HULL PRO (Part A)

SAFETY DATA SHEET

ACCORDING TO USA FEDERAL HAZCOM 2012

1. IDENTIFICATION

1.1. Product Identifier

Code:	A-HULL
Product name	**HULL PRO (Part A)**

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

Intended use	***Two-part fouling-release hull protectant. Part A Base. For professional use only.***

1.3. Details of the supplier of the safety data sheet

Name	**Armus LLC**
Full address	**32 Broadway, Ste 1114**
	New York, NY 10004
Country	**United States**
	Tel. (+1) 917-957-5383
E-mail address of the competent person responsible for the Safety Data Sheet	robert@armussolutions.com

1.4. Emergency telephone number

For urgent inquiries refer to	**Tel. (+1) 917-957-5383 United States**

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

The product is not classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). However, since the product contains substances in concentrations such as to be declared in section 3, it requires a safety data sheet with appropriate information.

Any additional information concerning the risks for health and/or the environment is given in sections 11 and 12 of this sheet.

Label elements:

Emergency Overview

The product contains no substances which at their given concentration are considered to be hazardous to health.

Hazard statements:

Disposal:	
P501	Dispose of contents and/or container according to local/national/international regulations

2.2 Other hazards

Not applicable based on available information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Components
Not applicable based on available information.

3.2. Mixtures
The product does not contain substances classified as being hazardous to human health or the environment pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200).

4. FIRST-AID MEASURES

4.1. Description of first aid measures
No effects requiring implementation of special first aid measures are expected. The following information represents practical indications of correct behavior in the event of contact with a chemical product, even if not hazardous.
In case of doubt or in the presence of symptoms contact a doctor and show him this document.
In case of more severe symptoms, ask for immediate medical aid.

Rescuer Protection
It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

4.2. Most important symptoms and effects, both acute and delayed
Specific information on symptoms and effects caused by the product are unknown.

4.3. Indication of any immediate medical attention and special treatment needed
If symptoms occur, whether acute or delayed, consult a doctor or seek medical attention.

Means to have available in the workplace for specific and immediate treatment:
Running water for skin and eye wash.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing equipment	The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder, and water spray.
Unsuitable extinguishing equipment	None in particular.

5.2. Special hazards arising from the substance or mixture

Specific hazards during fire fighting	Do not breathe combustion products.

5.3. Advice for firefighters

General information	Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
Special protective equipment for fire-fighters	Normal firefighting clothing i.e., fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment, and emergency procedures
Use breathing equipment if fumes or powders are released into the air. These indications apply for both processing staff and those involved in emergency procedures.

6.2. Environmental precautions
The product must not enter the sewer system or come into contact with surface water or groundwater.

6.3. Methods and material for containment and cleaning up
Confine using earth or inert material.
Collect as much material as possible and eliminate the rest using jets of water.
Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

6.4. Reference to other sections
Any information on personal protection and disposal is given in sections 8 and 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling
Before handling the product, consult all the other sections of this material safety data sheet. Avoid leakage of the product into the environment. Do not eat, drink or smoke during use.

7.2. Conditions for safe storage, including any compatibilities
Keep the product in clearly labelled containers. Keep containers away from any incompatible materials, see section 10 for details.

7.3. Specific end use(s)
Not applicable based on available information.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters
Not applicable based on available information.

8.2. Exposure controls
Make sure that the workplace is well-aired through effective local ventilation.
Personal protective equipment must comply with current regulations.
Comply with the safety measures usually applied when handling chemical substances.

Hand Protection	None required.
Skin Protection	None required.
Eye Protection	None required.
Respiratory Protection	None required, unless indicated otherwise in the chemical risk assessment.
Environmental Exposure Controls	The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards. This product must not enter the sewer system or come into contact with surface water or groundwater.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Silicone epoxy

Color	Transparent
Components	Part A Base & Part B Hardener
Mixing Ratio	4:1 A:B per volume
VOC	<240 g/L
Solids by Volume	80%
Flash point	> 199.4°F (93°C)

10. STABILITY AND REACTIVITY

10.1. Reactivity
There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability
The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions
No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid
None in particular. However, the usual precautions used for chemical products should be respected.

10.5. Incompatible materials
None based on available information.

10.6. Hazardous decomposition products
None based on available information.

11. TOXICOLOGICAL INFORMATION

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification. It is therefore necessary to take into account the concentration of the individual substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information
Not classified based on available information.

Information on likely routes of exposure
Not classified based on available information.

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Not classified based on available information.

Interactive effects
Not classified based on available information.

Acute toxicity
Does not meet the classification criteria for this hazard class.

Skin corrosion / irritation
Does not meet the classification criteria for this hazard class.

Serious eye damage / irritation
Does not meet the classification criteria for this hazard class.

Respiratory or skin sensitization
Does not meet the classification criteria for this hazard class.

Germ cell mutagenicity
Does not meet the classification criteria for this hazard class.

Carcinogenicity
Does not meet the classification criteria for this hazard class.

Reproductive toxicity
Does not meet the classification criteria for this hazard class.

STOT – single exposure
Does not meet the classification criteria for this hazard class.

STOT – repeated exposure
Does not meet the classification criteria for this hazard class.

Aspiration toxicity / hazard
Does not meet the classification criteria for this hazard class.

12. ECOLOGICAL INFORMATION

Use this product according to good working practices. Avoid littering. Inform the relevant authorities should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity
Not classified based on available information.

12.2. Persistence and degradability
Not classified based on available information.

12.3. Bioaccumulative potential
Not classified based on available information.

12.4. Mobility in soil
Not classified based on available information.

12.5. Results of PBT and vPvB assessment
On the basis of available data, the product does not contain any Persistent, Bioaccumulative and Toxic (PBT) or very Persistent and very Bio-accumulative (vPvB) substances.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	Reuse, when possible. Unused product should be considered special non-hazardous waste. Disposal must be performed through an authorized waste management firm, in compliance with local, national, and international regulations.
Contaminated Packaging	Contaminated packaging must be recovered or disposed of in compliance with all waste management regulations.

14. TRANSPORTATION INFORMATION

This product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), if the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

15. REGULATORY INFORMATION

U.S. Federal Regulations

Clean Air Act Section 112(b)	CAS 67-56-1	METHANOL
Clean Air Act Sections 112(b), 602 Class I Substances, 602 Class II Substances	This product, in compliance to the Act, does not contain any substances regulated as pollutants.	
Clean Water Act Priority Toxic Pollutants	This product, in compliance to the Act, does not contain any substances regulated as pollutants.	
Clean Water Act: Toxic Pollutants	This product, in compliance to the Act, does not contain any substances regulated as pollutants.	
DEA List I Chemicals (Precursor Chemicals) and List II Chemicals (Essential Chemicals)	No component(s) listed; in compliance with the List.	
EPA List of Lists 313 Category Code:	CAS 67-56-1	METHANOL
EPCRA 302 EHS TPQ	No component(s) listed; in compliance with the List.	
CERCLA RQ	CAS 67-56-1	METHANOL
EPCRA 313 TRI	CAS 67-56-1	METHANOL
RCRA Code	CAS 67-56-1	METHANOL
CAA 112 (r) TMP TQ	No component(s) listed; in compliance with the List.	

State Regulations

Massachusetts / Minnesota / New Jersey / New York / Pennsylvania/ California

CAS 67-56-1 METHANOL

CA Proposition 65:

WARNING! This product contains chemicals known to the State of California to cause birth defects or reproductive harm.

CAS 67-56-1 METHANOL

Hazard type

Oral: 23,000 µg/day

Inhalation: 47,000 µg/day

16. OTHER INFORMATION

LEGEND:

313 CATEGORY CODE	Emergency Planning and Community Right-to Know Act Section 313 Category Code
ADR	European Agreement concerning the carriage of Dangerous goods by Road
CAA 112 (r) RMP TQ	Risk Management Plan Threshold Quantity (Clean Air Act Section 112(R))
CAS NUMBER	Chemical Abstract Service Number
CE50	Effective concentration (required to induce a 50% effect)
CERCLA RQ	Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
CLP	EC Regulation 1272/2008
DEA	Drug Enforcement Administration
EmS	Emergency Schedule
EPA	US Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EPCRA 302 EHS TPQ	Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)

EPCRA 304 EHS RQ	Extremely Hazardous Substance Reportable Quantity (Section 304 Category Code)
EPCRA 313 TRI	Toxics Release Inventory (Section 313 Category Code)
GHS	Globally Harmonized System of classification and labeling of chemicals
IATA DGR	International Air Transport Association Dangerous Goods Regulation
IC50	Immobilization Concentration 50%
IMDG	International Maritime Code for dangerous goods
IMO	International Maritime Organization
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%
OEL	Occupational Exposure Level
PEL	Predicted Exposure Level
RCRA Code	Resource Conservation and Recovery Act Code
REL	Recommended Exposure Limit
RID	Regulation concerning the international transport of dangerous goods by train
TLV	Threshold Limit Value
TLV CEILING	Concentration that should not be exceeded during any time of occupational exposure.
TSCA	Toxic Substances Control Act
TWA STEL	Short-term Exposure Limit
TWA	Time-weighted Average Exposure Limit
VOC	Volatile Organic Compounds
WHMIS	Workplace Hazardous Materials Information System

GENERAL BIBLIOGRAPHY:

- GHS rev. 3
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy
- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Communication Standard (HCS 2012)
- IARC website
- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112® of the Clean Air Act
- Massachusetts 105 CMR Department of public health 670.000: "Right to Know"
- Minnesota Chapter 5206 Department of Labor and Industry Hazardous Substances, Employee "Right to Know".
- New Jersey Worker and Community Right to know Act N.J.S.A.
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Pennsylvania, Hazardous Substance List, Chapter 323

NOTE FOR USERS:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Purchasers must provide product users with adequate training on how to use chemical products.

ARMUS MAKES NO WARRANTIES EXPRESS OR IMPLIED AND ASSUMES NO LIABILITY ARISING FROM THIS INFORMATION OR ITS USE. ARMUS SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR CONSEQUENTIAL DAMAGES AND SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHT HELD BY OTHERS.

CALCULATION METHODS FOR CLASSIFICATION

Product classification derives from criteria established by the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200), unless determined otherwise in Section 11 and 12.
The data for evaluation of chemical-physical properties are reported in section 9.

HULL PRO (Part B)

SAFETY DATA SHEET

ACCORDING TO USA FEDERAL HAZCOM 2012

1. IDENTIFICATION

1.1. Product Identifier

Code:	A-HULL
Product name	**HULL PRO (Part B)**

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

Intended use	***Two-part fouling-release hull protectant. Part B Hardener. For professional use only.***

1.3. Details of the supplier of the safety data sheet

Name	**Armus LLC**
Full address	**32 Broadway, Ste 1114**
	New York, NY 10004
Country	**United States**
	Tel. (+1) 917-957-5383
E-mail address of the competent person responsible for the Safety Data Sheet	robert@armussolutions.com

1.4. Emergency telephone number

For urgent inquiries refer to	**Tel. (+1) 917-957-5383 United States**

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

The product is classified as hazardous pursuant to the provisions set forth in OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). The product thus requires a safety datasheet.

Any additional information concerning the risks for health and/or the environment is given in sections 11 and 12 of this sheet.

Classification and Hazard Statement

Acute toxicity, category 4	Harmful if swallowed
Skin corrosion, category 1	Causes severe skin burns and eye damage.
Serious eye damage, category 1	Causes serious eye damage.
Skin sensitization, category 1	May cause an allergic skin reaction

Hazard pictograms:

Signal words: **DANGER**

Hazard statements:

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction

Precautionary statements:

Prevention:

P260	Do not breathe fume, mist, or spray.
P280	Wear protective gloves / eye protection / face protection.
P270	Do not eat, drink, or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

Response:

P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and continue rinsing.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN: Remove contaminated clothing immediately. Rinse skin with water / shower.
P310	Immediate call a POISON CONTROL CENTER / seek medical attention.
P304+P340	IF INHALED: Move to fresh air and keep comfortable for breathing.
P330	Rinse mouth.
P302+P352	IF ON SKIN: Wash with plenty of water / …
P301+P312	IF SWALLOWED: Call a POISON CONTROL CENTER / doctor if you feel unwell.
P363	Wash contaminated clothing before reuse.

Storage:

P405	Store locked up.

Disposal:

P501	Dispose of contents or container according to local/ national/ international regulations

2.1. Classification of the substance or mixture

Not applicable.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Components

Chemical Name	*CAS-No*	*EC*	*INDEX*	*Conc. %*	*Classification*
3-Aminopropyltriethoxysilane	919-30-1	213-048-4	612-108-00-0	99.9	Acute toxicity, category 4 H302, Skin corrosion, category 1B H314, Serious eye damage, category 1 H318, Skin sensitization, category 1 H317

The full wording of hazard (H) phrases is given in section 16 of the sheet.

4. FIRST-AID MEASURES

4.1. Description of first aid measures

GENERAL ADVICE: Move out of work / application area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.

EYES:	Remove contact lenses. In the case of contact with eyes, rinse immediately with plenty of water and seek medical attention. Keep eyes wide open while rinsing. Continue rinsing eyes during transport to medical facility or for at least 30-60 minutes.
SKIN:	Take off contaminated clothing and shoes immediately. Wash immediately with plenty of water. If irritation persists, seek medical advice/attention. Wash contaminated clothing before using it again.
INHALATION:	Move to fresh air. In the event of breathing difficulties, seek medical advice / attention immediately. If the subject stops breathing, administer artificial respiration. Take suitable precautions for rescue workers.
INGESTION:	Seek medical advice / attention immediately. Have the subject drink as much water as possible. Do not induce vomiting without medical advice.

4.2. Most important symptoms and effects, both acute and delayed
Specific information on symptoms and effects caused by the product is unknown.

4.3. Indication of any immediate medical attention and special treatment needed
Not applicable based on available information.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing equipment	The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder, and water spray.
Unsuitable extinguishing equipment	None in particular.

5.2. Special hazards arising from the substance or mixture

Specific hazards during fire fighting	Do not breathe combustion products.

5.3. Advice for firefighters

General information	Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
Special protective equipment for fire-fighters	Normal firefighting clothing i.e., fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment, and emergency procedures
Block the leakage.
Wear suitable protective equipment (including personal protective equipment referred to under section 8 of the safety data sheet) to prevent any contamination of skin, eyes, and clothing.
These indications apply for both product users and those involved in emergency procedures.

6.2. Environmental precautions
The product must not enter the sewer system or come into contact with surface water or groundwater.

6.3. Methods and material for containment and cleaning up
Collect the leaked product.
Absorb spilled product with inert absorbent material.
Make sure the leakage site is well-aired.
Contaminated material should be disposed of in compliance with the provisions set forth in section 13.

6.4. Reference to other sections
Any information on personal protection and disposal is given in sections 8 and 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling
Keep away from heat, sparks, and open flames.
Do not eat, drink, or smoke during use.
Without adequate ventilation, vapors may accumulate and, if ignited, catch fire even at a distance, with the danger of backfire.
When performing transfer operations involving large containers, connect to an earthing system and wear anti-static footwear.
Vigorous stirring and flow through tubes and equipment may cause the formation and accumulation of electrostatic charges.
To avoid the risk of fires and explosions, never use compressed air when handling.
Open containers with caution as they may be pressurized.
The product must not enter the sewer system or come into contact with surface water or groundwater.

7.2. Conditions for safe storage, including any incompatibilities
Store only in the original container.
Store the containers sealed, in a well-ventilated place, away from direct sunlight.

7.3. Specific end use(s)
Refer to section 1.2

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters
Not applicable.

8.2. Exposure controls
Make sure that the workplace is well aired through effective local ventilation.
Personal protective equipment must comply with current regulations.

Hand Protection	Protect hands with category III work gloves (OSHA 29 CFR 1910.138). The following should be considered when choosing work glove material: compatibility, degradation, failure time and permeability. The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.
Skin Protection	Wear category I professional long-sleeved overalls and safety footwear. Wash body with soap and water after removing protective clothing.
Eye Protection	Wear airtight protective goggles (OSHA 29 CFR 1910.133).
Respiratory Protection	If the threshold value (e.g., TLV-TWA) is exceeded for the substance or one of the substances present in the product, wear a mask with a NIOSH certified filter, whose class must be chosen according to the limit of use concentration (NIOSH 42 CFR 84, OSHA 29 CFR 1910.134). In the presence of gases or vapors of various kinds and/or gases or vapors containing particulate (aerosol sprays, fumes, mists, etc.) combined filters are required. Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited. If the substance considered is odorless or its olfactory threshold is higher than the

	corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus or external air-intake breathing apparatus. For a correct choice of respiratory protection device, see standard NIOSH 42 CFR 84, OSHA 29 CFR 1910.134.
Environmental Exposure Controls	The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards. The product must not enter the sewer system or come into contact with surface water or groundwater.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Silicone epoxy
Color	Transparent
Components	Part A Base & Part B Hardener
Mixing Ratio	4:1 A:B per volume
VOC	<240 g/L
Solids by Volume	80%
Flash point	> 140°F (60°C)

10. STABILITY AND REACTIVITY

10.1. Reactivity
There are no particular risks of reaction with other substances in normal conditions of use.

10.2. Chemical stability
The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions
No hazardous reactions are foreseeable in normal conditions of use and storage.

10.4. Conditions to avoid
Avoid overheating and all sources of ignition.

10.5. Incompatible materials
None based on available information.

10.6. Hazardous decomposition products
None based on available information.

11. TOXICOLOGICAL INFORMATION

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification. It is therefore necessary to take into account the concentration of the individual substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on toxicological effects

Metabolism, toxicokinetics, mechanism of action and other information
Not classified based on available information.

Information on likely routes of exposure
Not classified based on available information.

Delayed and immediate effects as well as chronic effects from short and long-term exposure
Not classified based on available information.

Interactive effects
Not classified based on available information.

Acute toxicity

3-Aminopropyltriethoxysilane	LD50 (Oral):	1490 mg/kg. Rat. Female
	LD50 (Dermal)	> 2000 mg/kg. Rabbit
	LD50 (Inhalation mists/powders)	> 20 mg/l/4h. Rat. Female

Skin corrosion / irritation
Corrosive for the skin.

Serious eye damage / irritation
Causes serious eye damage.

Respiratory or skin sensitization
Sensitizing for the skin.

Germ cell mutagenicity
Does not meet the classification criteria for this hazard class

Carcinogenicity
Does not meet the classification criteria for this hazard class

Reproductive toxicity
Does not meet the classification criteria for this hazard class

STOT – single exposure
Does not meet the classification criteria for this hazard class

STOT – repeated exposure
Does not meet the classification criteria for this hazard class

Aspiration toxicity / hazard
Does not meet the classification criteria for this hazard class

12. ECOLOGICAL INFORMATION

Use this product according to good working practices. Avoid littering. Inform the appropriate authorities should the product reach waterways or contaminate soil or vegetation.

12.1. Toxicity

3-Aminopropyltriethoxysilane

Toxicity to Crustacea	EC50: 1331 mg/ liter Exposure time: 48 h Daphnia Magna
Toxicity Algae / Aquatic Plants	EC50: 1000 mg/ liter Exposure time: 72 h Desmodesmus subspicactus
Chronic NOEC for Crustacea	1.3 mg/ liter Exposure time: Desmodesmus subspicactus

12.2. Persistence and degradability
None based on available information.

12.3. Bioaccumulative potential

3-Aminopropyltriethoxysilane

Partition co-efficient	n-octanol / water 1.7 low Kow 20°C

12.4. Mobility in soil
None based on available information.

12.5. Results of PBT and vPvB assessment
On the basis of available data, the product does not contain any Persistent, Bioaccumulative and Toxic (PBT) or very Persistent and very Bio-accumulative (vPvB) substances.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	Reuse, when possible. Unused product should be considered special non-hazardous waste. Disposal must be performed through an authorized waste management firm, in compliance with location, national, and international regulations.
Contaminated Packaging	Contaminated packaging must be recovered or disposed of in compliance with all waste management regulations.

14. TRANSPORTATION INFORMATION

ADR/RID

UN/ID No.	UN 2735
Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
Class	8
Packing Group	III
Labels	Label 8
	
Environmental Hazards	NO
Environmental Labels	N/A
HIN – Kemler:	80
Limited Quantities:	5L
Tunnel Restriction Code:	(E)

IMDG

UN/ID No.	UN 2735
Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
Class	8
Packing Group	III
Labels	Label 8
	
Environmental Hazards	Not marine pollutant
Environmental Labels	N/A
EMS:	F-A, S-B
Limited Quantities:	5L

IATA

UN/ID No.	UN 2735
Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S. or POLYAMINES, LIQUID, CORROSIVE, N.O.S.
Class	8
Packing Group	N/A
Labels	Label 8
	

Environmental Hazards	NO
Environmental Labels	N/A
Packing instruction (cargo aircraft)	Maximum Quantity: 60L, Packing instruction: 856
Packing instruction (passenger aircraft)	Maximum Quantity: 5L, Packing instruction: 852
Special precautions for user:	A3, A803

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA	All components of this product are listed on US Toxic Substances Control Act (TSCA) Inventory considered as "existing" chemical substances in U.S. commerce.
Clean Air Act Sections 112(b), including 602 Class I and 602 Class II Substances	This product, in compliance to the Act, does not contain any substances regulated as pollutants.
Clean Water Act Priority Toxic Pollutants	This product, in compliance to the Act, does not contain any substances regulated as pollutants.
Clean Water Act: Toxic Pollutants	No component(s) listed; in compliance with the List.
DEA List I Chemicals (Precursor Chemicals) and List II Chemicals (Essential Chemicals)	No component(s) listed; in compliance with the List.
EPA List of Lists 313 Category Code:	No component(s) listed; in compliance with the List.
EPCRA 302 EHS TPQ CERCLA RQ	No component(s) listed; in compliance with the List.
EPCRA 313 TRI	No component(s) listed; in compliance with the List.
RCRA Code	No component(s) listed; in compliance with the List.
CAA 112 (r) TMP TQ	No component(s) listed; in compliance with the List.

State Regulations

Massachusetts / Minnesota / New Jersey / New York / Pennsylvania / California

No component(s) listed.

CA Proposition 65:

This product does not contain any substances known to the State of California to cause cancer, reproductive harm, or birth defects.

16. OTHER INFORMATION

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction
H18	Causes serious eye damage

LEGEND:

313 CATEGORY CODE	Emergency Planning and Community Right-to Know Act Section 313 Category Code
ADR	European Agreement concerning the carriage of Dangerous goods by Road
CAA 112 (r) RMP TQ	Risk Management Plan Threshold Quantity (Clean Air Act Section 112(R))
CAS NUMBER	Chemical Abstract Service Number
CE50	Effective concentration (required to induce a 50% effect)

CERCLA RQ	Reportable Quantity (Comprehensive Environment Response, Compensation, and Liability Act)
CLP	EC Regulation 1272/2008
DEA	Drug Enforcement Administration
EmS	Emergency Schedule
EPA	US Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EPCRA 302 EHS TPQ	Extremely Hazardous Substance Threshold Planning Quantity (Section 302 Category Code)
EPCRA 304 EHS RQ	Extremely Hazardous Substance Reportable Quantity (Section 304 Category Code)
EPCRA 313 TRI	Toxics Release Inventory (Section 313 Category Code)
GHS	Globally Harmonized System of classification and labeling of chemicals
IATA DGR	International Air Transport Association Dangerous Goods Regulation
IC50	Immobilization Concentration 50%
IMDG	International Maritime Code for dangerous goods
IMO	International Maritime Organization
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%
OEL	Occupational Exposure Level
PEL	Predicted Exposure Level
RCRA Code	Resource Conservation and Recovery Act Code
REL	Recommended Exposure Limit
RID	Regulation concerning the international transport of dangerous goods by train
TLV	Threshold Limit Value
TLV CEILING	Concentration that should not be exceeded during any time of occupational exposure.
TSCA	Toxic Substances Control Act
TWA STEL	Short-term Exposure Limit
TWA	Time-weighted Average Exposure Limit
VOC	Volatile Organic Compounds
WHMIS	Workplace Hazardous Materials Information System

GENERAL BIBLIOGRAPHY:

- GHS rev. 3
- The Merck Index. 10th Edition
- Handling Chemical Safety
- Niosh - Registry of Toxic Effects of Chemical Substances
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy
- 6 NYCRR part 597
- Cal/OSHA website
- California Safe Drinking Water and Toxic Enforcement Act
- EPA website
- Hazard Communication Standard (HCS 2012)
- IARC website
- List Of Lists EPA: Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112® of the Clean Air Act
- Massachusetts 105 CMR Department of public health 670.000: "Right to Know"
- Minnesota Chapter 5206 Department of Labor and Industry Hazardous Substances, Employee "Right to Know".
- New Jersey Worker and Community Right to know Act N.J.S.A.
- NTP. 2011. Report on Carcinogens, 12th Edition.
- OSHA website
- Pennsylvania, Hazardous Substance List, Chapter 323

NOTE FOR USERS:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Purchasers must provide product users with adequate training on how to use chemical products.

ARMUS MAKES NO WARRANTIES EXPRESS OR IMPLIED AND ASSUMES NO LIABILITY ARISING FROM THIS INFORMATION OR ITS USE. ARMUS SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR CONSEQUENTIAL DAMAGES AND SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHT HELD BY OTHERS.

CALCULATION METHODS FOR CLASSIFICATION

Product classification derives from criteria established by the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200), unless determined otherwise in Section 11 and 12.
The data for evaluation of chemical-physical properties are reported in section 9.

Changes to previous review:

The following sections were modified: 02 / 03 / 08 / 11 / 15.