Meets the Requirements of OSHA Standard 29 CFR 1910.1200 Hazard Communication and EPA Supplier Notification Requirements under Section 313 of the Emergency Planning and Community Right-to-Know Act.	**SAFETY DATA SHEET (SDS)** **ALUMINUM INGOT – *5*35 ALLOY SDS** **DATE ISSUED** **07/2019**

SECTION 1—PRODUCT IDENTIFICATION & COMPANY INFORMATION

PRODUCT NAME

ALUMINUM INGOT - 535 ALLOY

OTHER DESIGNATIONS: ASTM (American Society for Testing & Materials) Specification No's., (ACI (Alloy Casting Institute) Alloy Designations—Grades)

ALUMINUM ALLOY 535.2

PRODUCT IDENTIFICATION (Label Identifier)

Aluminum Alloy Ingot

MANUFACTURER'S NAME Custom Alloy Sales, Inc.	**STREET ADDRESS** 13329 Ector St.,
EMERGENCY TELEPHONE NO. (800) 633-8253	**MAILING ADDRESS** 13191 Crossroads Pkwy N. # 375
TELEPHONE NO. (626) 369-3641	**CITY, STATE, ZIP CODE, COUNTRY** City of Industry, CA 91746
FAX NO. (626) 369-2471	**E-MAIL ADDRESS/WEBSITE** CustomAlloySales.com

RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS ON USE

Solid casting; no restrictions

SECTION 2—HAZARD IDENTIFICATION

CLASSIFICATION

Castings are metallic articles that do not present health hazards in their unaltered state.

OTHER HAZARDS

1. Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.
2. Fumes from hot processes may contain other compounds of these elements with different exposure limits than those listed above. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Consult Section 8 for further information.

SECTION 3—COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME/COMMON NAME/SYNONYM	Wt %	CAS NUMBER
Aluminum (Al)	Balance	7429-90-5
Chromium (Cr)	<.05	7440-47-3
Copper (Cu)	<.10	7440-50-8
Iron (Fe)	<.10	1309-37-1
Lead (Pb)	<.05	7439-92-1
Magnesium (Mg)	6.6–7.5	1309-48-4
Manganese (Mn)	0.10–0.25	7449-96-5
Nickel (Ni)	0.05	7440-02-0
Silicon (Si)	<.10	7440-21-3

Titanium (Ti)	0.10–0.25	7440-32-5
Zinc (Zn)	<.05	1314-13-2
Beryllium (Be)	0.003–0.007	7440-41-7

SECTION 4—FIRST AID MEASURES

EYE CONTACT:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention if symptoms persist.

SKIN CONTACT:
Take off contaminated clothing and wash before reuse. Thoroughly wash skin cuts or wounds to remove all particulate debris from the wound. Seek medical attention for wounds that cannot be cleansed. Treat skin cuts and wounds with standard first aid practices such as cleansing, disinfecting and covering to prevent wound infection and contamination before continuing work. Obtain medical help for persistent irritation. Material accidentally implanted or lodged under the skin must be removed.

INGESTION:
If swallowed, seek medical advice immediately and show this label. Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

INHALATION:
If symptoms develop move victim to fresh air. For breathing difficulties, oxygen may be necessary. Breathing difficulty caused by inhalation of particulate requires immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help.

MOST IMPORTANT SYMPTOMS/EFFECT, ACUTE AND DELAYED:
May cause allergic reaction. Prolonged exposure may cause chronic effects.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:
Treatment of Chronic Beryllium Disease: There is no known treatment which will cure chronic beryllium disease. Prednisone or other corticosteroids are the most specific treatment currently available. They are directed at suppressing the immunological reaction and can be effective in diminishing signs and symptoms of chronic beryllium disease. In cases where steroid therapy has had only partial or minimal effectiveness, other immunosuppressive agents, such as cyclophosphamide, cyclosporine, or methotrexate, have been used. In view of the potential side effects of all the immunosuppressive medications, including steroids such as prednisone, they should be used only under the direct care of a physician. Other treatment, such as oxygen, inhaled steroids, or bronchodilators, may be prescribed by some physicians and can be effective in selected cases. In general, treatment is reserved for cases with significant symptoms and/or significant loss of lung function. The decision about when and with what medication to treat is a judgment situation for individual physicians.

In their 2014 official statement on the Diagnosis and Management of Beryllium Sensitivity and Chronic Beryllium Disease, the American Thoracic Society states that “it seems prudent for workers with BeS to avoid all future occupational exposure to beryllium.

GENERAL INFORMATION:
If exposed or concerned: get medical attention/advice. Get medical attention if symptoms occur. Wash contaminated clothing before reuse. As supplied, there is no immediate medical risk with beryllium products in article form. First aid measures provided are related to particulate containing beryllium.

SECTION 5—FIREFIGHTING MEASURES

FLAMMABLE PROPERTIES:
Non-combustible as supplied. Small chips, fine turnings and dust from processing may be readily ignitable.

EXTINGUISHING MEDIA:
Not applicable to metal castings. Use Class D extinguishing agents on fines, dust or molten metal. Use coarse water spray on chips and turnings. DO NOT USE halogenated extinguishing agents on small chips/fines.

PROTECTION OF FIREFIGHTERS: Not applicable

SECTION 6—ACCIDENTAL RELEASE MEASURES

In solid form this material poses no special clean-up problems. Wear appropriate protective equipment and clothing during clean-up

SECTION 7—HANDLING & STORAGE

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Avoid contact with acids and alkalis. Avoid contact with oxidizing agents

PRECAUTIONS FOR SAFE HANDLING:
Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Do

not breathe dust/fume. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. Wash thoroughly after handling. When using, do not eat, drink, or smoke. Contaminated work clothing must not be allowed out of the workplace

CONTROL PARAMETERS:

VENTILATION:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Whenever possible, the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne particulate. Where utilized, exhaust inlets to the ventilation system must be positioned as close as possible to the source of airborne generation. Avoid disruption of the airflow in the area of a local exhaust inlet by equipment such as a man-cooling fan. Check ventilation equipment regularly to ensure it is functioning properly. Provide training on the use and operation of ventilation to all users. Use qualified professionals to design and install ventilation systems.

WET METHODS:

Machining operations are usually performed under a liquid lubricant/coolant flood which assists in reducing airborne particulate. However, the cycling through of machine coolant containing finely divided particulate in suspension can result in the concentration building to a point where the particulate may become airborne during use. Certain processes such as sanding, and grinding may require complete hooded containment and local exhaust ventilation. Prevent coolant from splashing onto floor areas, external structures or operators' clothing. Utilize a coolant filtering system to remove particulate from the coolant.

WORK PRACTICES:

Develop work practices and procedures that prevent particulate from coming in contact with worker skin, hair, or personal clothing. If work practices and/or procedures are ineffective in controlling airborne exposure or visual particulate from deposition on skin, hair, or clothing, provide appropriate cleaning/washing facilities. Procedures should be written that clearly communicate the facilities requirements for protective clothing and personal hygiene. These clothing and personal hygiene requirements help keep particulate from being spread to non-production areas or from being taken home by the worker. Never use compressed air to clean work clothing or other surfaces.

Fabrication processes may leave a residue of particulate on the surface of parts, product or equipment than could result in employee exposure during subsequent material handling activities. As necessary, clean loose particulate from parts between processing steps. As a standard hygiene practice, wash hands before eating or smoking.

HOUSEKEEPING:

Use vacuum and wet cleaning methods for particulate removal from surfaces. Be certain to de-energize electrical systems, as necessary, before beginning wet cleaning. Use vacuum cleaners with high efficiency particulate air (HEPA). Do not use compressed air, brooms, or conventional vacuum cleaners to remove particulate from surfaces as this activity can result in elevated exposures to airborne particulate. Follow the manufacturer's instructions when performing maintenance on HEPA filtered vacuums used to clean hazardous materials.

INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTVE EQUIPMENT:

EYE/FACE PROTECTION:

Wear approved safety glasses, googles, face shield and/or welders helmet when risk of eye injury is present, particularly during operations that generate dust, mist or fume.

SKIN PROTECTION

HAND PROTECTION:

Wear gloves to prevent contact with particulate or solutions. Wear gloves to prevent metal cuts and skin abrasions during handling.

OTHER:

Protective overgarments or work clothing must be worn by persons who may become contaminated with particulate during activities. Skin contact with this material may cause, in some sensitive individuals, an allergic dermal response. Particulate that becomes lodges under the skin has the potential to induce sensitization and skin lesions.

SECTION 8—EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

None Required. There are no health hazards from castings in solid form.

SUBSTANCE	ACGIH TLV mg/m^3	OSHA PEL mg/m^3
Aluminum (as Al)		
Total Dust	N/E	15
Respirable Dust	1(R)	5
Chromium (as Cr)	0.5	1
Copper (as Cu)		
Fume	0.2	0.1
Dust and Mist	1	1
Iron	N/E	N/E
Lead (Pb)	N/E	N/E
Magnesium (as Mg)	N/E	N/E
Manganese and inorganic compounds (as Mn)	0.02 (R) 0.1 (I)	5 (C)
Nickel (Ni)	1.5 (I)	1
Silicon (Metal) (as Si)		
Total Dust	N/E	15
Respirable Dust	N/E	5
Titanium (Ti)	N/E	N/E
Zinc (as Zn)	N/E	N/E

SUPPLEMENTAL INFORMATION

Grinding castings that have not been cleaned or that contain embedded sand may generate significant amounts of dust containing crystalline silica.

Fumes from hot processes may contain other compounds of these elements with different exposure limits than those listed above. Dust or fumes generated by machining, grinding, welding or thermal cutting of the casting may produce airborne contaminants. Exposure limits for the most common contaminants are offered as reference.

Please consult a competent person for guidance on exposure assessment and controls**.**

In particular, Hexavalent Chromium is an OSHA Expanded Health Standard; refer to OSHA 29 CFR 1910.1026-Chromium (VI) for complete requirements.

SUBSTANCE	ACGIH TLV mg/m³	OSHA PEL mg/m³
Aluminum oxide		
Total Dust	N/E	15
Respirable Dust	N/E	5
Chromium Compounds (as Cr)		
Chromium (II) inorganic compounds	N/E	0.5
Chromium (III) inorganic compounds	0.5	0.5
Chromium (VI) inorganic compounds, certain water insoluble	0.01	0.005
Chromium (VI) inorganic compounds, water soluble	0.05	0.005
Chromium (VI) all forms and compounds	N/E	0.005
Iron Oxide (Fe_2O_3)	5 (R)	10
Lead and compounds (as Pb)	50μg/m³	50μg/m³
Magnesium oxide	10 (I)	15
Manganese fume (as Mn)	0.2	5 (C)
Nickel compounds (as Ni)		
Nickel, Insoluble compounds	0.2 (I)	1
Nickel, Soluble compounds	0.1 (I)	1
Nickel oxide	0.2 (I)	1
Titanium dioxide (as TiO_2)	10.0	N/E 15
Total dust	N/E	
Zinc and compounds	N/E	N/E
Zinc oxide total dust	N/E	15
Zinc oxide respirable dust	2	5
Zinc oxide fume	N/E	5
Beryllium (as Be)	0.025 (C)	0.0002

TERMS

All exposure limits referenced above are 8 hour time weighted averages (TWA) unless otherwise noted.

N/E = None Established
C = Ceiling
I = Inhalable fraction
R = Respirable fraction
TLV = Threshold Limit Value/ACGIH (American Conference of Industrial Hygienists)
PEL = Permissible Exposure Limit/OSHA (Occupational Safety & Health Administration)
STEL = Short Term Exposure Limit
mg/m^3 = milligrams per cubic meter

PERSONAL PROTECTION

Proper hand and foot protection is recommended.

RESPIRATORY PROTECTION

When airborne exposures exceed or have the potential to exceed the occupational exposure limits, approved respirators must be used as specified by an Industrial Hygienist or other qualified professional. Respirator users must be medically evaluated to determine if they are physically capable of wearing a respirator. Quantitative and/or qualitative fit testing and respirator training must be satisfactorily completed by all personnel prior to respirator use. Users of tight-fitting respirators must be clean shaven on those areas of the face where the respirator seal contacts the face. Use pressure-demand airline respirators when performing jobs with high potential exposures such as changing filters in a baghouse air cleaning device.

SECTION 9—PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE
Solid, silver color

ODOR/ODOR THRESHOLD None	**VAPOR DENSITY** Not applicable
MELTING POINT/FREEZING POINT Approximately 488-646°C (910-1195°F)	**SPECIFIC GRAVITY (relative density)** 2.56–2.64 g/cm^3 for aluminum
BOILING POINT 2326°C (4220°F) for aluminum	**VAPOR PRESSURE** Not applicable
FLASH POINT Not applicable for solid castings	**EVAPORATION RATE** Not applicable
FLAMMABILITY Not flammable	**SOLUBILITY IN WATER** Insoluble
UPPER AND LOWER FLAMMABILITY LIMITS Not applicable for solid castings	**pH** Not applicable
AUTO IGNITION TEMPERATURE Not applicable	**VISCOSITY** Not applicable
DECOMPOSITION TEMPERATURE Not applicable	**PARTITION COEFFICIENT** Not applicable

SECTION 10—STABILITY & REACTIVITY

CHEMICAL STABILITY
Stable as shipped. Stable under normal conditions.

CONDITIONS TO AVOID
Contact with incompatible materials: caustics, chlorinated hydrocarbon.

REACTIVITY Castings are not reactive. Under some conditions metal chips, fines and dust may be incompatible with water, halogenated solvents, strong oxidizers, acids and alkalis, and iron oxide and may ignite or explode.	**INCOMPATIBLE MATERIALS** Not applicable to castings.
HAZARDOUS DECOMPOSITION PRODUCTS None	**POSSIBILITY OF HAZARDOUS REACTIONS** Not applicable to castings

SECTION 11—TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

EYE CONTACT: Not likely due to form of product.

SKIN: May cause allergic reaction.

INGESTION: Not likely due to form of product.

INHALATION: May cause damage to organs (respiratory system) through prolonged or repeated exposure.

Carcinogen Classification of Ingredients

INGREDIENT	OSHA	NTP	IARC	TARGET ORGAN
Beryllium as Be	Y	K	1	Lung, Nasal

TERMS

OSHA—Occupational Safety & Health Administration

Y = Listed as a Human Carcinogen

NTP—National Toxicology Program

K = Known to be a Human Carcinogen

R = Reasonably Anticipated to be a Human Carcinogen (RAHC)

IARC—International Agency for Research on Cancer

1 = Carcinogen to Humans

2A = Probably Carcinogenic to Humans 2B

= Possibly Carcinogenic to Humans

3 = Unclassifiable as to Carcinogenicity in Humans

4 = Probably not Carcinogenic to Humans

Other

NL = Not Listed

SECTION 12—ECOLOGICAL INFORMATION

ECOTOXICITY None known	**PERSISTENCE AND DEGRADABILITY** No data
BIOACCUMULATION POTENTIAL No data	**MOBILITY IN SOIL** No data

OTHER ADVERSE EFFECTS

Not applicable

SECTION 13—DISPOSAL CONSIDERATIONS

Recover or recycle if possible. Dispose of according to federal, state and local regulations. Dust collected from machining, welding, etc. may be classified as a hazardous waste. Consult federal, state and local regulations.

SECTION 14—TRANSPORT INFORMATION

US DEPARTMENT OF TRANSPORTATION (DOT)-HMR Not Regulated	**CANADIAN TRANSPORTATION OF DANGEROUS GOODS (TDG)** Not regulated
UN SHIPPING NAME Not regulated	**UN NUMBER** Not regulated
TRANSPORT HAZARD CLASS Not regulated	**PACKING GROUP** Not regulated
ENVIRONMENTAL HAZARDS None	**LABEL(S) REQUIRED?** No
TRANSPORT IN BULK Not applicable	**SPECIAL SHIPPING INFORMATION** Not applicable

SECTION 15 — REGULATORY INFORMATION

USA-OSHA (Hazard Communication Standard)

Reference 29 CFR 1910.1200 and 1910.1000. A finished casting is an article as defined in the OSHA Hazard Communication Standard 29CFR 1910.1200 (c). Dust or fumes generated by cleaning, machining, grinding, or welding of the casting may produce airborne contaminants, such as aluminum dust, aluminum oxide, chromium, copper, iron, lead, magnesium oxide, manganese, nickel, silicon, tin, titanium dioxide, vanadium pentoxide, zinc oxide and silica. For chromium references see 29 CFR 1910.1026.

USA-EPA (Toxic Substances Control Act–TSCA)

All components of these products are on the TSCA inventory list or are excluded from listing.

USA-EPA (SARA Title III)

Releases to the environment of Chromium, Copper, Manganese, Nickel, Vanadium (dust or fume only) and Aluminum (dust or fume only), may be subject to reporting under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CANADA-WHMIS (Workplace Hazardous Materials Information System)

This SDS has been prepared according to the hazard criteria of the Controlled Product Regulations (CPR) and the SDS contains the information required by the CPR.

CANADIAN DSL (Domestic Substance List) Inventory Status

All components of these products are on the DSL Inventory.

CEPA (Canadian Environmental Protection Act)

Chromium and nickel are on the CEPA Priorities Substances Lists.

EINECS No. (European Inventory of Existing Commercial Chemical Substances)

All components of these products are on the EINECS list.

RoHS (Restriction of Certain Hazardous Substances) Compliance

Castings comply with RoHS

CALIFORNIA PROPOSITION 65 Compliance

Warning: This product can expose you to chemicals including Beryllium, which is known to the State of California to cause cancer.

For more information go to: www.P65Warnings.ca.gov

U.S. STATE REGULATORY INFORMATION

Some of the components listed in Section 3 may be covered under specific state regulations**.**

SECTION 16 — OTHER INFORMATION

SDS SHEET PREPARED BY	**DATE**
Custom Alloy Sales	07/2019

NOTE

This data and label information is offered in good faith as typical values and not as a product specification. No warranty either expressed or implied is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review the recommendations in specific context of the intended use and determine if they are appropriate.

DISCLAIMER:

This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Custom Alloy Sales, Inc. makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Custom Alloy Sales, Inc. cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to elevate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.