



MATERIAL SAFETY DATA SHEET

Chemtrec 24-Hour Emergency Telephone
 Domestic North America (800)424-9300
 International (703)527-3887

This MSDS complies with 29 CFR 1910.1200 (Hazard Communication)

1. Product and Supplier Identification

Product: Orca Guard Gel
Product No:

Product Use: Used in the manufacture of thermoset plastic parts.

Supplier: Fiberlay Inc.
 24 S. Idaho St
 Seattle, Wa 98134
 (206)782-0660

2. Composition

Name	CAS #	% by weight	
1) Styrene	100-42-5	36.7	
2) Methyl Methacrylate	80-62-6	7.1	
3) Talc	14807-96-6	1 – 5	
4) Silica, Gel	112926-00-8	1 – 5	
5) Silica, Amorphous	7631-86-9	1 – 5	
6) Cobalt Compounds	Mixture	0.1 – 1	
Component	%	CAS Number	Exposure Limits
Styrene	36.7	100-42-5	ACGIH TLV (United States, 1/2009). Skin TWA: 20 ppm 8 hour(s). TWA: 85 mg/m ³ 8 hour(s). STEL: 40 ppm 15 minute(s). STEL: 170 mg/m ³ 15 minute(s). OSHA PEL Z2 (United States, 11/2006). TWA: 100 ppm 8 hour(s). CEIL: 200 ppm AMP: 600 ppm 5 minute(s). NIOSH REL (United States, 6/2009). TWA: 50 ppm 10 hour(s). TWA: 215 mg/m ³ 10 hour(s). STEL: 100 ppm 15 minute(s). STEL: 425 mg/m ³ 15 minute(s).

Orca Guard Gel Coat

Methyl Methacrylate	7.1	80-62-6	ACGIH TLV (United States). TWA: 410 mg/m ³ TWA: 50 ppm 8 hour(s). STEL: 100 ppm 8 hour(s). NIOSH REL (United States, 6/2008). TWA: 100 ppm 10 hour(s). TWA: 410 mg/m ³ 10 hour(s). OSHA PEL (United States, 11/2006). TWA: 100 ppm 8 hour(s). TWA: 410 mg/m³ 8 hour(s).
Talc	1-5	14807-96-6	ACGIH TLV (United States, 1/2008). TWA: 0.1 f/cc 8 hour(s). NIOSH REL (United States, 6/2008). TWA: 2 mg/m ³ 10 hour(s). Form: Respirable fraction OSHA PEL 1989 (United States). TWA: 2 mg/m ³ 8 hour(s). Form: Respirable dust OSHA PEL Z3 (United States, 9/2005) STEL: 1 f/cc 30 minute(s). Form: not containing asbestos TWA: 20 mppcf 8 hour(s). Form: not containing asbestos
Silica, Gel	1-5	112926-00-8	OSHA PEL 1989 (United States, 3/1989). TWA: 6 mg/m ³ 8 hour(s).
Silica, Amorphous	1-5	7631-86-9	NIOSH REL (United States, 6/2009). TWA: 6 mg/m³ 10 hour(s).
Cobalt Compounds	.01-1	Mixture	OSHA PEL (United States). TWA: 0.1 mg/m ³ ACGIH TLV (United States). TWA: 0.02 mg/m ³
PIGMENTS	8-10		

3. Hazards Identification

OSHA status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Routes of Entry:

Eye contact, Skin contact, Inhalation, Ingestion

Potential Acute Health Effects:

Eyes: Severe eye irritant which may result in redness, burning, tearing and blurred vision.

Skin: Skin irritant which may result in burning sensation. Repeated or prolonged skin contact may cause dermatitis.

Ingestion: Ingestion may result in mouth, throat and gastrointestinal irritation, nausea, vomiting and diarrhea.

Inhalation: Inhalation of spray mist or liquid vapors may cause upper respiratory irritation and possible central nervous system effects including headaches, nausea, vomiting, dizziness, drowsiness, loss of coordination, impaired judgement and general weakness.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS:

Styrene: Classified A4 (not classifiable for human or animal) by ACGIH. Classified 2B (possible for human) by IARC. An increased incidence of lung tumors was observed in mice from a recent inhalation study. The relevance of this finding is uncertain since data from other long-term animal studies and from epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic to humans. Lung effects have been observed in mouse studies following repeated exposure.

Methyl Methacrylate: Classified A4 (not classifiable for human or animal) by ACGIH. Classified 3 (not classifiable for human) by IARC.

Talc: Classified A2 (suspected for human) by ACGIH. Classified 1 (proven for human) by IARC. Classified 1 (known) by NTP.

Orca Guard Gel Coat

Silica, Gel: Classified 3 (not classifiable for human) by IARC.

Silica, Amorphous: Classified 3 (not classifiable for human) by IARC.

Carbon Black: Classified A4 (not classifiable for human or animal) by ACGIH. Classified 2B (possible for human) by IARC.

Cobalt Compounds: Classified A3 (proven for animal) by ACGIH. Classified 2B (possible for human) by IARC.

MUTAGENIC or TERATOGENIC EFFECTS: No known effect according to our database. **Other:** Prolonged exposure may cause dermatitis. Repeated or prolonged overexposure to near lethal concentrations can produce liver and kidney damage.

4. First Aid Measures

INHALATION: Move the victim to a safe area as soon as possible. Allow the victim to rest in a well-ventilated area.

Hazardous Inhalation: Move the victim to a safe area as soon as possible. If breathing is difficult, give oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

SKIN CONTACT: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. If irritation persists, seek medical attention.

EYE CONTACT: Flush with a continuous flow of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Use of buffered baby shampoo will aid in removal. Seek medical attention.

INGESTION: Do not induce vomiting. Seek immediate medical attention.

5. Fire Fighting Measures

Flammable Liquid, Class IC

75-89°F (24.8-32°C)

790°F (421°C) Methyl Methacrylate

0.09 % by volume

Upper Explosion Limit: 12.5% by volume

Hazardous Combustion Products: May produce carbon monoxide, carbon dioxide, and irritating or toxic vapors, gases or particulate.

Fire Hazard: Flammable in the presence of open flames, sparks, or heat.

Explosion Hazard: Can react with oxidizing materials. Explosive in the form of vapor when exposed to heat or flame. Material may polymerize when container is exposed to heat (fire) and polymerization will increase pressure in a closed container which may cause the container to rupture violently.

Extinguishing Media: SMALL FIRE: Use carbon dioxide, foam, dry chemical or water fog to extinguish.

LARGE FIRE: Evacuate surrounding areas. Use carbon dioxide, foam, dry chemical or water fog to extinguish. Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. Prevent run off to sewers or other water ways

6. Accidental Release Measures

Small Spill: Absorb with an inert material and place in an appropriate waste disposal container.

Large Spill: Stop leak if without risk. Eliminate all ignition sources. Contain with an inert material, recover as much as possible and place the remainder in an appropriate waste disposal container. Warn unauthorized personnel to move away. Prevent entry into sewers or confined areas.

7. Handling and Storage

Handling Procedures: WARNING! Use only in well-ventilated areas. Store away from direct sunlight. Avoid inhalation and contact with eyes, skin, and clothing. Wear appropriate personal protective equipment for your task. Ground and bond all containers when transferring the material. Empty containers

Orca Guard Gel Coat

may retain product and product vapor. Do not expose to heat, flame, sparks or other ignition sources such as cutting, welding, drilling, grinding or static electricity. Do not pressurize. Provide adequate safety showers and eyewashes in the area of use.

Note: If product contains metal compounds (Section II), avoid dust from dried product or grinding of articles made from this material.

Storage: Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well ventilated place. Containers should be grounded.

8. Exposure Controls, Personal Protection

Exposure Limits:

Styrene	ACGIH TLV (United States, 1/2009). Skin TWA: 20 ppm 8 hour(s). TWA: 85 mg/m ³ 8 hour(s). STEL: 40 ppm 15 minute(s). STEL: 170 mg/m ³ 15 minute(s). OSHA PEL Z2 (United States, 11/2006). TWA: 100 ppm 8 hour(s). CEIL: 200 ppm AMP: 600 ppm 5 minute(s). NIOSH REL (United States, 6/2009). TWA: 50 ppm 10 hour(s). TWA: 215 mg/m ³ 10 hour(s). STEL: 100 ppm 15 minute(s). STEL: 425 mg/m ³ 15 minute(s).
Methyl Methacrylate	ACGIH TLV (United States).TWA: 410 mg/m ³ TWA: 50 ppm 8 hour(s). STEL: 100 ppm 8 hour(s). NIOSH REL (United States, 6/2008). TWA: 100 ppm 10 hour(s). TWA: 410 mg/m ³ 10 hour(s). OSHA PEL (United States, 11/2006). TWA: 100 ppm 8 hour(s). TWA: 410 mg/m ³ 8 hour(s).
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Silica, Amorphous	NIOSH REL (United States, 6/2009). TWA: 6 mg/m ³ 10 hour(s).
Cobalt Compounds	OSHA PEL (United States). TWA: 0.1 mg/m ³ ACGIH TLV (United States). TWA: 0.02 mg/m ³

While the federal workplace exposure limit for styrene is 100 ppm, OSHA accepted the styrene industry's proposal to voluntarily meet a PEL of 50 ppm on an 8 hours TWA.

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Provide adequate safety showers and eyewashes in the area of use.

Personal Protection: Personal protective equipment may vary depending on the job being performed.

Eye/Face: Wear eye protection such as safety glasses with side shields, splash goggles or face shield with safety glasses.

Skin: Avoid skin contact. Impervious gloves should be worn. Other items may include long sleeves, lab coats, or impervious jackets.

Orca Guard Gel Coat

Respiratory: Determine if airborne concentrations are below the recommended exposure limits in accordance your company's PPE program and regulatory requirements. If they are not, select a NIOSH-approved respirator that provides adequate protection from the concentration levels encountered. Air-purifying respirators are generally adequate for organic vapors. Use positive pressure, supplied-air respirators if there is potential for an uncontrolled release, if exposure levels are unknown, or under circumstances where air-purifying respirators may not provide adequate protection. Reference OSHA 29 CFR 1910.134

Personal Protection in Case of Large Spill: Chemical resistant gloves, full protective suit, and boots. Respiratory protection in accordance with OSHA regulation 29 CFR 1910.134. A self-contained breathing apparatus should be used to avoid inhalation of the product vapors.

9. Physical and Chemical Properties

Appearance: Black Liquid
Aromatic

pH: Not applicable.

Vapour Pressure: 40 mm Hg @ 77°F (25°C)

Methyl Methacrylate

Molecular Weight (g/mol): Not Available

Vapour Density: 3.5-3.6 (Air = 1)

Vapor Gravity: 1.1 to 1.4 (Water = 1)

Melting Point: Not available.

Boiling Point: 214°F (101°C) Methyl

Methacrylate

Freezing Point: Not available.

Relative Density: 1.05-1.30 (water = 1)

Partition Coefficient: No data

Evaporation Rate: Not available.

Water/Oil Dist. Coeff: Not available

Odor Threshold: <1.0 ppm

Solubility in Water: Slight

Dispersibility Properties:

Slight dispersion in water

10. Stability and Reactivity

Chemical Stability: Normally stable, but can become unstable at elevated temperatures.

Instability Temperature: >120°F (48.9°C)

Condition of Instability: Heat.

Incompatibility: Polymerizes in the presence of organic peroxides, oxidizing materials, or heat.

Corrosivity: No specific information is available in our database regarding the corrosivity of this product in presence of various materials.

11. Toxicological Information

Toxicity to Animals:	Name	Result	Species	Dose	Exposure
	Styrene	LD50 Oral	Rat	2650 mg/kg	-
		LC50 Inhalation Vapor	Rat	5634.2 ppm	4 hours
	Methyl Methacrylate	LD50 Oral	Rat	7872 mg/kg	-
		LC50 Inhalation Gas.	Rat	7094 ppm	4 hours
	Cobalt Compounds Silica, Gel	LD50 Oral	Rat	6171 mg/kg	-
		LD50 Oral	Rat	>10000 mg/kg	-

Special remarks on toxicity to animals: Lung effects have been observed in mouse studies following repeated exposure.

Special remarks on chronic effects on humans: Repeated or prolonged overexposure to near lethal concentrations can produce liver and kidney damage.

Special remarks on other toxic effects on humans:

Methyl Methacrylate: MMA has both acute and chronic effects. Inhalation overexposure may result in irritation of nose and throat, headache, nausea, vomiting, dizziness, irritation of upper respiratory tract and unconsciousness. Overexposure will result in moderate irritation to the skin, eyes and mucous membranes. Prolonged skin contact may cause dermatitis. Chronic exposure can cause headache and nausea, central nervous system depression, and ultimately liver, lung or

Orca Guard Gel Coat

kidney damage. An allergic skin reaction may also be possible.

Talc: Exposure to dusts containing talc can be toxic and can produce acute and chronic effects. Contact with dusts may irritate the eyes. Breathing dust may irritate the nose and throat and cause coughing and chest discomfort. There are reports that relatively mild pneumoconiosis can develop after years of occupational exposure to mixed dusts containing talc. Prolonged inhalation may also produce a fibrotic response.

12. Ecological Information

Toxic to aquatic organisms. Should not be released to sewage system or other bodies of water at concentrations above limits established in regulations or permits.

13. Disposal Considerations

Recycle to process, if possible. Consult your local or regional authorities. Ignitable characteristic.

14. Transport Information

DOT UN1866; Resin Solution; 3; III.
TDG UN1866; Resin Solution; 3; III.
IATA/IMDG IATA: UN1866; Resin Solution; 3; III;
Pkg. Inst.: Passenger - 309; Cargo - 310
IMDG: UN1866; Resin Solution; 3; III;
FP=24.8° - 32°C; EmS No.: F-E, S-E

Additional Transportation Information: US regulations require the reporting of spills when the amount exceeds the Reportable Quantity (RQ) for specific components of this material. See CERCLA in Section 15, Regulatory Information, for the Reportable Quantities.

15. Regulatory Information

This section does not reference all applicable regulatory compliance lists.

TSCA: All ingredients are listed or compliant with TSCA.

DSL: All ingredients are listed or compliant with the NSNR.

Proposition 65 Warning: This product contains a chemical(s) known to the State of California to cause cancer, birth defects and/or reproductive harm.

SARA 302 component(s): None.

SARA 313 component(s): Styrene, Methyl Methacrylate, Cobalt Compounds.

CERCLA(RQ): Styrene - 1000 lbs. (453.6 kg)
Methyl Methacrylate - 1000 lbs. (453.6 kg)

16. Other Information

- Transportation of Dangerous Goods Act - "Regulations respecting the handling, offering for transport and transporting of dangerous goods." Extract from the Canada Gazette Part II
- Canada Gazette Part II, Hazardous Products Act "Ingredient Disclosure List".
- Manufacturer's Material Safety Data Sheet.
- 29 CFR 1910.1000, Z – Tables
- ACGIH 2000 TLVs for Chemical Substances and Physical Agents

Orca Guard Gel Coat

- Registry of Toxic Effects of Chemical Substances (RTECS)
- California Code of Regulation Proposition 65

Preparation Date: 2/09/11

Prepared by: Orca Composites

Comments: This Material Safety Data Sheet was prepared using information provided by Fiberlay Inc. and AOC, LLC.

Revisions: None