

ASHLAND

SAFETY DATA SHEET

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Revision Date: 02/26/2007

Print Date: 5/2/2007

MSDS Number: R0376303

Version: 1.4

ENGUARD ENGUARD™ GELCOAT
30797

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone number	1-800-ASHLAND (1-800-274-5263)

Product name	ENGUARD ENGUARD™ GELCOAT
Product code	30797
Product Use Description	No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, pungent

WARNING! Unstable Reactive. Flammable Liquid, Toxic by inhalation, Respiratory sensitizer, Moderate skin irritant, Moderate eye irritant, Carcinogen.

Potential Health Effects

Routes of exposure

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes. Additional symptoms of eye exposure may include: blurred vision

Skin contact

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Additional symptoms of skin contact may include: allergic skin reaction (delayed skin rash which may be followed by blistering, scaling and other skin effects) peeling of the skin Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use. Individuals with direct skin contact with methylmethacrylate have experienced temporary loss of feeling and mild nerve damage in the fingers.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get

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into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing of vapor or mist is possible. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.). Prolonged or repeated breathing of dust may result in progressive and permanent lung disease (fibrosis) which may cause death from respiratory and/or heart failure. Symptoms include coughing and difficult breathing which becomes worse with physical activity.

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: respiratory tract, skin, lung (for example, asthma-like conditions), liver, kidney, central nervous system, male reproductive system, auditory system

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: metallic taste, stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), cough, central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, irritability, effects on memory, loss of appetite, sleep disturbances, low blood pressure, chest pain, respiratory depression (slowing of the breathing rate), shortness of breath, loss of coordination, confusion, pain in the hands and feet, difficult breathing, kidney damage, liver damage, Exposure to this product (or a component) may cause an allergic reaction (narrowing of the air passages of the lungs resulting in difficult breathing, tightness in the chest, coughing and wheezing) in some sensitive individuals. Other symptoms of an allergic reaction may include itchy and watery eyes, runny and stuffy nose, sweating, flushing, hives, rapid heart rate, and lowered blood pressure.

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: effects on hearing, respiratory tract damage (nose, throat, and airways), testis damage, nasal damage, kidney damage, liver damage, Overexposure to this material (or its components) has been suggested as a cause of the following effects in humans: mild effects on color vision, effects on hearing, respiratory tract damage (nose, throat, and airways), central nervous system effects

Carcinogenicity

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Cobalt and certain cobalt compounds have been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. Cobalt and certain cobalt compounds are listed as carcinogenic by the International Agency for Research on Cancer (IARC)., There was no increase in cancer in rats exposed to styrene by inhalation. However, there was an increase in lung cancer in styrene-exposed mice. The relevance of the mouse lung cancer to humans is uncertain. Styrene did not cause cancer in mice in studies in which the chemical was placed in the stomachs through a feeding tube, or in a study in which styrene was given by injection. Epidemiological studies do not provide a basis for concluding that styrene causes cancer. Styrene is listed as a carcinogen by the International Agency for Research on Cancer (IARC)., This product may contain non-asbestiform talc. Inhalation of non-asbestiform talc has been shown to cause lung and adrenal cancer in female rats and adrenal gland cancer in male rats. It did not cause cancer in male or female mice similarly exposed. Talc is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA)., Animals inhaling massive quantities of titanium dioxide dust in a long-term study developed lung tumors. It did not cause cancer in laboratory animals in long-term feeding or injection studies. Studies with humans involved in the manufacture of this pigment indicate no increased risk of cancer from exposure. Titanium dioxide is classified as a carcinogen by the International Agency for Research on Cancer (IARC).

Reproductive hazard.

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

Other information

Styrene readily reacts with low concentrations of halogens (for example, fluorine, chlorine, bromine, or iodine) to form a tear-producing substance.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Concentration
STYRENE	100-42-5	>=30-<40%
PIGMENT	NJTS# 800986-5097P	>=20-<30%
TALC	14807-96-6	>=5-<10%
METHYLMETHACRYLATE	80-62-6	>=1.5-<5%
SILICA AMORPHOUS (SIO2)	7631-86-9	>=1-<1.5%
COBALT 2-ETHYLHEXANOATE	136-52-7	>=0.1-<0.5%

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Version: 1.4**4. FIRST AID MEASURES****Eyes**

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

Treatment: No information available.

5. FIRE-FIGHTING MEASURES**Suitable extinguishing media**

foam, water spray, carbon dioxide (CO₂), dry chemical

Hazardous combustion products

May form: carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons

Precautions for fire-fighting

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters,

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smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Polymerization will take place under fire conditions. If polymerization occurs in a closed container, there is a possibility it will rupture violently. Cool storage container with water, if exposed to fire.

Flammability Class for Flammable Liquids

Flammable Liquid Class IC

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

Environmental precautions

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

Methods for cleaning up

Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shoveled into containers.

7. HANDLING AND STORAGE**Handling**

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing impervious protective gloves. As with all products of this nature, good personal hygiene is essential. Hands and other exposed areas should be washed thoroughly with soap and water after contact, especially before eating and/or smoking. Regular laundering of contaminated clothing is essential to reduce indirect skin contact with this material. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be

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necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

Storage

Store in closed containers in a dry, well-ventilated area. Do not store near extreme heat, open flame, or sources of ignition.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

STYRENE		100-42-5	
ACGIH	time weighted average	20 ppm	
ACGIH	Short term exposure limit	40 ppm	
NIOSH	Recommended exposure limit (REL):	50 ppm	
NIOSH	Recommended exposure limit (REL):	215 mg/m3	
NIOSH	Short term exposure limit	100 ppm	
NIOSH	Short term exposure limit	425 mg/m3	
OSHA Z2	time weighted average	100 ppm	
OSHA Z2	Ceiling Limit Value:	200 ppm	
OSHA Z2	Maximum concentration:	600 ppm	
TITANIUM DIOXIDE (TiO2)		13463-67-7	
ACGIH	time weighted average	10 mg/m3	
OSHA Z1	Permissible exposure limit	15 mg/m3	Total dust.
OSHA Z1A	time weighted average	10 mg/m3	Total dust.
US CA OEL	Time Weighted Average (TWA)	5 mg/m3	Respirable fraction.
	Permissible Exposure Limit (PEL):		
US CA OEL	Time Weighted Average (TWA)	10 mg/m3	Total dust.
	Permissible Exposure Limit (PEL):		
TALC		14807-96-6	
ACGIH	time weighted average	2 mg/m3	Respirable fraction.
NIOSH	Recommended exposure limit (REL):	2 mg/m3	Respirable.
OSHA Z1A	time weighted average	2 mg/m3	Respirable dust.
Z3	time weighted average	0.1 mg/m3	Respirable.
Z3	time weighted average	0.3 mg/m3	Total dust.
US CA OEL	Time Weighted Average (TWA)	2 mg/m3	Respirable dust.
	Permissible Exposure Limit (PEL):		
METHYLMETHACRYLATE		80-62-6	
ACGIH	time weighted average	50 ppm	
ACGIH	Short term exposure limit	100 ppm	
NIOSH	Recommended exposure limit (REL):	100 ppm	

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NIOSH	Recommended exposure limit (REL):	410 mg/m3	
OSHA Z1	Permissible exposure limit	100 ppm	
OSHA Z1	Permissible exposure limit	410 mg/m3	
SILICA AMORPHOUS (SIO2)		7631-86-9	
NIOSH	Recommended exposure limit (REL):	6 mg/m3	
ACGIH	time weighted average	10 mg/m3	
OSHA Z1A	time weighted average	6 mg/m3	
US CA OEL	Time Weighted Average (TWA)	5 mg/m3	Respirable fraction.
	Permissible Exposure Limit (PEL):		
US CA OEL	Time Weighted Average (TWA)	5 mg/m3	Respirable fraction.
	Permissible Exposure Limit (PEL):		
US CA OEL	Time Weighted Average (TWA)	10 mg/m3	Total dust.
	Permissible Exposure Limit (PEL):		
US CA OEL	Time Weighted Average (TWA)	10 mg/m3	Total dust.
	Permissible Exposure Limit (PEL):		
US CA OEL	Time Weighted Average (TWA)	5 mg/m3	Respirable fraction.
	Permissible Exposure Limit (PEL):		
US CA OEL	Time Weighted Average (TWA)	10 mg/m3	Total dust.
	Permissible Exposure Limit (PEL):		
Z3	time weighted average	0.8 mg/m3	

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s). OSHA has formally endorsed a styrene industry proposal for a voluntary 50 ppm workplace limit on styrene. Members of the Styrene Information and Research Council (SIRC), Composites Institute (CI), Composite Fabricators Association (CFA), International Cast Polymers Association (ICPA) and National Marine Manufacturers Association (NMMA) have agreed to use either engineering controls, work practices or respiratory protection to achieve this voluntary limit for styrene.

Eye protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

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Skin and body protection

To prevent repeated or prolonged skin contact, wear impervious clothing and boots.

Wear normal work clothing covering arms and legs.

Respiratory protection

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH-approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	Viscous liquid,
Colour	No data
Odour	pungent
Boiling point/range	212.9 °F / 100.5 °C @ 101.32 kPa
pH	No data
Flash point	79.0 °F / 26.1 °C Seta closed cup
Evaporation rate	1 Ethyl Ether
Explosion limits	1.1 %(V) 12.5 %(V)
Vapour pressure	5.132 kPa @ 77 °F / 25 °C
Vapour density	1
Density	1.078 g/cm ³ @ 77 °F / 25 °C > 8.3 lb/gal @ 77.00 °F / 25.00 °C
Solubility	insoluble in water
Partition coefficient (n-octanol/water)	No data
Autoignition temperature	No data

10. STABILITY AND REACTIVITY

Stability

This material is unstable at elevated temperatures and pressures.

Conditions to avoid

None known.

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Incompatible products

Avoid contact with:, acids, aluminum chloride, amines, halogenated hydrocarbons, halogens, iron chloride, lithium, metal salts, peroxides, strong alkalis, strong oxidizing agents, UV light

Hazardous decomposition products

May form:, carbon dioxide and carbon monoxide, toxic fumes, various hydrocarbons

Hazardous reactions

Product can undergo hazardous polymerization., Avoid exposure to excessive heat, peroxides and polymerization catalysts.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

STYRENE	LD 50 Rat: 2,650 mg/kg
PIGMENT	LD 50 Rat: 24,000 mg/kg
METHYLMETHACRYLATE	LD 50 Rat: 7,800 mg/kg
SILICA AMORPHOUS (SIO2)	LD 50 Rat: 10,000 mg/kg

Acute inhalation toxicity

STYRENE	LC 50 Rat: 2800 ppm, 4 h
METHYLMETHACRYLATE	LC 50 Rat: 3750 ppm, 8 h
SILICA AMORPHOUS (SIO2)	LC 50 Rat: 0.139 mg/l, 4 h

Acute dermal toxicity

PIGMENT	LD 50 Rabbit: 10,000 mg/kg
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SILICA AMORPHOUS (SIO2)

LD 50 Rabbit: 5,000 mg/kg

12. ECOLOGICAL INFORMATION**Aquatic toxicity****Acute and Prolonged Toxicity to Fish**

No data

Acute Toxicity to Aquatic Invertebrates

No data

Environmental fate and pathways

No data

13. DISPOSAL CONSIDERATIONS**Waste disposal methods**

No data

14. TRANSPORT INFORMATION**IMDG:**

UN1866, RESIN SOLUTION 3, III

IATA_P:

UN1866, Resin solution 3, III

IATA_C:

UN1866, Resin solution 3, III

CFR_ROAD:

UN1866, Resin solution 3, III

CFR_RAIL:

UN1866, Resin solution 3, III

CFR_INWTR:

UN1866, Resin solution 3, III

IMDG_INWTR:

UN1866, RESIN SOLUTION 3, III

IMDG_ROAD:

UN1866, RESIN SOLUTION 3, III

IMDG_RAIL:

UN1866, RESIN SOLUTION 3, III

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	Health	Flammability	Reactivity	Other
HMIS	2*	3	2	
NFPA	2	3	2	

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).