SDS ID No.: 4000
Revision: 10/06/2023

Safety Data Sheet (SDS)

Section 1 – Identification

1(a) Product Identifier used on Label: EA 4000 Alloy Grades

1(b) Other means of identification: EA 4032 Alloy

1(c) Recommended use of the chemical and restrictions on use: Metal alloy for multiple production uses.

1(d) Name, address, and telephone number:

ELLWOOD Aluminum Phone number: 330-534-8668
7158 Hubbard Masury Road
Hubbard, OH 44425

1(e) Emergency phone number: 11-800-424-9300 or CHEMTREC (Day or Night): 1-800-424-9300

Section 2 – Hazard(s) Identification

2(a) Classification of the chemical: EA 4000 Alloy Grades 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, **EA 4000 Alloy Grades** is not exempt as an article under OSHA's Hazard Communication Standard (29 CFR 1910.1200) 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 and Geneva, 2009 have been evaluated. Refer to Section 3, 8 and 11 for additional information.

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.
	Skin Sensitization - 1		

Precautionary Statement(s):

Prevention	Response	Storage/Disposal
Do not breathe dust and fumes. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated clothing must not be allowed out of the workplace. Wear protective gloves / protective clothing / eye protection / face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.	If on skin: Wash with a plenty of water If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before use. If exposed, concerned or feel unwell: Get medical advice/attention.	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

3(a-c) Chemical name, common name (synonyms), CAS number and other identifiers, and concentration:

Chemical Name	Alloy	CAS Number	EC Number	% weight*
Aluminum	EA 4032 Alloy	7429-90-5	231-072-3	85
Silicon	EA 4032 Alloy	7440-21-3	231-130-8	12.2
Magnesium	EA 4032 Alloy	7439-95-4	231-104-6	1.0
Nickel	EA 4032 Alloy	7440-02-0	231-111-4	0.9

EC - European Community

CAS - Chemical Abstract Service

* Percentages are expressed as typical ranges or maximum concentrations of trace elements for the purpose of communicating the potential hazards of the finished product.

"Commercial steel/aluminum products contain small amounts of various elements in addition to those specified. These small quantities frequently referred to as "trace" or "residual" elements, generally originate in the raw materials used and/or are alloying metals. Individual trace elements vary in concentration by weight and may include copper.

Section 4 – First-aid Measures

4(a) Description of necessary measures:

- **Inhalation: EA 4000 Alloy Grades** as sold/shipped is not a likely form of exposure. However, during further processing (welding, grinding, burning, etc.) If exposed, concerned or feel unwell: Get medical advice/attention.
- **Eye Contact: EA 4000 Alloy Grades** as sold/shipped is not a likely form of exposure. However, during further processing (welding, grinding, burning, etc.), If exposed, concerned or feel unwell: Get medical advice/attention.
- **Skin Contact:** If on skin: Wash thoroughly after handling. Wash with plenty of water. If irritation or rash occurs: Get medical advice/attention. Take off and wash contaminated clothing before reuse.
- **Ingestion: EA 4000 Alloy Grades** as sold/shipped is not a likely form of exposure. However, during further processing (welding, grinding, burning, etc.), if exposed, concerned or feel unwell: Get medical advice/attention.

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

- **Inhalation: EA 4000 Alloy Grades** as sold/shipped is not likely to present an acute or chronic health effect.
- **Eye: EA 4000 Alloy Grades** as sold/shipped is not likely to present an acute or chronic health effect.
- **Skin: EA 4000 Alloy Grades** as sold/shipped is not likely to present an acute or chronic health effect.
- **Ingestion: EA 4000 Alloy Grades** as sold/shipped is not likely to present an acute or chronic health effect.

However, during further processing (welding, grinding, burning, etc.), individual components may illicit an acute or chronic health effect. Refer to Section 11-Toxicological Information.

4(c) Immediate Medical Attention and Special Treatment: None Known

Section 5 – Fire-fighting Measures

5(a) Suitable (and unsuitable) Extinguishing Media: Not Applicable for **EA 4000 Alloy Grades** as sold/shipped. Use extinguishers appropriate for surrounding materials.

5(b) Specific Hazards arising from the chemical: Not Applicable for **EA 4000 Alloy Grades** as sold/shipped. When burned, toxic smoke, fume and vapor may be emitted.

5(c) Special protective equipment and precautions for fire-fighters: Self-contained NIOSH approved respiratory protection and full protective clothing should be worn when fumes and/or smoke from fire are present. Heat and flames cause emittance of acrid smoke and fumes. Do not release runoff from fire control methods to sewers or waterways. Firefighters should wear full face-piece self-contained breathing apparatus and chemical protective clothing with thermal protection. Direct water stream will scatter and spread flames and, therefore, should not be used.

Section 6 - Accidental Release Measures

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: Not Applicable for **EA 4000 Alloy Grades** as sold/shipped. For spills involving finely divided particles, clean-up personnel should be protected against contact with eyes and skin. If material is in a dry state, avoid inhalation of dust.

6(b) Methods and materials for containment and clean up: Not Applicable for **EA 4000 Alloy Grades** as sold/shipped. Collect material in appropriate labeled containers for recovery or disposal in accordance with federal, state, and local regulations. Follow applicable OSHA regulations (29 CFR 1910.120) and all other pertinent state and federal requirements.

Section 7 - Handling and Storage

7(a) Precautions for safe handling: Not Applicable for **EA 4000 Alloy Grades** 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. Do not breathe metal fumes and/or dust. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves /protective clothing / eye protection / face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Cut resistant gloves and sleeves should be worn when working with steel products.

7(b) Conditions for safe storage, including any incompatibilities: Store away from acids and incompatible materials.

Section 8 - Exposure Controls / Personal Protection

8(a) Occupational Exposure Limits (OELs): EA 4000 Alloy Grades 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]
Aluminum	15 mg/m³ (as Al aluminum oxide, metal & insoluble compounds, total dust) 5.0 mg/m³ (as Al aluminum oxide, metal & insoluble compounds, respirable fraction)	1.0 mg/m³ (as metal & insoluble compounds, respirable fraction [5])	10 mg/m³ (as metal & insoluble compounds, total dust) 5.0 mg/m³ (as metal & insoluble compounds, respirable fraction) 5.0 mg/m³ (as Al, welding fumes & pyro powders)	NE

Section 8 - Exposure Controls / Personal Protection (continued)

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

Ingredients	OSHA PEL [1]	ACGIH TLV [2]	NIOSH REL [3]	IDLH [4]
Silicon	15 mg/m³ (total dust) 5.0 mg/m³ (as respirable fraction)	NE	10 mg/m³ (as total dust) 5.0 mg/m³ (as respirable dust)	NE
Magnesium	15 mg/m³ (as magnesium oxide fume, total particulate)	10 mg/m³ (as magnesium oxide, inhalable fraction [6])	NE	750 mg/m³ (as magnesium oxide fume)
Nickel	1.0 mg/m³ (metal, insoluble & soluble compounds, as Ni)	1.5 mg/m³ (metal, as Ni, as inhalable fraction) 0.2 mg/m³ (insoluble compounds, as Ni, inhalable fraction, inorganic only) 0.1 mg/m³ (soluble compounds, as Ni, inhalable fraction, inorganic only)	0.015 mg/m³ (metal & insoluble and soluble compounds, as Ni)	10 mg/m³ (as Ni)

NE - None Established

1. OSHA PELs (Permissible Exposure Limits) 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 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. ACGIH TLVs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes. DSEN – May cause dermal sensitization. This notation is used to indicate the potential for dermal sensitization resulting from the interaction of an absorbed agent and ultraviolet light (i.e. photosensitization). RSEN – May cause respiratory sensitization.
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. Ca is designated as carcinogen.
5. Respirable fraction. The concentration of respirable dust for the application of this limit is to be determined from the fraction passing a size-selector with the characteristics defined in ACGIH 2023 TLVs ® and BEIs ® Appendix D, paragraph C.
6. 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 2023 TLVs ® and BEIs ® (Biological Exposure Indices) Appendix D, paragraph A.

8(b) Appropriate Engineering Controls: Use controls as appropriate to minimize exposure to metal fumes and dusts during handling operations. Provide general or local exhaust ventilation systems to minimize airborne concentrations. Local exhaust is necessary for use in enclosed or confined spaces. Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits.

8(c) Individual Protection Measures:

- **Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, use only a NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. Concentration in air of the various contaminants determines the extent of respiratory protection needed. Half-face, negative-pressure, air-purifying respirator equipped with P100 filter is acceptable for concentrations up to 10 times the exposure limit. Full-face, negative-pressure, air-purifying respirator equipped with P100 filter is acceptable for concentrations up to 50 times the exposure limit. Protection by air-purifying negative-pressure and powered air respirators is limited. Use a positive-pressure-demand, full-face, supplied air respirator or self-contained breathing apparatus (SCBA) for concentrations above 50 times the exposure limit. If exposure is above the IDLH (Immediately dangerous to life or health) for any of the constituents, or there is a possibility of an uncontrolled release or exposure levels are unknown, then use a positive-demand, full-face, supplied air respirator with escape bottle or SCBA.

  Warning! Air-purifying respirators both negative-pressure and powered-air do not protect workers in oxygen-deficient atmospheres.
- **Eyes**: Wear appropriate eye protection to prevent eye contact. For operations which result in elevating the temperature of the product to or above its melting point or result in the generation of airborne particulates, use safety glasses to prevent eye contact. Contact lenses should not be worn where industrial exposure to this material is likely. Use safety glasses or goggles as required for welding, burning, sawing, brazing, grinding or machining operations.
- **Skin**: Wear appropriate personal protective clothing to prevent skin contact. Cut resistant gloves and sleeves should be worn when working with steel products. For operations which result in elevating the temperature of the product to or above its melting point or result in the generation of airborne particulates, use protective clothing, and gloves to prevent skin contact. Protective gloves should be worn as required for welding, burning or handling operations. Contaminated work clothing must not be allowed out of the workplace.
- **Other protective equipment**: An eyewash fountain and deluge shower should be readily available in the work area.

Section 9 - Physical and Chemical Properties

9(a) Appearance (physical state, color, etc.): Solid, Metallic, Silver, Gray

9(b) Odor: Odorless

9(j) Upper/lower Flammability or Explosive Limits: NA

9(k) Vapor Pressure: NA

Section 9 - Physical and Chemical Properties (continued)

9(c) Odor Threshold: NA

9(d) pH: NA

9(e) Melting Point/Freezing Point: 530 °C / 986 °F

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

9(l) Vapor Density (Air = 1): NA

9(m) Relative Density: 2.69 g/cm^3

9(n) Solubility(ies): Insoluble

9(o) Partition Coefficient n-octanol/water: NA

9(p) Auto-ignition Temperature: NA

9(q) Decomposition Temperature: ND

9(r) Viscosity: NA

NA - Not Applicable

ND - Not Determined for product as a whole

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) Chemical Stability: Steel/Aluminum products are stable under normal storage and handling conditions.

10(c) Possibility of hazardous reaction: None Known

10(d) Conditions to Avoid: Storage with strong acids or calcium hypochlorite.

10(e) Incompatible Materials: Will react with strong acids to form hydrogen. Iron oxide dusts in contact with calcium hypochlorite evolve oxygen and may cause an explosion.

10(f) Hazardous Decomposition Products: Thermal oxidative decomposition of steel products can produce fumes containing oxides of iron and manganese as well as other alloying elements.

Section 11 - Toxicological Information

11 Information on toxicological effects: EA 4000 Alloy Grades 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.

Hazard Classification	Hazard Category		Hazard Symbols	Signal Word	Hazard Statement
	EU	OSHA			
Skin/Dermal Sensitization (covers Category 1)	NA*	1[d]		**Warning**	May cause an allergic skin reaction. - Nickel is a skin sensitizer.
Carcinogenicity (covers Categories 1A, 1B and 2)	NA*	2[g]		**Warning**	Suspected of causing cancer. - Rating due to nickel particulate or fume that can enter the body generated when further processed (welding, grinding, burning, etc.).
Toxic Reproduction (covers Categories 1A, 1B and 2)	NA*	2[h]		**Warning**	Suspected of damaging fertility or the unborn child. - Rating due to nickel particulate or fume that can enter the body generated when further processed (welding, grinding, burning, etc.).
STOT following Repeated Exposure (covers Categories 1 and 2)	NA*	1[j]		**Danger**	Causes damage to lungs and central nervous system through prolonged or repeated inhalation exposure. - Rating due to nickel or manganese particulate or fume that can enter the body generated when further processed (welding, grinding, burning, etc.).

* Not Applicable - Semi-formed steel/aluminum 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 LC_{50} or LD_{50} has been established for **EA 4000 Alloy Grades** as a mixture or its components. The following data has been determined for the components:

- **Silicon**: LD50 = 3160 mg/kg (Oral/Rat)
- **Aluminum:** Rat LD_{50} > 15.9 g/kg (REACH)
- **Nickel:** LD_{50} >9000 mg/kg (Oral/Rat)

b. No Skin (Dermal) Irritation data available for **EA 4000 Alloy Grades** as a mixture. The following Skin (Dermal) Irritation information was found for the components:

- **Magnesium Dioxide:** Severe skin irritant in human (HSDB).

c. No Eye Irritation data available for **EA 4000 Alloy Grades** as a mixture. The following Eye Irritation information was found for the components:

- **Magnesium dioxide**: Severe eye irritant in humans (HSDB).
- **Silicon:** Slight eye irritation in rabbit protocol.
- **Nickel:** Slight eye irritation from particulate abrasion only.

Section 11 - Toxicological Information (continued)

11 Information on toxicological effects (continued):

d. No Skin (Dermal) Sensitization data available for **EA 4000 Alloy Grades** as a mixture or its components. The following Skin (Dermal) Irritation information was found for the components:

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

e. No Respiratory Sensitization data available for **EA 4000 Alloy Grades** as a mixture or its components.

f. No Germ Cell Mutagenicity data available for **EA 4000 Alloy Grades** as a mixture or its components.

- **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 **EA 4000 Alloy Grades** as carcinogens. The following Carcinogenicity information was found for the components:

- **Nickel, alloys:** IARC-2B, possibly carcinogenic to humans
- **Nickel compounds:** IARC-1, carcinogen to humans; NIOSH–Ca, potential occupational carcinogen; NTP–K, known to be a carcinogen
- **Nickel, elemental:** IARC-2B, possibly carcinogenic to humans; NIOSH–Ca, potential occupational carcinogen; NTP–K, known to be a carcinogen; ACGIH TLV-A5, not suspected as a human carcinogen
- **Nickel, insoluble compounds (as Ni):** NIOSH–Ca, potential occupational carcinogen; NTP–K, known to be a carcinogen; ACGIH TLV-A1, confirmed human carcinogen
- **Nickel, soluble compounds (as Ni):** NIOSH–Ca, potential occupational carcinogen; NTP–K, known to be a carcinogen; ACGIH TLV-A4, not classifiable as a human carcinogen
- **Aluminum (metal and insoluble compounds):** IARC-1 (production), carcinogen to humans; ACGIH TLV-A4, not classifiable as a human carcinogen
- **Magnesium (oxide)**: ACGIH TLV-A4, not classifiable as a human carcinogen
- **Welding Fumes:** IARC-1, carcinogen to humans; NIOSH–Ca, potential occupational carcinogen humans; ACGIH TLV-A3, confirmed animal carcinogen with unknown relevance to humans; NIOSH-Ca, potential occupational carcinogen

h. No Toxic Reproduction data available for **EA 4000 Alloy Grades** as a mixture. The following Toxic reproduction information was found for the components:

- **Nickel**: Effects on fertility.

i. No Specific Target Organ Toxicity (STOT) following a Single Exposure data available for **EA 4000 Alloy Grades** as a mixture or its components.

j. No Specific Target Organ Toxicity (STOT) following Repeated Exposure data was available for **EA 4000 Alloy Grades** as a mixture. The following STOT following Repeated Exposure data was found for the components:

- **Aluminum (metal and insoluble compounds):** Repeated exposure associated with Asthma, Fibrosis in lungs and encephalopathy in humans**.**
- **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 2023, 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), European Union Classification, Labeling and Packaging. (EU CPL), Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), International Uniform Chemical Information Database (IUCLID), TOXicology Data NETwork (TOXNET), European Risk Assessment Reports (EU RAR).

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 exposure 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 and copper 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:

- **Aluminum and aluminum oxides:** Not Reported/ Not Classified
- **Silicon and silicon oxides:** May be harmful if swallowed.
- **Magnesium and Magnesium oxide:** Headache, cough, sweating, nausea and fever may be caused by exposure to freshly formed fumes. The symptoms of metal fume fever do not become manifest until 4-12 hours after exposure.

Section 11 - Toxicological Information (continued)

Acute Effects by component (continued):

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

Delayed (chronic) Effects by component:

- **Aluminum and Aluminum oxides**: Chronic inhalation of finely divided powder has been reported to cause pulmonary fibrosis and emphysema. Repeated skin contact has been associated with bleeding into the tissue, delayed hypersensitivity and granulomas. Chronic exposure to aluminum flake has been reported to cause pneumoconiosis in workers. Repeat oral exposure to aluminum results in decrements in neurobehavioral function and development.
- **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.
- **Magnesium and Magnesium Oxide:** Irritation of eyes, nose, and throat. Symptoms may include dryness of nose and mouth, cough, feeling of weakness, tightness of chest, muscular pain, chills, fever, headache, nausea, and vomiting.
- **Nickel and 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. Causes damage to lungs through prolonged or repeated inhalation exposure. Suspected of damaging the unborn child.

Section 12 - Ecological Information

12(a) Ecotoxicity (aquatic & terrestrial): No Data Available for **EA 4000 Alloy Grades** 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:

- **Nickel Oxide:** IUCLID found LC_{50} in fish, invertebrates and algae > 100 mg/l.

12(b) Persistence & Degradability: No Data Available for **EA 4000 Alloy Grades** as sold/shipped or individual components.

12(c) Bioaccumulative Potential: No Data Available for **EA 4000 Alloy Grades** as sold/shipped or individual components.

12(d) Mobility (in soil): No data available for **EA 4000 Alloy Grades** 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

Disposal: Dispose of in accordance with Local, State, Federal and International regulations. Observe safe handling precautions.

Container Cleaning and Disposal: Follow Local, State, Federal and International regulations. Observe safe handling precautions

Please note this information is for EA 4000 Alloy Grades in its original form. Any alterations can void this information.

Section 14 - Transport Information

14 (a-g) Transportation Information:

US Department of Transportation (DOT) under 49 CFR 172.101 does not regulate **EA 4000 Alloy Grades** 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.

Section 15 - Regulatory Information

Regulatory Information: *The following listing of regulations relating to an Ellwood Aluminum product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.*

This product and/or its constituents are subject to the following regulations:

OSHA Regulations: Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-2, Z-3): The product, **EA 4000 Alloy Grades** as a whole is not listed. However, individual components of the product are listed: Refer to Section 8, Exposure Controls and Personal Protection.

EPA Regulations: The product, **EA 4000 Alloy Grades** is not listed as a whole. However, individual components of the product are listed:

Components	Regulations
Aluminum	SARA 313, TSCA, SDWA
Magnesium	TSCA
Nickel	CERCLA, CWA, SARA 313, TSCA

SARA 311/312 Potential Hazard Categories: Immediate Acute Health Hazard; Delayed Chronic Health Hazard

Section 15 - Regulatory Information (continued)

EPA Regulations (continued):

Section 313 Supplier Notification: The product, **EA 4000 Alloy Grades** contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act and 40 CFR part 372:

CAS #	Chemical Name	Percent by Weight
7429-90-5	Aluminum	85
7439-95-4	Magnesium	1.0
7440-02-0	Nickel	0.9

Regulations Key:

CAA	Clean Air Act (42 USC Sec. 7412; 40 CFR Part 61 [As of: 8/18/06])
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (42 USC Secs. 9601(14), 9603(a); 40 CFR Sec. 302.4, Table 302.4, Table 302.4 and App. A)
CWA	Clean Water Act (33 USC Secs. 1311; 1314(b), (c), (e), (g); 136(b), (c); 137(b), (c) [as of 8/2/06])
RCRA	Resource Conservation Recovery Act (42 USC Sec. 6921; 40 CFR Part 261 App VIII)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III Section 302 Extremely Hazardous Substances (42 USC Secs. 11023, 13106; 40 CFR sec. 372.65) and Section 313 Toxic Chemicals (42 USC Secs. 11023, 13106; 40 CFR Sec. 372.65 [as of 6/30/05])
TSCA	Toxic Substance Control Act (15 U.S.C. s/s 2601 et seq. [1976])
SDWA	Safe Drinking Water Act (42 U.S.C. s/s 300f et seq. [1974])

State Regulations: The product, **EA 4000 Alloy Grades** as a whole is not listed in any state regulations. However, individual components of the product are listed in various state regulations: Nickel

Pennsylvania Right to Know: Contains regulated material in the following categories:

- Hazardous Substances: Magnesium, Silicon, Nickel
- Environmental Hazards: Aluminum & Aluminum (fume or dust), Nickel
- Special Hazardous Substance: Nickel

California Prop. 65:

The product, **EA 4000 Alloy Grades** can expose you to chemicals including nickel (metallic) which is known to the State of California to cause cancer; and none which is known to the State of California to cause reproductive toxicity. For more information go to www.P65Warnings.ca.gov.

New Jersey: Contains regulated material in the following categories:

- Hazardous Substance: Aluminum (fume or dust), Magnesium, Silicon, Nickel
- Environmental Hazards: Aluminum (dust or fume), Nickel
- Special Hazardous Substance: Aluminum (dust & fume), Silicon

Minnesota: Nickel

Massachusetts: Aluminum (fume or dust), Magnesium, Silicon, Nickel (compounds)

Other Regulations:

WHMIS Classification (Canadian): The product, **EA 4000 Alloy Grades** is not listed as a whole. However individual components are listed.

Ingredients	WHMIS Classification
Aluminum	Not Applicable
Magnesium	Flammable Solids – Category 2
Silicon	Flammable solids - Category 2 (The classification "Flammable solids" refers to the amorphous form of silicon powder); Combustible dusts*
Nickel	Skin sensitization – Category 1; Carcinogenicity – Category 2; Specific target organ toxicity – repeated exposure - Category 1

* This product belongs to the hazard class "Combustible dust" if 5% or more by weight of its composition has a particle size < 500 µm.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Section 16 - Other Information

Prepared By: Ellwood Aluminum

Original Issue Date: 10/25/2023

Revised Date: Original

Additional Information:

Hazardous Material Identification System (HMIS) Classification

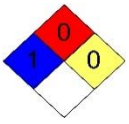
Health Hazard	1
Fire Hazard	0
Physical Hazard	0

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.

FLAMMABILIY = **0,** Materials that will not burn.

INSTABILITY = **0**, Normally stable, even under fire exposure conditions, and are not reactive with water.

Section 16 - Other Information (continued)

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
CLP	Classification, Labelling and Packaging	**OSHA**	Occupational Safety and Health Administration
CFR	Code of Federal Regulations	**PEL**	Permissible Exposure Limit
CNS	Central Nervous System	**PNOR**	Particulate Not Otherwise Regulated
GI, GIT	Gastro-Intestinal, Gastro-Intestinal Tract	**PNOC**	Particulate Not Otherwise Classified
HMIS	Hazardous Materials Identification System	**PPE**	Personal Protective Equipment
IARC	International Agency for Research on Cancer	**ppm**	parts per million
LC50	Median Lethal Concentration	**RCRA**	Resource Conservation and Recovery Act
LD50	Median Lethal Dose	**REACH**	Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals
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
$\mu g/m^3$	microgram per cubic meter of air	**STEL**	Short-term Exposure Limit
mg/m^3	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		

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

EA 4000 Alloy Grades

Signal Word: **Danger**

Symbols:

HAZARD STATEMENTS:

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.

PRECAUTIONARY STATEMENTS

Do not breathe dust and fumes.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated clothing must not be allowed out of the workplace.
Wear protective gloves / protective clothing / eye protection / face protection.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
If on skin: Wash with a plenty of water
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before use.
If exposed, concerned or feel unwell: Get medical advice/attention.
Dispose of contents in accordance with federal, state and local regulations.

SDS ID No.: EA 4000 Alloy Grades

ELLWOOD Aluminum
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General Information: Phone: 330-534-8668

CHEMTREC (Day or Night): 1-800-424-9300

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