

**DOMO Engineering Plastics US
Safety Data Sheet**

Ecomass Compound 5000ZS Series

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 1: Identification

1(a) Product Identifier used on label

Ecomass Compounds: 5000ZS Series
Form: Plastic Compound (Styrenic Co-polymer) & Metallic Powder Mixture (Pellets)

1(b) Other means of identification

Styrene-Isoprene-Styrene Polymer (SIS)

1(c) Recommended use of the chemical and restrictions on use

1. Uses: Thermoplastic Elastomer for Advanced Materials
2. Restrictions on Uses: None

1(d) Name, address, & telephone number of the chemical manufacturer, importer, or supplier

DOMO Engineering Plastics US
4917 Golden Parkway, Suite 300
Buford, GA 30518
770-237-2311

1(e) Emergency phone number

770-237-2311

SECTION 2: Hazard(s) Identification

2(a) Hazard Classification

(GHS-US): Not classified

2(b) Label Elements

Signal Word: None
Pictogram: None
Hazard Statements: None

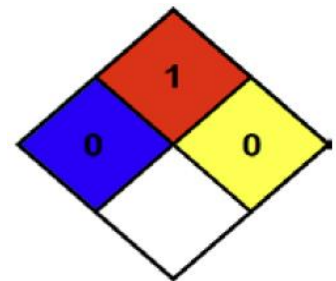
NFPA Health Hazard: 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

NFPA Fire Hazard: 1 - Must be preheated before ignition can occur.

NFPA Reactivity: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

HMIS III Rating

Health: 0 - No significant risk to health.
Flammability: 1
Physical: 0



2(c) Hazards not otherwise classified

This material has not been evaluated as a whole. All ingredients are bound in a polymer matrix and potential for hazardous exposure as shipped is minimal. However, some fumes may be released upon heating and the end-user (fabricator) must take the necessary precautions (mechanical ventilation, respirator program, etc.) to protect his employees from exposure. (See Section 8 - Exposure Controls / Personal Protection) The following ingredients are considered hazardous per OSHA 1910.1200:

- 1. Metallic Powder
- 2. Nuisance Dust

2(d) Ingredients with unknown toxicity

None

SECTION 3: Composition / Information on Ingredients

Products as manufactured are classified as non-hazardous and chemical disclosure is not required by regulation(s). While not required, polymers and metal powders are described below with their CAS Number(s).

If a chemical is not specifically identified, it is considered proprietary.

Each tungsten powder particle is bound in a polymer matrix mixture and potential for hazardous exposure as shipped is minimal.

Each stainless steel powder particle is a homogenous alloy of the components - iron, chromium, and nickel. Each stainless steel powder particle is bound in a polymer matrix mixture and potential for hazardous exposure as shipped is minimal.

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Name	Product Identifier	%	Classification (GHS-US)
Styrene-Isoprene-Styrene Polymer (SIS)	(CAS No) 25038-32-8	< 100	Not classified
Stainless Steel	(CAS No) 12597-68-1	< 100	Not classified
Iron	(CAS No) 7439-89-6	< 100	Not classified
Chromium	(CAS No) 7440-47-3	10 to 30	Not classified
Nickel	(CAS No) 7440-02-0	10 to 30	Carc. 2, Skin Sens. 1
Tungsten (W)	(CAS No) 7440-33-7	< 100	Not classified

SECTION 4: First Aid Measures

4(a) Description of First Aid Measures

- After Inhalation: No known effects. Supply fresh air. Consult physician.
- After Skin Contact: No known effects. Wash contacted skin. If contact with molten product, immediately flush with cool water. Do not pull solidified product off skin. Seek medical treatment.
- After Eye Contact: No known effects. Rinse eyes with water. If contact with molten product, immediately flush with cool water. Seek medical treatment.
- After Ingestion: No known effects. Do not induce vomiting. Seek medical treatment.

4(b) Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: No known effects. Long term skin contact could cause skin dryness.

4(c) Indication of any immediate medical attention and special treatment needed

Treat symptoms as above. No specific antidote. Consult physician and / or seek medical treatment.

SECTION 5: Fire Fighting Measures

5(a) Suitable Extinguishing Media

Carbon Dioxide, powder or water spray. For large fires use foam, water spray and call for fire-fighting assistance.

Unsuitable Extinguishing Media

Do not use a solid water stream, as it may scatter and spread fire.

5(b) Specific hazards arising from the substance or mixture

Fire hazard: Not flammable but will burn. Combustion of products may include carbon monoxide and carbon dioxide.

Explosion hazard: Static charge buildup can be a potential fire hazard when used in the presence of volatile, flammable vapors or in high airborne dust concentrations.

Reactivity: Non-reactive.

5(c) Advice for Fire Fighters

Precautions: Keep container cool with water. Use standard protective clothing for fire fighters. Self contained breathing apparatus should be worn to prevent inhalation of smoke and decomposition products in the event the material should burn.

SECTION 6: Accidental Release Measures

6(a) Personal precautions, protective equipment and emergency procedures

General measures: If spilled, may cause a slipping hazard. Avoid dust generation. Keep away from ignition sources. Ensure proper ventilation.

Environmental: Prevent entry to sewers and public waters.

6(b) Methods and material for containment and cleaning up

Containment: Shovel, scoop, sweep up or use industrial vacuum cleaner and return to original container. Products are non-hazardous waste. Proper disposal should be evaluated based on local, state, and federal regulations/legislation or directives. Users must determine if a report is required to EPA for any amounts of this material disposed of or otherwise released into the environment.

References: Refer to Sections 7, 8, and 13.

SECTION 7: Handling and Storage

7(a) Precautions for Safe Handling

Prevent generation of dust. If necessary, wear a dust mask. Use local exhaust above processing areas. Take precautionary measures against static discharge. Earth/Ground processing equipment. Product has a tendency to accumulate static charge during transport, handling and processing. Considering the risks of electrostatic discharges, handling the products in potentially flammable atmospheres should be evaluated. Suitable precautions should be taken at all times, in particular when emptying bags or other packaging. Reducing the velocity of transport will reduce charging. Static charge buildup can be a potential fire hazard when used in the presence of volatile or flammable mixtures. Keep away from ignition sources. If product is processed into smaller particles, explosive hazardous conditions must be evaluated. When processing these products, maintain a fire watch if material reaches 225°C (437°F). Operating below these temperatures does not guarantee the absence of product degradation. The temperatures listed are indicated only for safety reasons (risk of fire and product degradation) and are not recommended for processing. Degradation of the polymer will start at lower temperatures depending on the specific processing conditions. Wash hands after use. Avoid eating, drinking and smoking in work areas.

7(b) Conditions for safe storage, including any incompatibilities

Do not store outside. Keep container dry. Keep in a cool, well-ventilated place. Products contain an antioxidant to aid in stabilizing the polymer over its recommended use and storage conditions. Exposure to direct sunlight or elevated temperatures over prolonged periods of time consumes the antioxidant at an increased rate and may lead to self-heating. Do not stack Flexible Intermediate Bulk Containers (FIBC's) or palletized bags. Avoid storage under pressure or at elevated temperatures to minimize particulate clustering. Do not store with alkalis, oxidizers or acids.

7(c) **Specific end use(s)**
 No additional information available.

SECTION 8: Exposure Controls / Personal Protection

8(a) **Exposure Control Limits - Styrene-Isoprene-Styrene Polymer (SIS)**

ACGIH	Not applicable	
OSHA	OSHA PEL (TWA) (mg/m ³)	No Occupational Exposure Limit(s) (OEL's) are established. Nuisance Dust, if generated: OSHA TWA (8 hours) 10 mg/m ³

Exposure Control Limits - Stainless Steel Alloy Components

Exposure Control Limits - Iron Oxide	
ACGIH TLV	5.0 mg/m ³
OSHA PEL	10.0 mg/m ³
NIOSH IDLH	2500 mg/m ³ as iron
<i>IDLH = Immediately dangerous to life and health.</i>	

Exposure Control Limits - Chromium	
CAS#	7440-47-3
EINECS#	231-157-5
ACGIH TLV	0.5 mg/m ³
NIOSH IDLH	250 mg/m ³
OSHA PEL	1.0 mg/m ³
<i>IDLH = Immediately dangerous to life and health.</i>	
Chromium is on the SARA Title III, Section 313 Toxic Chemicals List	

Exposure Control Limits - Nickel	
ACGIH TLV	1.5 mg/m ³
NIOSH IDLH	10 mg/m ³
OSHA PEL	1.0 mg/m ³
<i>IDLH = Immediately dangerous to life and health.</i>	
Nickel is on the SARA Title III, Section 313 Toxic Chemicals List	

Exposure Control Limits - Tungsten ("W")		
ACGIH	Form	TWA (Time Weighted Average)
	as W	5 mg/m ³
		STEL (Short Term Exposure Limit)
	as W	10 mg/m ³

8(b) **Appropriate Engineering Controls**

Use local exhaust ventilation during processing. When transferring products, earth/ground all subsequent equipment to minimize charges that may develop.

8(c) **Individual Protection Measures**

Personal protective equipment:

Gloves. Safety Glasses. Protective Clothing.



Materials for protective clothing:	Standard issue work clothes, which may include apron, antistatic safety shoes or boots as necessary.
Eye protection:	Safety glasses with side-shields.
Skin:	Cloth gloves. Use heat protective gloves when handling hot, molten product.
Respiratory protection:	During handling: if dust is generated, a particulate pre-filter is recommended and for high airborne dust concentrations, a cartridge designed for nuisance dust is recommended. During high temperature processing: use local exhaust ventilation when available.

SECTION 9: Physical and Chemical Properties

9(a)	Physical state:	Solid
	Appearance:	Dense Pellet; Porous Pellet
	Color:	Gray
9(b)	Odor:	Essentially odorless, may be faint odor
9(c)	Odor threshold:	Not determined
9(d)	pH:	Not Applicable (Insoluble)
9(e)	Melting point / Freezing point:	Not determined / Not determined
9(f)	Boiling point:	Not Applicable
9(g)	Flash point:	Not Applicable
9(h)	Evaporation rate:	Not Applicable, Solid
9(i)	Flammability (solid, gas):	Not a Flammable Solid
9(j)	Upper / Lower Flammability:	No data available
	Explosive Limits:	Not determined
9(k)	Vapor pressure:	Not Applicable, Solid
9(l)	Vapor Density:	Not Applicable, Solid
9(m)	Relative density:	Specific Gravity: 1 - 11
9(n)	Solubility:	Insoluble in water
9(o)	Partition Coefficient:	No data available
9(p)	Auto-Ignition Temperature:	Not determined
9(q)	Decomposition temperature:	Not determined
9(r)	Viscosity, Kinematic:	Not Applicable
	Viscosity, Dynamic:	Not Applicable
Other	Oxidizing properties:	No data available

SECTION 10: Stability and Reactivity

10(a)	Reactivity:	Non-reactive.
10(b)	Chemical Stability:	Stable under ambient conditions.
10(c)	Possibility of Hazardous Reactions:	Risk of self-heating and self-ignition under long term exposure to high temperatures: Refer to Section 7(a) & (b).
10(d)	Conditions to Avoid:	Avoid prolonged exposure to heat or UV light since this may affect product properties. Product will burn when exposed to continuous sources of ignition.
10(e)	Incompatible Materials:	Avoid contact with strong acids, alkalis and oxidizing agents.
10(f)	Hazardous Decomposition:	Hazardous vapors from heated product are not expected to be generated under normal processing temperatures and conditions. No hazardous decomposition under ambient temperatures. Although highly dependent on temperature and environmental conditions, a variety of thermal decomposition products may be present if the product is over heated, is smoldering, or catches fire. Typical decomposition products are ultimately trace amounts of oxides of C, N, P, and S.

SECTION 11: Toxicological Information

This product is a mixture that has not been evaluated as a whole for health effects. Exposure effects listed below are based on existing health data for the individual components which comprise the tungsten and stainless steel alloy contained in the mixture.

11(a) Routes of Exposure

Inhalation: Particulates can be mechanically irritating.
Ingestion: May be harmful if swallowed
Eyes: Particulates can be mechanically irritating.
Skin: Experience shows no unusual skin hazard from routine handling.

11(b) Symptoms

See Section 4

11(c) Effects - Short and Long Term

Germ Cell Mutagenicity: Not classified; (Test extracts considered non-mutagenic)

Carcinogenicity: Not classified; (No data available)

This product contains the following components which, in their pure form, have the following carcinogenicity data:

CAS-No.	Chemical Name	OSHA	IARC	NTP
7440-02-0	Nickel	No	2B	No

IARC Carcinogen Classifications:

- 1 - The component is carcinogenic to humans.
- 2A - The component is probably carcinogenic to humans.
- 2B - The component is possibly carcinogenic to humans.

NTP Carcinogen Classifications:

- 1 - The component is known to be a human carcinogen.
- 2 - The component is reasonably anticipated to be a human carcinogen.

11(d) Toxicity

Toxicity Overview:

This product contains the following components which in their pure form have the following characteristics:

CAS-No.	Chemical	Effect	Target Organ
7440-33-7	Tungsten	Systemic effects	Eyes, Skin, Respiratory system, Blood and blood forming system.
7439-89-6	Iron	Systemic effects	Eyes, Respiratory System
7440-47-3	Chromium	Systemic effects	Eyes, Skin, Respiratory System.
7440-02-0	Nickel	Systemic effects	Skin, Respiratory System.

Additional Health Hazard Information:

Tungsten 7440-33-7: Prolonged or repeated breathing of this material may result in chronic bronchitis. Exposure to freshly formed fumes from heated metal may cause "metal fume fever".

Chromium 7440-47-3: Bivalent and trivalent forms of chrome have a low order of acute toxicity, but may cause skin sensitization and irritation to the eyes. No effects have been reported for chromium (III) oxide, Chromium (III) compounds are not considered carcinogenic in animals or humans.

Nickel 7440-02-0: Skin sensitizer "nickel itch", with pulmonary, brain, liver, kidney, and muscle effects.

Acute Toxicity: Not classified
Reproductive Toxicity: Not classified; (No data available)
Specific target organ toxicity (single exposure): Not classified; (No data available)
Specific target organ toxicity (repeated exposure): Not classified; (No data available)

11(e) Listings

Information on Toxicological Effects	Results
USP Systemic Toxicity Study in Mice - Extract:	No mortality or evidence of systemic toxicity from extracts.
USP Intracutaneous Study in Rabbits - Extract:	No evidence of significant irritation from the extracts injected intracutaneously.
USP Muscle Implantation Study in Rabbits - 7 Day:	No evidence of irritation or toxicity in accordance with USP, General Chapter 88, Biological Reactivity Test. Macroscopic reactions insignificant.
Cytotoxicity Study using the Colony Assay in Chinese Hamster Lung Cells (V79):	Test article is not cytotoxic.
<i>In Vitro</i> Hemolysis Study in Red Blood Cells, Japanese MHLW:	Test article is non-hemolytic.

SECTION 12: Ecological Information**12(a) Ecotoxicity**

Iron, chromium, and nickel are components of the stainless steel alloy which is combined with tungsten and the polymer in a matrix, thus not readily biodegradable.

LC50 fish 1	> 1000 ppm Acute 96-Hour Water Absorbing Fraction (WAF) performed on Rainbow Trout
LOEC (chronic)	No data available

12(b) Persistence and degradability Products are inert and non-biodegradable.

Iron, chromium, and nickel are components of the stainless steel alloy which is combined with tungsten and the polymer in a matrix, thus not readily biodegradable.

12(c) Bioaccumulative potential Not expected to bioaccumulate, since it is not soluble in water and not biodegradable.

Iron, chromium, and nickel are components of the stainless steel alloy which is combined with tungsten and the polymer in a matrix, thus not readily biodegradable.

12(d) Mobility in Soil Not mobile. Remains on surface of soil.**12(e) Other Adverse effects** None known.**SECTION 13: Disposal Considerations**

Its size and quantity released may interfere with sewage treatment systems. Recover or recycle if possible. Incinerate or consult a licensed landfill provider. Remove all packaging for recycling or disposal based on local regulations.

SECTION 14: Transport Information

In accordance with DOT, this product is not regulated for transport.

14(a)	UN Number:	None
14(b)	UN Number Shipping Name:	None
14(c)	Transport Hazard Class(es):	None
14(d)	Packing Group:	None
14(e)	Environmental Hazards:	Not a marine pollutant
14(f)	Transport in Bulk:	None
14(g)	Special Precautions:	None

SECTION 15: Regulatory Information

US Federal Regulations

SARA - Section 302 Extremely Hazardous Chemicals:
Unless specifically identified in this section, the components in this product are either not SARA Section 302 regulated or regulated but present in negligible concentrations.
None

SARA - Section 311/312 Hazard Classes:	
Tungsten	Acute health hazard, Chronic health hazard

SARA - Section 313 Toxic Chemicals:												
Unless specifically identified in this section, this material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.												
<table border="1"> <thead> <tr> <th>Name</th> <th>Product Identifier</th> <th>Weight %</th> <th>SARA 313 - Threshold Values %</th> </tr> </thead> <tbody> <tr> <td>CHROMIUM</td> <td>7440-47-3</td> <td>10 to 30</td> <td></td> </tr> <tr> <td>NICKEL</td> <td>7440-02-0</td> <td>10 to 30</td> <td></td> </tr> </tbody> </table>	Name	Product Identifier	Weight %	SARA 313 - Threshold Values %	CHROMIUM	7440-47-3	10 to 30		NICKEL	7440-02-0	10 to 30	
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CHROMIUM	7440-47-3	10 to 30										
NICKEL	7440-02-0	10 to 30										

CERCLA - Comprehensive Environmental Response, Compensation, & Liability Act - Reportable Quantity (RQ)						
Unless specifically identified in this section, the components in this product are either not CERCLA regulated, regulated but present in negligible concentrations, or regulated with no assigned reportable quantity.						
<table border="1"> <thead> <tr> <th>Name</th> <th>Hazardous Substances RQs</th> <th>CERCLA EHS RQs</th> </tr> </thead> <tbody> <tr> <td>Nickel</td> <td>100 lb</td> <td>None</td> </tr> </tbody> </table>	Name	Hazardous Substances RQs	CERCLA EHS RQs	Nickel	100 lb	None
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Nickel	100 lb	None				

OSHA	Unless specifically identified in this section, the components in this product are not considered hazardous by OSHA:
	This product is classified as hazardous based on the components contained in the stainless steel alloy.

Chemical Inventory Status

European Inventory of Existing Commercial Chemical Substances	EU, EINECS	Listed
United States TSCA (Toxic Substances Control Act) Inventory	TSCA	Listed
Canadian Domestic Substances List	DSL	Listed or Exempt
China. Inventory of Existing Chemical Substances Produced or Imported in China	IECSC (CN)	Listed
Japan. ENCS - Existing & New Chemical Substances Inventory	ENCS (JP)	Listed
Japan. ISHL - Inventory of Chemical Substances	ISHL (JP)	Listed
Korea. Korean Existing Chemicals Inventory	KECI (KR)	Listed
Philippines Inventory of Chemicals and Chemical Substances	PICCS (PH)	Listed
Australian Inventory of Chemical Substances	AICS	Listed

US State Regulations

California Prop. 65	WARNING! This product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive defects.
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SECTION 16: Other Information

Revision Date: August 1, 2016

Version Number: 03

ABBREVIATIONS / ACRONYMS / REFERENCES:

AND	EU Agreement for the International Transport of Dangerous Goods by Inland Waterways, as amended
ADR	EU Agreement for the International Carriage of Dangerous Goods by Road, as amended
CAS	Chemical Abstracts Services (Division of the American Chemical Society)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals, as amended
HMIS	Hazardous Materials Identification System
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Code for Dangerous Goods, as amended
LC50	Lethal Concentration of 50 Percent of Organisms
MARPOL	International Convention for the Prevention of Pollutants from Ships, 1973, as amended
MHLW	Japanese Ministry of Health, Labor, and Welfare
NFPA 704	National Fire Protection Association
OE	Oil Extended
OEL	Occupational Exposure Limit
RID	EU Standards Regulations Concerning the International Transport of Dangerous Goods by Rail
TLV	Threshold Limit Value
TWA	Time Weighted Average
UN	United Nation
USP	United States Pharmacopeia for the Testing of Biological Endpoints for Medical Devices

DISCLAIMER:

The information in this document 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. Advice in this document relates only to the product as originally supplied. Where other ingredients are added in the processing of this product, advice should be sought on their safe handling and use.

The information is based on present knowledge. This does not constitute a guarantee for any product features or specifications. It does not establish a legal contractual relationship. The information, data, and recommendations are made to our reasonable ability in good faith and obtained from reliable sources. Completeness is not guaranteed. It is intended to describe the products for the purpose of Health, Safety, and Environmental requirements only. The Safety Data Sheet is guidance for product uses. Advice applies to the products as originally supplied. Where other ingredients are added in the processing of these products, it is the users responsibility to evaluate or consult on their safe handling and use. It is the responsibility of the user to comply with all Local, Federal, and International Legislation and Local Permits when using.

We believe the information set forth in this document to be true and accurate, but any recommendations, statements, or suggestions made in the foregoing text are without any warranty or guarantee whatsoever, and shall establish no legal duty or responsibility on the part of the author(s) or their employer. Furthermore, nothing set forth above shall be construed as a recommendation to use any product in conflict with any existing patent rights.

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