ÆGIS ENVIRONMENTS
MATERIAL SAFETY DATA SHEET

ÆGIS Microbe Shield™ Program — ÆGIS™ Antimicrobial (Typical Application Strength)

Note: This Material Safety Data Sheet has been prepared to provide information on the typical application strength Material which is used in the treatment of goods and surfaces. ÆGIS Antimicrobial is only sold as a concentrate in methanol and not as a dilute solution. For application, ÆGIS Antimicrobial is diluted with water. The hydrolyzed material in the dilute solution then covalently or ionically bonds with the target surface and covalently bonds with itself to form a durable copolymer. Any CAS Numbers shown below are for the "as supplied" form of the antimicrobial. No CAS Numbers have been assigned for the intermediate hydrolyzed form or the resulting copolymer, neither of which are articles of commerce.

SECTION 1 — CHEMICAL PRODUCT AND COMPANY INFORMATION

ÆGIS Environments
2205 Ridgewood Drive
Midland, MI 48642-5884

Telephone: (989) 832-8180
Fax: (989) 832-7572

MSDS No. 64881-3 Current Version: 05/12/04

Generic Description:	Organosilane in water
Physical Form:	Liquid
Color:	Colorless to pale yellow
Odor:	None
NFPA Profile:	Health 1 Flammability 0 Reactivity 0

NFPA = National Fire Protection Association

SECTION 2 — OSHA HAZARDOUS COMPONENTS

CAS Number	Wt.%	Component	Exposure Limits
000067561	0.75%	Methyl Alcohol	OSHA PEL (final rule) and ACGIH TLV-skin: TWA 200 ppm; STEL 250 ppm.
027668526	0.84%	Octadecylaminodimethyltrihydroxy-silylpropyl Ammonium Chloride	Observe above limits for methanol formed or exposure to water or humid air
002530872	0.16%	Chloropropyltrihydroxysilane	Observe above limits for methanol formed or exposure to water or humid air
7732-18-5	98.25%	Water	None

Comments: Methyl alcohol forms on contact with water or humid air. Provide adequate ventilation to control exposures within guidelines of OSHA PEL: TWA 200 ppm and ACGIH TLV-skin: TWA 200 ppm, STEL 250 ppm.

SECTION 3 — EFFECTS OF OVEREXPOSURE

Acute Effects

Eye:	Direct contact may burn eyes with possible permanent injury
Skin:	No untoward effects
Inhalation:	No untoward effects
Oral:	No untoward effects

SECTION 3 Cont'd— EFFECTS OF OVEREXPOSURE

Prolonged/Repeated Exposure Effects

Skin: No untoward effects

Inhalation: No untoward effects

Oral: No untoward effects

Signs and Symptoms of Overexposure

No known applicable information

Medical Conditions Aggravated by Exposure

No known applicable information

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for detailed toxicology information.

SECTION 4 — FIRST AID MEASURES

Eye: Immediately flush with water for 15 minutes. Get medical attention.

Skin: Get medical attention if irritation or ill effects develop or persist.

Inhalation: Remove to fresh air. Get medical attention if ill effects persist.

Oral: Get medical attention if ill effects develop or persist.

Comments: None

SECTION 5 — FIRE FIGHTING MEASURES

Flash Point (closed cup): None

Autoignition Temperature: Not Applicable

Extinguishing Media: Not Applicable

Fire Fighting Procedures: Not Applicable

Unusual Fire Hazards: None

Hazardous Decomposition Products:

Thermal breakdown of this product during fire or very high heat conditions may evolve hazardous decomposition products: Carbon oxides and traces of incompletely burned carbon compounds; Nitrogen oxides; Chlorine compounds; Silicon dioxide; Formaldehyde.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Containment/Cleanup: Use absorbent material to collect and contain for salvage or disposal

SECTION 7 — HANDLING AND STORAGE

Storage: Store below 100°F

Other Precautions: None

SECTION 8 — EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Local exhaust:	Recommended
General ventilation:	Recommended

Personal Protective Equipment for Routine Handling

Eyes:	Use chemical worker's goggles.
Skin:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be cleaned before reuse. Rubber or plastic gloves are recommended.
Inhalation/Suitable Respirator:	No special requirements. If methanol STEL is exceeded or predicted, use self-contained breathing apparatus (SCBA) or other supplied-air respirator.

Personal Protective Equipment for spills

Eyes:	Use chemical worker's goggles.
Skin:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be cleaned before reuse. Rubber or plastic gloves are recommended.
Inhalation/Suitable Respirator:	No special requirements. If methanol STEL is exceeded or predicted, use self-contained breathing apparatus (SCBA) or other supplied-air respirator.
Precautionary Measures:	Do not get in eyes. Avoid skin contact. Do not breathe vapor. Do not take internally.
Comments:	Product evolves small amounts of methyl alcohol when exposed to water. Provide ventilation during use to control exposure within Section 2 guidelines.

Note: These precautions are for room temperature handling. Use at elevated temperature, or aerosol/spray applications may require added precautions.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Liquid
Color:	Colorless to pale yellow
Odor:	None
Specific Gravity @ 25C:	1.00
Viscosity:	5.00 CST
Freezing/Melting Point:	32°F / O°C
Boiling Point:	212°F / 100°C
Vapor Pressure @ 25C:	Not Determined
Vapor Density:	Not Determined
Solubility in Water:	Not Applicable
pH:	Not Applicable
Volatile content:	0.75%

Note: The above information is not intended for use in preparing product specifications. Contact ÆGIS before writing specifications.

SECTION 10 — STABILITY AND REACTIVITY

Chemical Stability:	Stable
Hazardous Polymerization:	Hazardous polymerization will not occur
Conditions to Avoid:	None
Materials to Avoid:	Oxidizing material can cause a reaction. Anionic materials, i.e. surfactants. Materials that would shift pH to 10.5
Comments:	None

SECTION 11 — TOXICOLOGICAL INFORMATION

Acute Toxicology Data for Product

Complete information is not yet available

SECTION 12 — ECOLOGICAL INFORMATION

Environmental Fate and Distribution

No specific information is available

Ecotoxicity

No specific information is available

Persistence and Degradation

No specific information is available

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity (mg/kg)	<-100	>100 and <= 2000	>2000

This table is adapted form “Environmental Toxicology and Risk Assessment”, ATMA STP 1179, p. 34, 1993

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

SECTION 13 — DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? Yes

Federal Hazardous Waste Code

Characteristic Waste: Ignitable: D001 Corrosive: N/A Reactive: N/A TCLP: N/A

Comments: State or local laws may impose additional regulatory requirements regarding disposal

N/A = Not Applicable
Call ÆGIS Environments, 1-989-832-8180, if additional information is required

SECTION 14 — REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29CFR 1910.1200

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings:

Section 302 Extremely Hazardous Substances: None

Section 304 CERCLA Hazardous Substances: 000067561 0.75% Methyl alcohol

Section 312 Hazard Class: Acute: N Chronic: N Fire: N Pressure: N Reactive: N
Y =Yes N = No

Section 313 Toxic Chemicals: 000067561 0.75% Methyl alcohol

Supplemental State Compliance Information:

	CAS Number	Wt.%	Component
California			
	Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer.		
	None Known		
	Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer.		
	None Known		
Massachusetts			
	000067561	0.75%	Methyl alcohol
New Jersey			
	027668526	0.84%	Octadecylaminodimethyl trimethoxysilylpropyl ammonium chloride
	002530872	0.16%	Chloropropyltrimethoxysilane
	000067561	0.75%	METHYL ALCOHOL; #1222
Pennsylvania			
	027668526	0.84%	Octadecylaminodimethyl trimethoxysilylpropyl ammonium chloride
	002530872	0.16%	Chloropropyltrimethoxysilane
	000067561	0.75%	Methyl alcohol

SECTION 15 — OTHER INFORMATION

Prepared by ÆGIS Environments.
This information is offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

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