



Safety Data Sheet

Revision date: 06/25/2021

Date of issue: 04/15/2020

Version 4.0

Section 1 - Chemical Product and Company Identification

1.1 Product/Chemical Name:

Product Form: Mixture
 Product Name: SLIPS® Dolphin™ Part B
 Product Code: N/A
 Formula: Mixture
 Synonyms: SLIPS® Marine Paint, SLIPS® Bottom Paint, Dolphin Paint
 Chemical Family: Unspecified

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of substance/mixture Use for creating anti-fouling lubricious surface. For professional use only.

1.3 Details of the supplier of the safety data sheet

Adaptive Surface Technologies,
 85 Bolton St
 Cambridge MA, 02140
 USA
 Phone (617) 360-7080
info@adaptivesurface.tech

1.4 Emergency telephone number

Emergency Number: INFOTRAC – 24/7 Emergency Response for Incidents During Transport
 1-800-535-5053 (Inside U.S.) 1-352-323-3500 (Outside U.S.)

Section 2 - Hazards Identification

2.1 Classification of the substance or mixture

Classification (GHS-US)

Flammable Liquid Category 3 (H226)
 Eye Irritation Category 2A (H319)
 Skin Sensitizer Category 1 (H317)
 Germ Cell Mutagen Category 2 (H341)
 Reproductive Toxicity Category 1B (H360)
 Specific Target Organ Toxicity Single Exposure Category 1 (H370)
 Specific Target Organ Toxicity Repeated Exposure Category 1 (H372)
 Aquatic Chronic Toxicity Category 2 (H411)

Full text of H-phrases: see section 16

2.2 Label elements**CLP (EC No. 1272/2008)-GHS-US labeling**

Hazard Pictograms (GHS-US)



Signal word (GHS-US)

Danger

Hazard statements (GHS-US)

H226-Flammable liquid and vapor

H317-May cause an allergic skin reaction

H319-Causes serious eye irritation.

H341-Suspected of causing genetic defects

H360-May damage fertility or the unborn child

H370-Causes damage to thymus.

H372 Causes damage to thymus through prolonged or repeated exposure.

H411-Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :

P201-Obtain special instructions before use

P202- Do not handle until all safety precautions have been read and understood

P210-Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment

P241 Use explosion-proof electrical, ventilating and lighting equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P260-Do not breathe mists, vapors or spray.

P264 - Wash hands, forearms, and exposed areas thoroughly after handling

P270-Do not eat, drink or smoke when using this product

P272-Contaminated work clothing must not be allowed out of the workplace

P273-Avoid release to the environment

P280 - Wear eye protection, protective clothing, protective gloves.

P303+P361+P353-IF ON SKIN(or hair): Remove immediately all contaminated clothing. Rinse skin with shower.

P333+P313-If skin irritation or rash occurs: Get medical attention.

P363 Wash contaminated clothing before reuse

P305+P351+P338- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical attention.

P308 + P313 IF exposed or concerned: Get medical advice.

P370 + P378 In case of fire: Use water spray, alcohol-resistant foams, dry chemicals or carbon dioxide to extinguish

P391 Collect spillage.
 P405-Store locked up
 P403 + P235 Store in a well-ventilated place. Keep cool
 P501- Dispose of contents and container to an approved waste disposal plant

2.3 Other Hazards

The hydrolysis of a component in this mixture is ethanol. Overexposure to ethanol by skin absorption, inhalation or ingestion may have a narcotic effect (headache, nausea, drowsiness).

Section 3 - Composition / Information on Ingredients

3.1 Substance

Not applicable

3.2 Mixture

Name	Product Identifier	%	Classification (GHS-US)
Silicic acid, tetraethyl ester, hydrolyzed	(CAS No) 68412-37-3	40-60%	Eye Irrit 2A, H319 Flam Liq 4, H227
Acetylacetone	(CAS) 123-54-6	5-10%	Flam. Liq. 3, H226 Acute Tox. 4 (oral), H302 Acute Tox. 3 (dermal, inh), H311 + H331
Ethanol (hydrolysis product)	(CAS No) 64-17-5	Varies	Flam Liq 2, H225 Eye Irrit 2A, H319
Dibutyltin dilaurate	(CAS No) 77-58-7	3-4%	Eye Irrit 2A, H319 Skin Sens. 1, H317 Muta. 2, H341 Repro 1B, H360 STOT SE 1, H370 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Ethyl silicate	(CAS No) 78-10-4	<3%	Flam Liq 3, H226 Acute Tox inh 4, H332 Eye Irrit 2A, H319 STOT SE 3, H335
Octamethylcyclotetrasiloxane	(CAS) 556-67-2	<2%	Flam. Liq 3, H226 Repro 2, H361 Aquatic Chronic 4 H413

Full text of H-phrases: see section 16

Section 4 - First Aid Measures

4.1 Description of first aid measures

First-aid measures general

Remove contaminated clothing and shoes. Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation	Remove to fresh air and keep at rest in a position comfortable for breathing. Obtain medical attention if breathing difficulty persists.
First-aid measures after skin contact	Rinse immediately with plenty of soap and water. Obtain medical attention if irritation develops or persists.
First-aid measures after eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.
First-aid measures after ingestion	Do not induce vomiting. Rinse mouth. Call a POISON CENTER or doctor.
4.1 Most important symptoms and effects, both acute and delayed	
Symptoms/injuries	Causes serious eye irritation.
Symptoms/injuries after inhalation	May cause respiratory irritation.
Symptoms/injuries after skin contact	May cause mild skin irritation.
Symptoms/injuries after eye contact	Causes serious eye irritation. Symptoms may include: redness, pain, swelling, itching, burning, tearing, and blurred vision.
Symptoms/injuries after ingestion	Ingestion may cause gastrointestinal irritation and other adverse effects.
Chronic symptoms	Exposure may cause damage to the thymus. Contains a chemical that may adversely affect reproduction and is suspected to cause genetic effects.
4.3. Indication of any immediate medical attention and special treatment needed	
Immediate medical attention is generally not required. If medical advice is needed, have product container or label at hand.	
Section 5 - Fire-Fighting Measures	
5.1 Extinguishing media	
Suitable extinguishing media	Use water spray, alcohol-resistant foams, dry chemicals or carbon dioxide
Unsuitable extinguishing media	Do not use a heavy water stream. Application of water stream to hot product may cause frothing and increase fire intensity.
5.2 Special hazards arising from the substance or mixture	
Fire hazard:	Flammable liquid and vapor. Vapors will collect in low and confined areas and may travel along surfaces to remote ignition sources and flash back. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
Reactivity:	Hazardous reactions will not occur under normal conditions
5.3 Advice for firefighters	
Precautionary measures fire	Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

Firefighting instructions	Use water spray or fog for cooling exposed containers. Do not allow run-off from firefighting to enter drains or water courses.
Protection during firefighting	Do not enter fire area without proper protective equipment, including respiratory protection. Wear self-contained breathing apparatus for firefighting if necessary.
Other information	Refer to Section 9 for flammability properties
Section 6 - Accidental Release Measures	
6.1 Personal precautions, protective equipment and emergency procedures	
General measures	Remove ignition sources. Use special care to avoid static electric charges. Avoid all contact with skin, eyes, or clothing. Use special care. Do not breathe vapor, mist or spray. For personal protection, see section 8.
6.1.1 For non-emergency personnel	
Protective equipment	Use appropriate personal protection equipment (PPE).
Emergency procedures	Evacuate personnel to safe areas.
6.1.2 For emergency responders	
Protective equipment	Equip cleanup crew with proper protection.
Emergency procedures	Stop leak if safe to do so. Ventilate area.
6.2 Environmental precautions	
Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Discharge into the environment must be avoided.	
6.3 Methods and material for containment and cleaning up	
For containment	Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Keep in suitable, closed containers for disposal.
Methods for cleaning up	Absorb and/or contain spill with inert material, then place in suitable container. Clear up spills immediately and dispose of waste safely. Use only non-sparking tools.
6.4. Reference to other sections	
See Heading 8. Exposure controls and personal protection.	
Section 7 - Handling and Storage	
7.1. Precautions for safe handling	
Additional hazards when processed	Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained.
Hygiene measures	Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	Ground and bond container and receiving equipment. Proper grounding procedures to avoid static electricity should be followed. Comply with applicable regulations.
Storage conditions	Store in a dry, cool and well-ventilated place. Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store away from heat.
Incompatible products	Strong acids, strong bases, strong oxidizers, moist air, water, store away from heat.

7.3. Specific end use(s)

Use for creating anti-fouling lubricious surface. For professional use only.

Section 8 - Exposure Controls / Personal Protection

8.1 Control parameters

Components not listed have no Occupational Exposure Limits

Component	CAS-No.	Value	Control Parameters	Basis
Ethyl silicate	78-10-4	IDLH	700 ppm	USA IDLH
		TWA	10 ppm	USA ACGIH TLV
		TWA	10 ppm	USA NIOSH REL
		TWA	100 ppm	USA OSHA PEL
Ethanol (hydrolysis product)	64-17-5	IDLH	3300 ppm (10%LEL)	USA IDLH
		STEL	1000 ppm	USA ACGIH TLV
		TWA	1000 ppm	USA NIOSH REL
		TWA	1000 ppm	USA OSHA PEL
Acetylacetone (2,4-pentanedione)	123-54-6	TWA	25 ppm skin	USA ACGIH TLV
Dibutyltin dilaurate (as organic tin)	77-58-7	TWA	0.1 mg/m ³	USA OSHA PEL
		TWA	0.1 mg/m ³ skin	USA ACGIH TLV
		STEL	0.2 mg/m ³ skin	USA ACGIH TLV
		TWA	0.1 mg/m ³ skin	USA NIOSH REL
Octamethylcyclotetrasiloxane	556-67-2	TWA	10 ppm	USA OARS WEEL

8.2 Exposure controls

Appropriate engineering controls	Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.
Personal protective equipment	
Hand protection	Wear protective gloves. Inspect before each use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash & dry hands after use. Recommended neoprene or nitrile for glove material for short term exposure (≤ 30 min).
Eye protection	Tightly fitting chemical goggles or safety glasses. Use equipment for eye protection tests and approved under appropriate government standards such as NIOSH (US).
Skin and body protection	Wear suitable protective clothing. Wash contaminated clothing before reuse.
Respiratory protection	Use a NIOSH-approved organic vapor (black cartridge) respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

Section 9 - Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	clear, light yellow tint
Odor	Mild
Odor threshold	No data available
pH	No data available
Evaporation Rate	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	$\geq 136^{\circ}\text{C}$ (277°F)
Flash point	38°C (100°F)
Auto-ignition Temperature	No data available)
Decomposition temperature	No data available
Flammability (solid, gas)	Flammable liquid and vapor
Vapor pressure	No data available
Relative vapor density at 20 °C	No data available
Relative density	1.04 g/mL @ 20C
Solubility	Insoluble with water. Reacts with water.
Partition coefficient: n-octanol/water	No data available
Viscosity	No data available

9.2 Other information

VOC content	No data available
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Section 10 - Stability and Reactivity

10.1 Reactivity

Hazardous reactions will not occur under normal conditions.

10.2 Chemical stability

Stable at standard temperature and pressure.

10.3 Possibility of hazardous reactions

Some materials in this mixture decomposes slowly when in contact with moist air or water, generating ethanol.

10.4 Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Incompatible materials. Heat. Open flames. Sparks.

10.5 Incompatible materials

Strong acids. Strong bases. Strong oxidizers.

10.6 Hazardous decomposition products

Ethanol. Organic acid vapors. Silicon dioxide. Silicon oxides. Carbon oxides (CO, CO₂). Tin/tin oxides.

Section 11- Toxicological Information

11.1 Information on toxicological effects



Acute toxicity Not classified
ATE Oral >2000 mg/kg; Inhalation >20 mg/L; Dermal >2000 mg/kg

Ethyl polysilicate (68412-37-3)	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rat	> 4450 mg/kg
Ethyl silicate (78-10-4)	
LD50 oral rat	6270 mg/kg
LCLo inhalation rat	10 mg/L/4h (as aerosol)
Ethanol (64-17-5)	
LC50 inhalation rat (mg/l)	124.7 mg/l/4h
Dibutyltin dilaurate (77-58-7)	
LD50 oral rat	2071 mg/kg
LD50 dermal rat	> 2000 mg/kg
Acetylacetone (123-54-6)	
LD50 oral rat	570-760 mg/kg
LD50 dermal rabbit	790-1370 mg/kg
LC50 inhalation rat	5.1 mg/L/4 h (as vapor)

Skin corrosion/irritation	Not classified as a skin irritant.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitization	May cause skin sensitization.
Germ cell mutagenicity	Suspected of causing genetic defects.




Dibutyltin dilaurate (77-58-7)	
In vitro tests showed mutagenic effects	Not mutagenic in Ames Test. Positive results were obtained in some in vitro tests.

Carcinogenicity	Not classified
Reproductive toxicity	May damage fertility or the unborn child. Contains Octamethylcyclotetrasiloxane which is suspected of damaging fertility based on animal data.
Dibutyltin dilaurate (77-58-7)	
Presumed human reproductive toxicant	Developmental toxicity-rat-oral: Specific developmental abnormalities: Craniofacial (including nose and tongue), musculoskeletal system
Specific target organ toxicity (single exposure)	Classified
Dibutyltin dilaurate (77-58-7)	
Causes damage to organs	Target organ-Thymus
Specific target organ toxicity (repeated exposure)	Classified
Dibutyltin dilaurate (77-58-7)	
Causes damage to organs through prolonged or repeated exposure	Target organ-Thymus
Aspiration hazard	Not classified
Symptoms/injuries after inhalation	May cause respiratory irritation.
Symptoms/injuries after skin contact	May cause mild skin irritation.
Symptoms/injuries after eye contact	Causes serious eye irritation. Symptoms may include: redness, pain, swelling, itching, burning, tearing, and blurred vision.
Symptoms/injuries after ingestion	Ingestion may cause gastrointestinal irritation and other adverse effects.
Chronic symptoms	Exposure may cause damage to the thymus. Contains a chemical that may adversely affect reproduction and is suspected to cause genetic effects.
Section 12 - Ecological Information	
12.1 Toxicity	
Ethyl polysilicate (68412-37-3)	
EC50 Daphnia 1	>193 mg/l (Exposure time: 48 h- Species: Daphnia magna)
Ethanol (64-17-5)	
LC50 fish 1	12.0-16.0 ml/l(exposure time: 96 h- Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	9268-14221 mg/l (Exposure time: 48h- Species: Daphnia magna)
LC50 fish 2	>100mg/l (Exposure time: 96 h- Species: Pimephales promelas [static])
EC50 Daphnia 2	2mg/l (Exposure time: 48 h- Species: Daphnia magna [static])

Dibutyltin dilaurate (77-58-7)						
EC50 Daphnia	<0.46 mg/l (Exposure time: 48 h- Species: Daphnia magna)					
Acetylacetone (123-54-6)						
EC50 Daphnia	40 mg/l (Exposure time: 48 h- Species: Daphnia magna)					
LC50 fish	106 mg/L/96 hr					
No additional information available						
12.2 Persistence and degradability						
No additional information available						
12.3 Bioaccumulative potential						
Ethanol (64-17-5)						
Log Pow	-0.32					
12.4 Mobility in soil						
No additional information available						
12.5 Other adverse effects						
Other information	Avoid release to the environment. Harmful to aquatic life with long lasting effects.					
Section 13 – Disposal considerations						
13.1 Waste treatment methods						
Waste disposal recommendations	Incinerate. Dispose of waste material in accordance with all local, regional, national, and international regulations.					
Ecology-waste materials	Avoid release to the environment					
Section 14 – Transport information						
In accordance with DOT / IMDG / IATA						
	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Transport Hazard Class(es)	14.4 Packing Group	14.5 Environmental Hazards	Additional info
DOT (US)	UN1263	PAINT	3. Flammable liquids  	III	Yes Marine Pollutant (dibutyltin dilaurate)	The environmentally hazardous substance mark is not required when transported in sizes of <5 L or <5kg and on non-bulk packages unless transported by vessel

Safety Data Sheet

According to 29CFR1910.1200-2012 and EC No. 1907/2006 (REACH) (as amended)

IMDG	UN1263	PAINT	3. Flammable liquids  	III	Yes Marine Pollutant (dibutyltin dilaurate)	
IATA	UN1263	PAINT	3. Flammable liquids 	III	Yes	

Transport by sea

No additional information available

Air transport

No additional information available

Section 15 – Regulatory information

15.1 US Federal regulations

US Federal regulations

TSCA: All components of this formulation are listed in the TSCA Inventory (40 CFR710). This product is subject to export notification.

EPA SARA 302: This product does not contain chemicals regulated under SARA Section 302.

EPA SARA 311 HAZARD CLASSIFICATION: Refer to Section 2 for the OSHA Hazard Classification.

EPA SARA 313: This product contains the following chemicals that are regulated under SARA Title III, section 313: None

US State regulations

This product is not known to contain chemicals regulated under California Proposition 65.

Dibutyltin dilaurate (77-58-7)	
Pennsylvania Right to Know Components	Revision Date 1993-02-16
New Jersey Right to Know Components	Revision Date 1993-02-16
Acetylacetone (123-54-6)	

Pennsylvania Right to Know Components	Revision Date 1993-02-16
New Jersey Right to Know Components	Revision Date 1993-02-16

Section 16 – Other information

Revision date 06/25/2021
 Other information This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Full text of H-phrases

Acute Tox inh	Acute inhalation toxicity
Aquatic Acute	Acute Aquatic toxicity
Aquatic Chronic	Chronic Aquatic toxicity
Eye Irrit	Eye Irritation
Flam Liq	Flammable liquid
Muta	Germ Cell Mutagen
Repro	Reproductive Toxicity
Skin Corr	Skin Corrosion
Skin Sens	Skin Sensitization
STOT SE	Specific Target Organ Toxicity Single Exposure
STOT RE	Specific Target Organ Toxicity Repeated Exposure
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H227	Combustible Liquid
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation.
H331	Toxic if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H341	Suspected of causing genetic defects
H360	May damage fertility or the unborn child
H361	Suspected of damaging fertility or the unborn child.
H370	Causes damage to organs
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H413	May cause long lasting harmful effects to aquatic life

Safety Data Sheet

According to 29CFR1910.1200-2012 and EC No. 1907/2006 (REACH) (as amended)

NFPA health hazard	2
NFPA fire hazard	2
NFPA instability	0

We believe that the information contained herein is current as of the date of this Safety Data Sheet and is offered in good faith. Since the use of this information and of these opinions and the conditions of the use of the product are not within the control of Adaptive Surface Technologies, it is the user's obligation to determine the conditions of safe use of the product.