects on hematopoiesis spleen and bone marrow and adrenal tumor. Rat 13 Week Inhalation LOAEC 1.0 mg/m3 Lung weights, and Alveolar histopathology.

The above toxicity information was determined from available scientific sources to illustrate the prevailing posture of the scientific community. The scientific resources includes: The American Conference of Governmental Industrial Hygienist (ACGIH) Documentation of the Threshold Limit Values (TLVs) and Biological Exposure indices (BEIs) with Other Worldwide Occupational Exposure Values 2009, The International Agency for Research on Cancer (IARC), The National Toxicology Program (NTP) updated documentation, the World Health Organization (WHO) and other available resources, the International Uniform Chemical Information Database (IUCLID), European Union Risk Assessment Report (EU-RAR), Concise International Chemical Assessment Documents (CICAD), European Union Scientific Committee for Occupational Exposure Limits (EU-SCOEL), Agency for Toxic Substances and Disease Registry (ATSDR), Hazardous Substance Data Bank (HSDB), and International Programme on Chemical Safety (IPCS).

The following health hazard information is provided regardless to classification criteria and is based on the individual component(s) and potential resultant components from further processing:

Acute Effects:

• **Inhalation:** Excessive exposure to high concentrations of metal dust may cause irritation to the eyes, skin and mucous membranes of the upper respiratory tract. Excessive inhalation of fumes of freshly formed metal oxide particles sized below 1.5 micrometer and usually between 0.02-0.05 micrometers from many metals can produce an acute reaction known as “metal fume fever”. Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms), metallic taste in the mouth, dryness and irritation of the throat followed by weakness and muscle pain. The symptoms come on in a few hours after excessive exposures and usually last from 12 to 48 hours. Long-term effects from metal fume fever have not been noted. Freshly formed oxide fumes of manganese have been associated with causing metal fume fever.

• **Eye:** Excessive exposure to high concentrations of metal dust may cause irritation to the eyes.

• **Skin:** Skin contact with metal dusts may cause irritation or sensitization, possibly leading to dermatitis. Skin contact with metallic fumes and dusts may cause physical abrasion.

• **Ingestion:** Ingestion of harmful amounts of this product as distributed is unlikely due to its solid insoluble form. Ingestion of metal dust may cause nausea or vomiting.

Acute Effects by component:

• **Iron and iron oxides:** Iron is harmful if swallowed, causes skin irritation, and causes eye irritation. Contact with iron oxide has been reported to cause skin irritation and serious eye damage. Particles of iron or iron compounds, which become imbedded in the eye, may cause rust stains unless removed fairly promptly.

• **Manganese and manganese oxides:** Manganese and Manganese oxide are harmful if swallowed.

• **Nickel and nickel oxides:** Nickel may cause allergic skin sensitization. Nickel oxide may cause an allergic skin.

• **Silicon and silicon oxides:** May be harmful if swallowed.

Delayed (chronic) Effects by component:

• **Iron and iron oxides**: Chronic inhalation of excessive concentrations of iron oxide fumes or dusts may result in the development of a benign pneumoconiosis, called siderosis, which is observable as an X-ray change. No physical impairment of lung function has been associated with siderosis. Inhalation of

excessive concentrations of ferric oxide may enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens. Iron oxide is listed as a Group 3 (not classifiable) carcinogen by the International Agency for Research on Cancer (IARC).

- **Manganese and manganese oxides:** Chronic exposure to high concentrations of manganese fumes and dusts may adversely affect the central nervous system with symptoms including languor, sleepiness, weakness, emotional disturbances, spastic gait, mask-like facial expression and paralysis. Animal studies indicate that manganese exposure may increase susceptibility to bacterial and viral infections. Occupational overexposure (manganese) is a progressive, disabling neurological syndrome that typically begins with relatively mild symptoms and evolves to include altered gait, fine tremor, and sometimes, psychiatric disturbances. May cause damage to lungs with repeated or prolonged exposure. Neurobehavioral alterations in worker populations exposed to manganese oxides include: speed and coordination of motor function are especially impaired.
- **Nickel and nickel oxides:** Exposure to nickel dusts and fumes can cause sensitization dermatitis, respiratory irritation, asthma, pulmonary fibrosis, edema, and may cause nasal or lung cancer in humans. Nickel causes damage to lungs through prolonged or repeated inhalation exposure. IARC lists nickel and certain nickel compounds as Group 2B carcinogens (sufficient animal data). ACGIH 2013 TLVs® and BEIs® lists insoluble nickel compounds as confirmed human carcinogens. Nickel is suspected of damaging the unborn child.
- **Silicon and silicon oxides:** Silicon dusts are a low health risk by inhalation and should be treated as a nuisance dust. Eye contact with pure material can cause particulate irritation. Skin contact with silicon dusts may cause physical abrasion.

SECTION 12: ECOLOGICAL INFORMATION

12(a) Ecotoxicity (aquatic & terrestrial): No Data Available for **Coated Steel Sheet** as sold/shipped. However, individual components of the product when processed have been found to be toxic to the environment. Metal dusts may migrate into soil and groundwater and be ingested by wildlife as follows:

- **Iron Oxide**: LC50: >1000 mg/L; Fish 48 h-EC50 > 100 mg/L (Currenta, 2008k); 96 h-LC0 ≥ 50,000 mg/L Test substance: Bayferrox 130 red (95 – 97% Fe_2O_3; < 4% SiO_2 and Al_2O_3) (Bayer, 1989a)
- **Hexavalent Chrome:** EU RAR listed as category 1, found acute EC50 and LD50 to algae and invertebrates < 1 mg.
- **Nickel Oxide:** IUCLID found LC50 in fish, invertebrates and algae > 100 mg/l.

12(b) Persistence & Degradability: No Data Available for **Coated Steel Sheet** as sold/shipped or individual components.

12(c) Bioaccumulative Potential: No Data Available for **Coated Steel Sheet** as sold/shipped or individual components.

12(d) Mobility (in soil): No data available for **Coated Steel Sheet** as sold/shipped. However, individual components of the product have been found to be absorbed by plants from soil.

12(e) Other adverse effects: None Known

Additional Information:

Hazard Category: Not Reported **Signal Word:** No Signal Word

Hazard Symbol: No Symbol

Hazard Statement: No Statement

SECTION 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.

SECTION 14: TRANSPORT INFORMATION

14 (a-g) Transportation Information:

US Department of Transportation (DOT) under 49 CFR 172.101 **does not** regulate **Coated Steel Sheet** as a hazardous material. All federal, state, and local laws and regulations that apply to the transport of this type of material must be adhered to.

Shipping Name: Not Applicable (NA)
Shipping Symbols: NA
Hazard Class: NA
UN No.: NA
Packing Group: NA
DOT/ IMO Label: NA
Special Provisions (172.102): NA

Packaging Authorizations
a) Exceptions: NA
b) Group: NA
Authorization: NA

Quantity Limitations
a) Passenger, Aircraft, or Railcar: NA
b) Cargo Aircraft Only: N/A
Vessel Stowage Requirements
a) Vessel Stowage: NA
b) Other: NA
DOT Reportable Quantities: NA

International Maritime Dangerous Goods (IMDG) and the Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID) classification, packaging and shipping requirements follow the US DOT Hazardous Materials Regulation.

Regulations Concerning the International Carriage of Dangerous Goods by Road (ADR) does not regulate **Coated Steel Sheet** as a hazardous material.

Shipping Name: Not Applicable (NA)
Classification Code: NA
UN No.: NA
Packing Group: NA
ADR Label: NA
Special Provisions: NA
Limited Quantities: NA

Packaging
a) Packing Instructions: NA
b) Special Packing Provisions: NA
Mixed Packing Provisions: NA

Portable Tanks & Bulk Containers
a) Instructions: NA
Special Provisions: NA

International Air Transport Association (IATA) does not regulate **Coated Steel Sheet** as a hazardous material.

Shipping Name: Not Applicable (NA)	**Passenger & Cargo Aircraft**		**Cargo Aircraft Only Pkg**	**Special Provisions:**
Class/Division: NA Hazard Label (s):	**Pkg Inst:** NA	**Pkg Inst:** NA	**Inst:** NA	NA
NA UN No.: NA	**Max Net**	**Max Net**		
Packing Group: NA	**Qty/Pkg:** NA	**Qty/Pkg:** NA	**Max Net Qty/Pkg:** NA	**ERG Code:** NA

Excepted Quantities (EQ): NA

Pkg Inst – Packing Instructions Max Net Qty/Pkg – Maximum Net Quantity per Package ERG – Emergency Response Drill Code

Transport Dangerous Goods (TDG) Classification: Coated Steel Sheet does not have a TDG classification.

SECTION 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 hazardous.

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 cancer and chemicals (cadmium, lead) known to the State of California to cause birth defects or other reproductive harm.
Regulatory Lists
Some components of this product may be specifically listed by individual states; other product-specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements, you should contact the appropriate agency in your state.
Toxic Substances Control Act (TSCA)
Components of this product are listed on the TSCA Inventory.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
Steel is not reportable, however, it contains hazardous substances that may be reportable if released in pieces with diameters less than or equal to 0.004 inches (RQ marked with a "*").

Chemical Name	Reportable Quantity (in lb)
Antimony	5000*
Arsenic	1*
Beryllium	10*
Cadmium	10*
Chromium	5000*
Copper	5000*
Lead	10*
Nickel	100*
Phosphorus	1
Selenium	100*
Zinc	1000*

Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III
SECTION 311/312 HAZARD CATEGORIES: Immediate Health Effect, Delayed Health Effect
This product contains the following EPCRA Section 313 chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right – To – Know Act of 1986 (40 CFR 372):

SECTION 313 REPORTABLE INGREDIENTS:

Chemical Name	CAS Number	Concentration (% by weight)	Reportable
Aluminum	7429-90-5	<0.01	No – Less than 1%
Antimony	7440-36-0	<0.9	No – Less than 1%
Arsenic	7440-38-2	<0.09	No – Less than 0.1%
Beryllium	7440-43-9	<0.09	No – Less than 0.1%
Cadmium	7440-43-9	<0.09	No – Less than 0.1%
Chromium	7440-47-3	0.01-1.0	Yes – Greater than 0.1%
Cobalt	7440-48-4	<0.09	No – Less than 0.1%
Copper	7440-50-8	<0.9	No – Less than 1%
Lead	7439-92-1	0.0-0.09	No – Less than 0.1%
Manganese	7439-96-5	0.2-2	Yes – Greater than 1%
Nickel	7440-02-0	0.01-0.1	Yes – Greater than 0.1%
Phosphorus	7723-14-0	<0.9	No – Less than 1%
Selenium	7782-49-2	<0.9	No – Less than 1%

Chemical Name	CAS Number	Concentration (% by weight)	Reportable
Vanadium	7440-62-2	<0.9	No – Less than 1%
Zinc	7440-66-6	<0.9	No – Less than 1%

Concentrations based on analytical data and process knowledge of typical products distributed by the facility.

16. OTHER INFORMATION

This product may be coated with a variety of materials, including oils, paints, galvanization, etc. that are not included in this SDS. During welding precautions should be taken for airborne contaminants that may originate from components of the welding rod. Arc or spark generated when welding or burning could be a source of ignition or combustible and flammable materials. The information in this Safety Data Sheet (SDS) was obtained from sources which we believe are reliable; however, the information is provided without any representation of warranty, expressed 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 this product.

Prepared By: Radius Track Corporation

Original Issue Date: 10/26/2015 **Revised Date: 10/26/2015**

Additional Information:

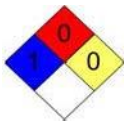
Hazardous Material Identification System (HMIS) Classification

Health Hazard	1
Fire Hazard	0
Physical Hazard	0

HEALTH= **1**, Denotes possible chronic hazard if airborne dusts or fumes are generated Irritation or minor reversible injury possible.
FIRE= **0**, Materials that will not burn

PHYSICAL HAZARD= **0**, Materials that are normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosives.

National Fire Protection Association (NFPA)



HEALTH = 1, Exposure could cause irritation but only minor residual injury even if no treatment is given.

FLAMMABILITY = 0, Materials that will not burn

INSTABILITY = 0, Normally stable, even under fire exposure conditions, and are not will not react with water, polymerize, decompose, condense, or self-react. Non-explosives. reactive with water.

ABBREVIATIONS/ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	**NIF**	No Information Found
BEIs	Biological Exposure Indices	**NIOSH**	National Institute for Occupational Safety and Health
CAS	Chemical Abstracts Service	**NTP**	National Toxicology Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	**ORC**	Organization Resources Counselors

ABBREVIATIONS/ACRONYMS (continued):

CFR	Code of Federal Regulations	**OSHA**	Occupational Safety and Health Administration
CNS	Central Nervous System	**PEL**	Permissible Exposure Limit
GI, GIT	Gastro-Intestinal, Gastro-Intestinal Tract	**PNOR**	Particulate Not Otherwise Regulated
HMIS	Hazardous Materials Identification System	**PNOC**	Particulate Not Otherwise Classified
IARC	International Agency for Research on Cancer	**PPE**	Personal Protective Equipment
LC50	Median Lethal Concentration	**ppm**	parts per million
LD50	Median Lethal Dose	**RCRA**	Resource Conservation and Recovery Act
LD Lo	Lowest Dose to have killed animals or humans	**RTECS**	Registry of Toxic Effects of Chemical Substances
LEL	Lower Explosive Limit	**SARA**	Superfund Amendment and Reauthorization Act
LOEL	Lowest Observed Effect Level	**SCBA**	Self-contained Breathing Apparatus
LOAEC	Lowest Observable Adverse Effect Concentration	**SDS**	Safety Data Sheet
µg/m3	microgram per cubic meter of air	**STEL**	Short-term Exposure Limit
mg/m3	milligram per cubic meter of air	**TLV**	Threshold Limit Value
mppcf	million particles per cubic foot	**TWA**	Time-weighted Average
MSHA	Mine Safety and Health Administration	**UEL**	Upper Explosive Limit
NFPA	National Fire Protection Association		

Disclaimer: This information is taken from sources or based upon data believed to be reliable. Our objective in sending this information is to help you protect the health and safety of your personnel and to comply with the OSHA Hazard Communication Standard and Title III of the Emergency Planning and Community Right-to-Know Act. ClarkDietrich Building Systems makes no warranty as to the absolute correctness, completeness, or sufficiency of any of the foregoing, or any additional, or other measures that may not be required under particular conditions.