

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: QUANTUM⁹⁹ POLYURETHANE TOPCOAT BASE (ALL COLORS) Product Code: 99-BA1 SERIES

MANUFACTURER:
Engineered Marine Coatings, Inc.

EMERGENCY PHONE: 1-800-255-3924 (CHEMTEL)

MANUFACTURING ADDRESS:
4120 Hyde Park Blvd.
Niagara Falls, NY 14305

INFORMATION PHONE: 1-855-54GENIUS

CORPORATE ADDRESS:
PO Box 921
Isle of Palms, SC 29451

Product Use: FOR PROFESSIONAL USE ONLY
Not recommended for:

2. HAZARD(S) IDENTIFICATION

GHS Ratings:

Flammable liquid	3	Flash point $\geq 23^{\circ}\text{C}$ and $\leq 60^{\circ}\text{C}$ (140°F)
Inhalation Toxicity	Acute Tox. 2	Gases >100 and ≤ 500 ppm, Vapors >0.5 and ≤ 2 mg/l, Dusts mists >0.05 and ≤ 0.5 mg/l
Carcinogen	2	Limited evidence of human or animal carcinogenicity

GHS Hazards

H226	Flammable liquid and vapor
H330	Fatal if inhaled
H351	Suspected of causing cancer

GHS Precautions

P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood
P210	Keep away from heat/sparks/open flames/hot surfaces - No smoking
P233	Keep container tightly closed
P240	Ground/bond container and receiving equipment
P241	Use explosion-proof electrical/ventilating/light/.../equipment
P242	Use only non-sparking tools
P243	Take precautionary measures against static discharge
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/protective clothing/eye protection/face protection
P281	Use personal protective equipment as required
P284	Wear respiratory protection
P310	Immediately call a POISON CENTER or doctor/physician
P320	Specific treatment is urgent (see ... on this label)
P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P308+P313	IF exposed or concerned: Get medical advice/attention
P370+P378	In case of fire: Use ... for extinction

P405
P403+P233
P403+P235
P501

Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in a well-ventilated place. Keep cool
Dispose of contents/container to ...

Signal Word: **Danger**



3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS number	Weight Concentration %
Methyl n-amyl ketone	110-43-0	10.00% - 20.00%
Propylene Glycol Monomethyl Ether Acetate	108-65-6	5.00% - 10.00%
Methyl Isobutyl Ketone	108-10-1	1.00% - 5.00%
Butyl Acetate	123-86-4	1.00% - 5.00%
Ethylbenzene	100-41-4	0.10% - 1.00%

4. FIRST AID MEASURES

INHALATION:

Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthmatic-type systems may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic. Consult a physician.

EYES:

Flush with clean, lukewarm water (low pressure) for at least 15 minutes, while lifting eyelids. Refer individual to physician or ophthalmologist for immediate follow-up.

SKIN:

First aid for skin: Remove contaminated clothing immediately. Wash affected areas thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse. For severe exposures, get under safety shower after removing clothing, then get medical attention. Seek medical attention if irritation develops or persists.

INGESTION:

DO NOT INDUCE VOMITING. Give 1 to 2 cups of mil or water to drink. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSING PERSON. Consult physician immediately.

5. FIRE FIGHTING MEASURES

Flash Point: 27 C (81 F)

LEL: 1.00

UEL: 8.00

EXTINGUISHING MEDIA:

Use water spray to cool fire exposed surfaces and to protect personnel. Isolate "fuel" supply from fire. Use foam, dry chemical, carbon dioxide, or water spray as last option. Avoid spraying water directly into storage containers due to the danger of boil over.

HAZARDOUS COMBUSTION PRODUCTS:

Fires involving this product may release fumes, smoke, carbon dioxide, carbon monoxide, and irritating vapors.

FIRE FIGHTING INSTRUCTIONS:

Wear self-contained breathing apparatus and protective clothing. Use water spray to keep fire-exposed containers cool. Water may be ineffective in fighting fire. Vapors may cause a flash fire or ignite explosively. Either the liquid or vapor may settle in low areas or travel some distance along the ground or surface to ignition sources where they may ignite or explode.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL:

Eliminate all ignition sources. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste.

LARGE SPILL:

Evacuate all non-essential personnel. Remove all sources of ignition. Ventilate the area. Equip employees with appropriate protection equipment. Dike around spilled material. Cover spill with inert absorbent material and shovel with non-sparking tools into container. Remove containers to a safe area and seal. Waste material must be disposed of in accordance with federal, state, and local environmental regulatory controls.

7. HANDLING AND STORAGE

HANDLING:

Ground lines and equipment during transfer to reduce the possibility of static spark-initiated fire or explosion. Use non-sparking tools. Do not cut, grind, drill, weld, or reuse containers unless adequate precautions are taken against these hazards. Do not eat, drink, or smoke in areas of use or storage.

STORAGE:

Protect against physical damage. Store in a cool dry place. Outside or detached storage preferred. Inside storage should be in a standard flammable liquid storage room or cabinet. All equipment should be grounded and bonded to reduce static electricity hazard. Use non-sparking tools. Do not reuse empty product container for any purpose.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name / CAS No.	OSHA Exposure Limits	ACGIH Exposure Limits	Other Exposure Limits
Methyl n-amyl ketone 110-43-0	PEL 100 ppm 465 mg/m ³ US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)	TWA 50 ppm US. ACGIH Threshold Limit Values (01 2010)	Not Established
Propylene Glycol Monomethyl Ether Acetate 108-65-6	OSHA PEL Not Available	ACGIH TLV Not Available	TWA 50 ppm USA. Workplace Environmental Exposure Levels (WEEL)

Methyl Isobutyl Ketone 108-10-1	The OSHA TWA is 100 ppm (410 mg/m3).	NIOSH and ACGIH recommend a TWA of 50 ppm (205 mg/m3) and STEL of 75 ppm (300 mg/m3).	Not Established
Butyl Acetate 123-86-4	TWA 150 ppm 710 mg/m3 USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000	n-Butyl and isobutyl acetates have a Federal and ACGIH limit of 150 ppm (710 mg/m3) TWA. sec-butyl and tert-butyl have a Federal and ACGIH limit of 200 ppm (950 mg/m3) TWA.	Not Established
Ethylbenzene 100-41-4	100 ppm TWA 125 ppm STE	100 ppm TWA 125 ppm STEL	The NIOSH IDLH level is 800 ppm of 0.02 mg/m3 on either a momentary or a daily average basis.

Ventilation:

Good general ventilation (typically 10 air changes per hour) should be used to keep vapor levels below the limits in Section 2 and lower explosive limit in Section 5. Ventilation rates should be matched to conditions. Use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

Respiratory Protections:

Respirator Requirements - A respirator that is recommended or approved for use in isocyanate containing environments (air purifying or fresh air supplied) may be necessary for spray applications or other situations such as high temperature use. This may cause inhalation exposures. A supplied air respirator (either positive pressure or continuous flow type) is recommended before an air-purifying respirator can be used. Air monitoring must be performed to measure airborne concentrations of HDI monomer, HDI polyisocyanate and organic solvents. See the outline below for the specific conditions under which air-purifying respirators can be used. Observe OSHA regulations for respirator use (29 CFR 1910.134)

Spray Application:

A. Good industrial hygiene practice dictates that when isocyanate based coatings are spray applied, some form of respiratory protection should be worn. During the spray application of organic solvent containing coatings systems, the use of a supplied-air (either positive pressure or continuous flow type) respirator is mandatory when one or more the following conditions exists:
The airborne isocyanate concentrations are not known; or
-the airborne isocyanate monomer concentrations exceed 0.05 ppm (10 times TLV); or
-The airborne polyisocyanate (polymer, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or mg/m3 averaged over 15 minutes (10 times the mg/l);or
-No airborne solvent concentration exceeds its odor threshold; or
-Spraying is performed in a confined space (See OSHA Confined Space Standard 29 CFR 1910.146).

A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray painting environments, and used in accordance with all recommendations made by the manufacturer, can be used when all of the following conditions are met:

- The airborne isocyanate monomer concentrations are known to be below 0.05 ppm (10 times the TLV); and
- The airborne polyisocyanate (polymer, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or mg/m3 average over 15 minutes (10 times the mg/l);and
- At least one solvent has a published odor threshold; and
- At least one airborne solvent concentration exceeds its odor threshold and that solvent's odor is lower than its TLV.

B. During the spray application of a coating system not contain organ solvents a supplied-air (either positive pressure or continuous flow type) respirator is mandatory when one or more of the following conditions exist:

- The airborne isocyanate concentrations are not known; or
- The airborne polyisocyanate (polymer, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or mg/m3 average over 15 minutes (10 times the mg/l);and
- Spraying is performed in a confined space (See OSHA Confined Space Standard 29 CFR 1910.146).

Under any other circumstances, during spray application of a coating system not containing organic solvents, good industrial hygiene practice dictates that when isocyanate based coatings are spray applied at least an air purifying respirator should be worn.

Non-Spray Operations:

A. During non-spray operations such as mixing, batch making, brush or roller applications, etc. at elevated temperatures (for example, heating of a material or application to a hot substrate), it is possible to be exposed to airborne isocyanate vapors. Therefore, when the coatings system contains solvents and will be applied in a non-spray manner, a supplied-air (either positive pressure or continuous flow type) respirator is mandatory using the guidelines in the previous section for spray applications.

Contaminated Gear:

Promptly remove clothing that becomes contaminated. Provide readily accessible eye wash stations and safety showers. Wash at the end of each work shift and before eating, smoking or using the toilet.

9. PHYSICAL AND CHEMICAL PROPERTIES

This mixture typically exhibits the following properties under normal circumstances:

<p>Appearance: Opaque Liquid</p> <p>Vapor Pressure: 3.6 hPa at 160C</p> <p>Vapor Density: 4.1</p> <p>Specific Gravity: 1.331191449</p> <p>Freezing point: No Data</p> <p>Boiling range: No Data</p> <p>Evaporation rate: No Data</p> <p>Explosive Limits: 1% - 8%</p> <p>Autoignition temperature: No Data</p> <p>Coating VOC (lbs/gal) 3.46</p>	<p>Odor: Solvent</p> <p>Odor threshold: No Data</p> <p>pH: No Data</p> <p>Melting point: No Data</p> <p>Solubility: No Data</p> <p>Flash point: 81 F, 27 C</p> <p>Flammability: Flammable Liquid, Class 2</p> <p>Partition coefficient (n-octanol/water): No Data</p> <p>Decomposition temperature: No Data</p>
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10. REACTIVITY AND STABILITY

STABLE

Incompatibility:

May form explosive peroxides
Strong oxidizing agents

Hazardous Decomposition:

May form: carbon dioxide and carbon monoxide
Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Mixture Toxicity

Inhalation Toxicity LC50: 1mg/L

Component Toxicity

- 108-65-6 Propylene Glycol Monomethyl Ether Acetate
Dermal LD50: 5,000 mg/kg (RABBIT)
- 108-10-1 Methyl Isobutyl Ketone
Oral LD50: 2,080 mg/kg (RAT) Inhalation LC50: 16 mg/m3 (RAT)
- 123-86-4 Butyl Acetate
Inhalation LC50: 21 mg/L (RAT)

N/A

ROUTES OF ENTRY:

Inhalation Skin Contact Eye Contact Ingestion

Exposure to this material may affect the following organs:

Effects of Overexposure

Short Term Exposure

The substance irritates the eyes, skin, and respiratory tract. High exposures, above the occupational exposure levels, can cause weakness, headache, and drowsiness and may cause unconsciousness. Ethyl benzene irritates the eyes, skin, and respiratory tract. Exposure to high concentrations can cause dizziness, lightheadedness and unconsciousness. Very high exposures (above the OEL) can cause difficult breathing, narcosis, coma, and even death. Swallowing the liquid may cause aspiration into the lungs, resulting in chemical pneumonitis. May affect the central nervous system. Concentration of 200 ppm can cause irritation. Methyl isobutyl ketone can affect you when breathed in. Exposure to high concentrations can cause you to feel dizzy and lightheaded and to pass out. Breathing the vapor may cause loss of appetite, nausea, vomiting, and diarrhea. Contact or the vapor can irritate the eyes, nose, mouth, throat. Contact can irritate the skin. Ingestion chemical pneumonitis.

Long Term Exposure

n-Butyl acetate may cause skin allergy. n-Butyl acetate has been shown to damage the developing fetus in animals. Prolonged and repeated exposure to butyl acetates can cause defatting, drying and cracking of the skin. Although many solvents and petroleum based products cause lung, brain and nerve damage, these chemicals have not been adequately evaluated to determine these effects. Repeated or prolonged exposure to the skin may cause drying, scaling and blistering. May cause kidney disease, liver disease, chronic respiratory disease, skin disease, as follows: EB is not nephrotoxic. Concern is expressed because the kidney is the primary route of excretion of EB and its metabolites. EB is not hepatotoxic. Since EB is metabolized by the liver, concern is expressed for these tissues. Exacerbation of pulmonary pathology might occur following exposure to EB. Individuals with impaired pulmonary function might be at risk. EB is a defatting agent and may cause dermatitis following prolonged exposure. Individuals with preexisting skin problems may be more sensitive to EB. There is limited evidence that EB may damage the developing fetus, and may cause mutations. Long-term exposure may damage the liver and kidneys. Repeated or prolonged contact with skin may cause drying and cracking.

<u>CAS Number</u>	<u>Description</u>	<u>% Weight</u>	<u>Carcinogen Rating</u>
100-41-4	Ethylbenzene	0.1 to	California Proposition 65 The IARC has classified ethylbenzene as a possible carcinogen.

12. ECOLOGICAL INFORMATION

This section will be updated as ecological reviews are complete.

Component Ecotoxicity

13. DISPOSAL CONSIDERATIONS

Waste material must be disposed of in accordance with all federal, state, and local environmental regulatory controls. Chemical additions, processing, or otherwise altering this material may make the waste management information presented in this SDS incomplete, inaccurate, or otherwise inappropriate.

14. TRANSPORT

<u>Agency</u>	<u>Proper Shipping Name</u>	<u>UN Number</u>	<u>Packing Group</u>	<u>Hazard Class</u>
DOT	PAINT	1263	III	3

15. REGULATORY INFORMATION

The regulatory information provided is not meant to be comprehensive. Other federal, state, and local regulation applies to this material.

Country

Regulation

All Components Listed

EU Risk Phrases

Safety Phrase

- None

16. OTHER INFORMATION

Hazardous Material Information System (HMIS)

HEALTH	*	2
FLAMMABILITY		3
PHYSICAL HAZARD		0
PERSONAL PROTECTION		G

HMIS & NFPA Hazard Rating Legend
* = Chronic Health Hazard
0 = INSIGNIFICANT
1 = SLIGHT
2 = MODERATE
3 = HIGH

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Reviewer Revision

ENGINEERED MARINE COATINGS