Ecomass Technologies

Safety Data Sheet

Ecomass Compound 4100CO 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 Compound:	4100CO Series
Form:	Plastic Compound: Polyphenylene Sulfide (PPS) & Metallic Powder Mixture (Pellets)

1(b) Other means of identification

PPS

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

1. Uses: Thermoplastic for Injection Molding and Extrusion
2. Restrictions on Uses: None

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

Ecomass Technologies
4101 Parkstone Heights, Suite 380
Austin, TX 78746
512-306-0020

1(e) Emergency phone number

512-306-0020

SECTION 2: Hazard(s) Identification

2(a) Hazard Classification

(GHS-US):	Not classified as a hazardous substance or mixture.

2(b) Label Elements

Signal Word:	None
Pictogram:	None
Hazard Statements:	None
Supplemental Hazard Statement:	Processing may release vapors and/or fumes which cause eye, skin, and respiratory tract irritation.

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 which may cause eye, skin, and respiratory tract infection. Prolonged or repeated exposure may cause: headache, drowsiness, nausea, weakness (severity of effects depends on extent of 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 copper 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)
Polyphenylene Sulfide (PPS)	(CAS No) 26125-40-6	< 100	Not classified
Copper	(CAS No) 7440-50-8	< 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

After Skin Contact: No known effects. Flush 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. Flush eyes with water. If contact with molten product, immediately flush with cool water. Seek medical treatment.

After Ingestion: No known effects. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. DO NOT induce vomiting unless directed to do so by medical personnel. Seek medical treatment.

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

After Inhalation: Inhalation of decomposition products may cause a health hazard. Serious effects may be delayed following exposure. Dusts are mechanical irritants. If dust is present on the product, this may cause respiratory irritation after an excessive inhalation exposure.

After Skin Contact: Risk of thermal burns on contact with molten product. Dust may cause mechanical irritation. Long term skin contact could cause skin dryness.

After Eye Contact: Product fines may cause mechanical irritation. Vapors from molten nylon may cause irritation and tearing.

After Ingestion: Choking hazard. Gastrointestinal disturbance can occur.

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.

Notes to Physician: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. This product is essentially inert and nontoxic. However, if it is heated at too high a temperature or it burns, gases may be released (see Sections 5 and 10 for off-gases). Gases that may be formed are extremely foul smelling, even at low and relatively nontoxic concentrations. The sulfides and mercaptans can cause nausea and headache as a result of their foul odor.

Patients who have been exposed to off-gases may need to have their arterial blood gases and carboxyhemoglobin levels checked. If the carboxyhemoglobin levels are normal, the patients may still have suffered asphyxia from carbon dioxide replacing oxygen if they were exposed in an enclosed space. While it is unlikely that enough hydrogen sulfide would be formed to cause hydrogen sulfide poisoning, the possibility should be considered if the clinical picture is consistent (similar to cyanide toxicity). Sulfur oxides are respiratory tract irritants. Other irritant gases may also have been formed in lesser amounts. If patients may have inhaled high concentrations of irritating fumes, they should be monitored for delayed onset pulmonary edema.

SECTION 5: Fire Fighting Measures

5(a) Suitable Extinguishing Media

Use an extinguishing agent suitable for the surrounding fire - foam, powder, carbon dioxide (CO_2), water, or water spray.

Unsuitable Extinguishing Media

None known

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

Fire hazard:	Flashpoint: > 480 °C (896 °F). In a fire, the polymer will melt and produce droplets which may propagate fire. Once started, the fire will tend to self extinguish. Thermal decomposition may produce toxic, flammable, and/or corrosive products: carbon dioxide (CO2), carbon monoxide (CO), sulfur dioxide (SO2), hydrocarbons, alcohols, aldehydes, ketones, phenyl sulfides, n-methyl-2-pyrrolidone, dichlorobenzene, phenyl mercaptan, hydrogen sulfide, butyrolactone, mesity1oxide, acetic acid, phenol, formic acid, succinic acid, chlorine, palmitic acid, p-chlorothiophenol, stearic acid, aromatic compounds, chlorinated aromatic compounds, carbonyl sulfide, and sulfur compounds.
Explosion hazard:	Dust Explosion Class: St 1 (Weak explosion). 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:	Use standard protective clothing for fire fighters. Self contained breathing apparatus (SCBA) should be worn to prevent inhalation of smoke and decomposition products in the event the material should burn. Decontaminate fire fighting equipment after use.

SECTION 6: Accidental Release Measures

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

General measures:	If spilled, may cause a fall or slipping hazard. Avoid dust generation. Keep away from ignition sources. Ensure proper ventilation.
Environmental:	Prevent dispersal of spilled material and runoff into soil, drains, sewers, and public waters.

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

Containment:	Prevent further leakage or spillage if you can do so without risk. Ventilate the area. 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 and avoid breathing dust. If necessary, wear a dust mask. Avoid breathing processing fumes or vapors and use local exhaust above processing areas. Wash hands after use. Avoid eating, drinking and smoking in work areas. Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin, and clothing. 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.

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

Stable under recommended storage conditions. Do not store outside. Keep away from heat, open flames, hot surfaces, and other sources of ignition. Keep container dry and tightly closed. Keep in a cool, dry, well-ventilated place. Store in closed containers in a secure area to prevent container damage and subsequent spillage. Store away from moisture and heat to maintain the technical properties of the product. 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 - Polyphenylene Sulfide (PPS)

ACGIH	Form	Time Weighted Average
Nuisance Particulates	Inhalable Fraction	10 mg/m^3
	Respirable Fraction	3 mg/m^3

OSHA Table Z-1	Form	PEL
Air Contaminants Nuisance Dust	Respirable Fraction	5 mg/m^3
	Total Dust	15 mg/m^3

Exposure Control Limits - Copper

	Form	TWA (Time Weighted Average)
ACGIH TLV	Fume (as Cu)	0.2 mg/m^3
	Dust and Mist (as Cu)	1 mg/m^3

OSHA Table Z-1	Form	PEL (Permissible Exposure Limit)
Air Contaminants	Fume (as Cu)	0.1 mg/m^3
	Dust and Mist (as Cu)	1 mg/m^3

	Form	TWA (Time Weighted Average)
NIOSH IDLH	IDLH	100 mg/m^3
	Fume (as Cu)	0.1 mg/m^3
	Dust and Mist (as Cu)	1 mg/m^3

	Form	TWA (Time Weighted Average)
Mexico OEL	Fume (as Cu)	0.2 mg/m^3
	Dust and Mist (as Cu)	1 mg/m^3
		STEL (Short Term Exposure Limit)
	Fume (as Cu)	2 mg/m^3
	Dust and Mist (as Cu)	2 mg/m^3

Canada OEL	Form	TWA (Time Weighted Average)
Ontario	Fume (as Cu)	0.2 mg/m^3
	Dust and Mist (as Cu)	1 mg/m^3
Quebec	Fume (as Cu)	0.2 mg/m^3
	Dust and Mist (as Cu)	1 mg/m^3

8(b) Appropriate Engineering Controls

Use local exhaust ventilation during transfer or processing of material to reduce exposures to explosion, dust, and fumes. 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: Use good industrial practice to avoid eye contact. Wear Safety glasses with side-shields. Processing of this product releases vapors or fumes which may cause eye irritation. Where eye contact may be likely, wear chemical goggles. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin: Processing of this product releases vapors or fumes which may cause skin irritation. Minimize skin contamination by following good industrial hygiene practice. Wearing protective gloves is recommended. Use heat protective gloves when handling hot, molten product. Wash hands and contaminated skin thoroughly after contact with processing fumes or vapors or after handling the material.

Respiratory protection: Avoid breathing dust. Avoid breathing processing fumes or vapors. 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. Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure or where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

SECTION 9: Physical and Chemical Properties

9(a)	**Physical state:**	Solid
	Appearance/Form:	Pellets; porous to dense
	Color:	Various: tan, copper, gray or black - dependent on filler material
9(b)	**Odor:**	Essentially odorless, may be faint odor
9(c)	**Odor threshold:**	Not determined
9(d)	**pH:**	No data available
9(e)	**Melting point/range:**	545 °F (285 °C)
	Freezing point:	Not Applicable
9(f)	**Boiling point:**	Not Applicable
9(g)	**Flash point:**	Not determined
9(h)	**Evaporation rate:**	Not Applicable, Solid
9(i)	**Flammability (solid, gas):**	The product is not flammable but may form combustible dust concentrations in air
9(j)	**Upper / Lower Flammability:**	No data available
	Explosive Limits:	Dust Explosion Class: St 1 (Weak explosion).
9(k)	**Vapor pressure:**	Not Applicable, Solid
9(l)	**Vapor Density:**	Not Applicable, Solid
9(m)	**Relative density:**	Specific Gravity: 1 - 6.5
9(n)	**Solubility (water):**	Negligible
9(o)	**Partition Coefficient:**	No data available
9(p)	**Auto-Ignition Temperature:**	Not determined
9(q)	**Decomposition temperature:**	> 752 °F (400 °C)
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. The product is stable under normal handling and storage conditions.
10(b)	**Chemical Stability:**	Stable under ambient conditions. Hazardous polymerization does not occur.
10(c)	**Possibility of Hazardous Reactions:**	Non-reactive. The product is stable under normal handling and storage conditions.
10(d)	**Conditions to Avoid:**	Keep away from heat, open flames, hot surfaces, and other sources of ignition. Do not heat above 698 °F (370 °C). To avoid thermal decomposition, do not overheat. Avoid dust formation. Avoid prolonged exposure to heat or light since this may affect product properties. Product will burn when exposed to continuous sources of ignition. See Hazardous Decomposition below.
10(e)	**Incompatible Materials:**	Avoid contact with strong 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 overheated, is smoldering, or catches fire.

Thermal decomposition may produce toxic, flammable, and/or corrosive products: carbon dioxide (CO2), carbon monoxide (CO), sulfur dioxide (SO2), hydrocarbons, alcohols, aldehydes, ketones, phenyl sulfides, n-methyl-2-pyrrolidone, dichlorobenzene, phenyl mercaptan, hydrogen sulfide, butyrolactone, mesity1oxide, acetic acid, phenol, formic acid, succinic acid, chlorine, palmitic acid, p-chlorothiophenol, stearic acid, aromatic compounds, chlorinated aromatic compounds, carbonyl sulfide, and sulfur compounds.

SECTION 11: Toxicological Information

Polyphenylene Sulfide (PPS)

11(a) Routes of Exposure

Aspiration hazard: Not classified

Skin corrosion/irritation: Not classified

Serious eye damage/irritation: Not classified

Respiratory irritation: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

11(b) Symptoms See Section 4

11(c) Effects - Short and Long Term

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

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
7440-50-8	Copper	Irritant	Respiratory System
		Systemic Effects	Eyes, Skin, Respiratory System, Liver, Kidney

Additional Health Hazard Information:

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

	Polyphenylene Sulfide (PPS)	Copper
IARC Group:	Not listed or not regulated	Not Listed
NTP:	Not listed or not regulated	Not Listed
ACGIH:	Not listed or not regulated	Not Listed
OSHA:	Not listed or not regulated	Not Listed

SECTION 12: Ecological Information

12(a) Ecotoxicity Not expected to be harmful to aquatic organisms.

12(b) Persistence and degradability Not expected to be biodegradable.

12(c) Bioaccumulative potential Does not bioaccumulate.

12(d) Mobility in Soil No data available

12(e) Other Adverse effects No data available

COPPER

12(a)	**Ecotoxicity**	Copper contains the following substances which are hazardous to the environment:
	Freshwater Algae	0.031 - 0.054 mg/L EC50 96 h; 0426 - 0.0535 mg/L EC50 72 h
	Freshwater Fish	0.112 mg/L LC50 96 h; 0.8 mg/L LC50 96 h; 0.3 mg/L LC50 96 h; 1.25 mg/L LC50 96
	Microtox	Not listed
	Water Flea	0.03 mg/L EC50 = 48 h
12(b)	**Persistence and degradability**	Copper powder is bound within the polymer mixture so not readily degradable.
12(c)	**Bioaccumulative potential**	Copper powder is bound within the polymer mixture so not readily available.
12(d)	**Mobility in Soil**	Copper powder is bound within the polymer mixture so not readily available.
12(e)	**Other Adverse effects**	No data available

SECTION 13: Disposal Considerations

Where possible, recycling is preferred to disposal or incineration. If recycling is not an option, incinerate or dispose of in accordance with federal, state, and local regulations. Incinerator must be approved for sulfur containing wastes. Pigmented, filled, and/or solvent laden product may require special disposal practices in accordance with federal, state, and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal, and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

SECTION 14: Transport Information

In accordance with DOT and IMDG, 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 302/304 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
None

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.

Name	Product Identifier	Weight %	SARA 313 - Threshold Values %
Copper	(CAS No) 7440-50-8	< 100	1.0

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.		
Name	**Hazardous Substances RQs**	**CERCLA EHS RQs**
Copper	5,000 lb	1.0

Clean Water Act				
Component	CWA -	CWA - Reportable	CWA - Toxic	CWA - Priority Pollutants
Copper	-	-	Listed	Listed

OSHA	Unless specifically identified in this section, the components in this product are not considered hazardous by OSHA:
	Copper fumes and dust are classified as hazardous.

Chemical Inventory Status

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

US State Regulations

State Right to Know: Components of this mixture are not subject to State Right to Know Acts except as listed below:		
	CAS Number	**Chemical Name**
New Jersey	7440-50-8	Copper
Pennsylvania	7440-50-8	Copper
Massachusetts	7440-50-8	Copper
Illinois	7440-50-8	Copper
Rhode Island	7440-50-8	Copper
California Prop. 65		Not Listed

SECTION 16: Other Information

Revision Date: September 07, 2016

Version Number: 03

Ecomass® is a registered trademark.

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
LCSO	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 lnternational 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:

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