

VM 651

Version 2.0

Revision Date 03/28/2011

Ref. 130000024743

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : VM 651
 MSDS Number : 130000024743

Product Use : Solvent, Electrical/electronic industries

Manufacturer : HD MicroSystems™
 250 Cheesequake Road
 Parlin, New Jersey 08859

Product Information : 800-346-5656
 Transport Emergency : CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Potential Health Effects

Skin

3-Aminopropyltriethoxysilane : Corrosion with pain, ulceration or blisters, cracking or peeling of skin. May cause skin sensitization reactions in certain individuals.

Eyes

3-Aminopropyltriethoxysilane : Corrosive, may cause permanent eye injury if not promptly treated.

Carcinogenicity

Material	IARC	NTP	OSHA
Ethanol	1		

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

VM 651

Version 2.0

Revision Date 03/28/2011

Ref. 130000024743

Component	CAS-No.	Concentration
3-Aminopropyltriethoxysilane	919-30-2	>95%

SECTION 4. FIRST AID MEASURES

- Skin contact : Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If skin irritation persists, call a physician.
- Eye contact : Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- Inhalation : Move to fresh air.
- Ingestion : Immediately give plenty of water (if possible charcoal slurry). Do NOT induce vomiting. Call a physician immediately.
- General advice : Never give anything by mouth to an unconscious person.

SECTION 5. FIRE-FIGHTING MEASURES

- Flammable Properties
- Flash point : 93 °C (199 °F)
- Ignition temperature : 300 °C (572 °F)
- Lower explosion limit : 0.8 vol%
- Upper explosion limit : 4.5 vol%
- Fire and Explosion Hazard : Fire or intense heat may cause violent rupture of packages.
- Suitable extinguishing media : Dry sand, Dry chemical, Carbon dioxide (CO₂)
- Unsuitable extinguishing media : Water

VM 651

Version 2.0

Revision Date 03/28/2011

Ref. 130000024743

Firefighting Instructions : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Wear personal protective equipment. Avoid contact with skin, eyes and clothing.

Spill Cleanup : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Accidental Release Measures : Should not be released into the environment.

SECTION 7. HANDLING AND STORAGEHandling (Personnel) : Use only in well-ventilated areas.
Keep away from food, drink and animal feedingstuffs. Avoid contact with the skin and the eyes. When using do not eat, drink or smoke.

Handling (Physical Aspects) : When using do not smoke. Use only in area provided with appropriate exhaust ventilation.

Storage : Keep container tightly closed in a dry and well-ventilated place. Store in original container.
Never allow product to get in contact with water during storage.**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Engineering controls : Ensure adequate ventilation.

Personal protective equipment
Respiratory protection : Breathing apparatus needed only when aerosol or mist is formed. respirator with A2B2-P3 filter

VM 651

Version 2.0

Revision Date 03/28/2011

Ref. 130000024743

Hand protection : Material: butyl-rubber
Glove thickness: 0.5 mm
Wearing time: 480 min
Additional protection: Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection : Safety glasses with side-shields

Skin and body protection : Long sleeved clothing

Exposure Guidelines

Exposure Limit Values

Ethanol

PEL: (OSHA) 1,000 ppm 1,900 mg/m³ 8 hr. TWA

TLV (ACGIH) 1,000 ppm 8 hr. TWA

TLV (ACGIH) 1,000 ppm STEL

AEL * (DUPONT) 1,000 ppm 8 & 12 hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form : liquid
Color : none
Odor : amine-like
Water solubility : Decomposes in contact with water.

SECTION 10. STABILITY AND REACTIVITY

Stability : Stable at room temperature when stabilized with 2-ethylhexyl dihydrogen

VM 651

Version 2.0

Revision Date 03/28/2011

Ref. 130000024743

phosphate.

- Conditions to avoid : Exposure to water vapour.
- Incompatibility : Incompatible with acids.
- Hazardous reactions : Hazardous polymerisation does not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

VM 651

- Further information : No data is available on the product itself.
- 3-Aminopropyltriethoxysilane
Dermal LD50 : 4,290 mg/kg , rabbit
- Dermal : rabbit
Kidney effects
- Oral LD50 : 1,680 mg/kg , rat
no data available
- Oral : rat
Kidney effects
- Inhalation 4 h LC50 : > 7.35 mg/l , rat
- Skin irritation : rabbit
Corrosive
- Eye irritation : rabbit
Corrosive
- Skin sensitization : Causes sensitization., guinea pig
- Repeated dose toxicity : Inhalation
rat
Respiratory irritation
- Dermal
rabbit
No adverse effects expected.

VM 651

Version 2.0

Revision Date 03/28/2011

Ref. 130000024743

Oral
rat
No toxicologically significant effects were found.

Mutagenicity : Animal testing did not show any mutagenic effects.
Did not cause genetic damage in cultured bacterial cells.

Reproductive toxicity : Animal testing showed no reproductive toxicity.

Teratogenicity : Animal testing showed no developmental toxicity.

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

3-Aminopropyltriethoxysilane

96 h LC50 : Danio rerio (zebra fish) > 934 mg/l

72 h EbC50 : Algae 603 mg/l

48 h EC50 : Daphnia magna (Water flea) 331 mg/l

Additional ecological information : No data is available on the product itself.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal : In accordance with local and national regulations. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.

Environmental Hazards : Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT UN number : 1760

VM 651

Version 2.0

Revision Date 03/28/2011

Ref. 130000024743

Proper shipping name : Corrosive liquids, n.o.s. (3-(Triethoxysilyl)propylamine)
 Class : 8
 Packing group : II
 Labelling No. : 8
 Reportable Quantity : 100 lbs Ethanol

IATA_C UN number : 1760

Proper shipping name : Corrosive liquid, n.o.s. (3-(Triethoxysilyl)propylamine)

Class : 8

Packing group : II

Labelling No. : 8

IMDG UN number : 1760

Proper shipping name : Corrosive liquid, n.o.s. (3-(Triethoxysilyl)propylamine)

Class : 8

Packing group : II

Labelling No. : 8

SECTION 15. REGULATORY INFORMATION

TSCA Status : On the inventory, or in compliance with the inventory

SARA 313 Regulated Chemical(s) : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

CERCLA Reportable Quantity : 10,000 lbs
Based on the percentage composition of this chemical in the product.: Ethanol

California Prop. 65 : WARNING! This product contains a chemical known to the State of California to cause cancer.Ethanol
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.Ethanol

PA Right to Know Regulated Chemical(s) : Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Ethanol

VM 651

Version 2.0

Revision Date 03/28/2011

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NJ Right to Know Regulated Chemical(s) : Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Ethanol

SECTION 16. OTHER INFORMATION

Contact person : HD Microsystems™, Customer Service, 800-346-5656

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : (3-Aminopropyl)triethoxysilane

Product Number : 440140
Brand : Aldrich

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Harmful by ingestion., Corrosive

Target Organs

Nerves., Liver, Kidney

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed.
H313 May be harmful in contact with skin.
H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statement(s)

P280 Wear protective gloves/eye protection/face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard: 3
Chronic Health Hazard: *
Flammability: 1
Physical hazards: 1

NFPA Rating

Health hazard: 3
Fire: 1
Reactivity Hazard: 1

Potential Health Effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin May be harmful if absorbed through skin. Causes skin burns.

Eyes
Ingestion

Causes eye burns.
Harmful if swallowed. Causes burns.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 3-Triethoxysilylpropylamine
APTES
Dow Corning® product Z-6011

Formula : C₉H₂₃NO₃Si

Molecular Weight : 221.37 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
3-Aminopropyltriethoxysilane			
919-30-2	213-048-4	612-108-00-0	-

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Under fire conditions, material may decompose to form flammable and/or explosive mixtures in air.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid inhalation of vapour or mist.

Normal measures for preventive fire protection.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Moisture sensitive. Store under inert gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum).

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear
Colour	colourless

Safety data

pH	no data available
Melting point	no data available
Boiling point	217 °C (423 °F) at 1,013 hPa (760 mmHg) - lit.
Flash point	98 °C (208 °F) - closed cup
Ignition temperature	no data available
Lower explosion limit	0.8 %(V)
Upper explosion limit	4.5 %(V)
Vapour pressure	< 13 hPa (< 10 mmHg) at 100 °C (212 °F) 133 hPa (100 mmHg) at 155 °C (311 °F)
Density	0.946 g/cm ³ at 25 °C (77 °F)
Water solubility	no data available
Relative vapour density	7.64 - (Air = 1.0)

10. STABILITY AND REACTIVITY

Chemical stability

May decompose on exposure to moist air or water. Stable under recommended storage conditions.

Conditions to avoid

no data available

Materials to avoid

Strong oxidizing agents, Acids

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), silicon oxides

11. TOXICOLOGICAL INFORMATION**Acute toxicity**

LD50 Oral - rat - 1,780 mg/kg

LD50 Dermal - rabbit - 3.8 g/kg

Skin corrosion/irritation

Skin - rabbit - Severe skin irritation - 24 h

Serious eye damage/eye irritation

Eyes - rabbit - Severe eye irritation - 24 h

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (GHS)

no data available

Specific target organ toxicity - repeated exposure (GHS)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	Harmful if swallowed. Causes burns.
Skin	May be harmful if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.

Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

Additional Information

RTECS: TX2100000

12. ECOLOGICAL INFORMATION**Toxicity**

no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 2735 Class: 8 Packing group: II
Proper shipping name: Amines, liquid, corrosive, n.o.s. (3-Aminopropyltriethoxysilane)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 2735 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (3-Aminopropyltriethoxysilane)
Marine pollutant: No

IATA

UN-Number: 2735 Class: 8 Packing group: II
Proper shipping name: Amines, liquid, corrosive, n.o.s. (3-Aminopropyltriethoxysilane)

15. REGULATORY INFORMATION**OSHA Hazards**

Target Organ Effect, Harmful by ingestion., Corrosive

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

No Components Listed

Pennsylvania Right To Know Components

3-Aminopropyltriethoxysilane

CAS-No.
919-30-2

Revision Date

New Jersey Right To Know Components

3-Aminopropyltriethoxysilane

CAS-No.
919-30-2

Revision Date

California Prop. 65 Components

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

16. OTHER INFORMATION

Further information

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