

# SAFETY DATA SHEET

Version 7.8  
Revision Date 03/26/2026  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : *N*-[3-(Trimethoxysilyl)propyl]aniline  
Product Number : 440809  
Brand : Aldrich  
CAS-No. : 3068-76-6

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

Identified uses : Laboratory chemicals, Synthesis of substances

### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

### 1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

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## SECTION 2. HAZARDS IDENTIFICATION

### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

#### Hazards for the product as supplied

Skin corrosion : Sub-category 1B  
Serious eye damage : Category 1  
Skin sensitisation : Category 1  
Germ cell mutagenicity : Category 2  
Carcinogenicity : Category 2

Specific target organ toxicity - repeated exposure : Category 1 (Blood)

Short-term (acute) aquatic hazard : Category 3

Long-term (chronic) aquatic hazard : Category 3

### Other hazards

None known.

### GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H341 Suspected of causing genetic defects.  
H351 Suspected of causing cancer.  
H372 Causes damage to organs (Blood) through prolonged or repeated exposure.  
H412 Harmful to aquatic life with long lasting effects.

Supplemental Hazard Statements : Corrosive to the respiratory tract.

Precautionary statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe mist or vapours.  
P264 Wash skin 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 protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
P301 + P330 + P331 + P310 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/ doctor.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

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

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

P362 + P364 Take off contaminated clothing and wash it before reuse.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

CAS-No. : 3068-76-6

**Components**

| Chemical name                        | CAS No./Unique ID | Concentration (% w/w) | Trade secret |
|--------------------------------------|-------------------|-----------------------|--------------|
| N-[3-(Trimethoxysilyl)propyl]aniline | 3068-76-6*        | >= 80 - <= 100        | TSC          |
| Aniline                              | 62-53-3*          | >= 0.5 - <= 1.5       | TSC          |
| Methanol                             | 67-56-1*          | >= 0.1 - <= 1         | TSC          |

\* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

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**SECTION 4. FIRST AID MEASURES**

General advice : First aiders need to protect themselves. Show this safety data sheet to the doctor in attendance.

If inhaled : After inhalation: fresh air. Call in physician.

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|   |  |
|---|--|
| In case of skin contact                                     | : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.                              |
| In case of eye contact                                      | : After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.   |
| If swallowed  | : After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise. |
| Most important symptoms and effects, both acute and delayed | : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11  |
| Protection of first-aiders                                  | : For personal protection see section 8.   |
| Notes to physician  | : No data available  |

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## SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water  
Foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry powder

Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

Specific hazards during fire fighting : Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

Hazardous combustion : Carbon oxides

products

Nitrogen oxides (NO<sub>x</sub>)

silicon oxides

Specific extinguishing methods : No data available

Further information : Suppress (knock down) gases/vapours/mists with a water spray jet.  
Prevent fire extinguishing water from contaminating surface water or the ground water system.

Special protective equipment for fire-fighters : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Advice for non-emergency personnel:  
Do not breathe vapours, aerosols.  
Avoid substance contact.  
Ensure adequate ventilation.  
Evacuate the danger area, observe emergency procedures, consult an expert.  
Advice for emergency responders:  
For personal protection see section 8.

Environmental precautions : Do not let product enter drains.

Methods and materials for containment and cleaning up : Cover drains. Collect, bind, and pump off spills.  
Observe possible material restrictions (see sections 7 and 10).  
Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on safe handling : Work under hood. Do not inhale substance/mixture.  
Avoid generation of vapours/aerosols.

Further information on storage conditions : Tightly closed.  
Keep in a well-ventilated place.  
Keep locked up or in an area accessible only to qualified or authorised persons.

Storage class : 6.1C, Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

Recommended storage temperature : Recommended storage temperature see product label.

Further information on storage stability : Light sensitive.  
Store under inert gas.

Packaging material : Suitable material: Amber Glass Bottle/Jar

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis     |
|------------|---------|-------------------------------|--|-----------|
| Aniline    | 62-53-3 | TWA                           | 2 ppm  | ACGIH     |
|            |         | TWA                           | 5 ppm<br>19 mg/m <sup>3</sup>                  | OSHA Z-1  |
| Methanol   | 67-56-1 | TWA                           | 200 ppm  | ACGIH     |
|            |         | STEL                          | 250 ppm  | ACGIH     |
|            |         | ST                            | 250 ppm<br>325 mg/m <sup>3</sup>               | NIOSH REL |
|            |         | TWA                           | 200 ppm<br>260 mg/m <sup>3</sup>               | NIOSH REL |
|            |         | TWA                           | 200 ppm<br>260 mg/m <sup>3</sup>               | OSHA Z-1  |

### Biological occupational exposure limits

| Components | CAS-No. | Control parameters | Biological specimen | Sampling time  | Permissible concentration | Basis     |
|------------|---------|--------------------|---------------------|--|---------------------------|-----------|
| Aniline    | 62-53-3 | Aniline            | Urine               | End of shift (As soon as possible after exposure ceases) | 0.5 mg/l                  | ACGIH BEI |

|          |         |          |       |   |         |              |
|----------|---------|----------|-------|---|---------|--------------|
| Methanol | 67-56-1 | Methanol | Urine | End of shift<br>(As soon as possible after exposure ceases) | 15 mg/l | ACGIH<br>BEI |
|----------|---------|----------|-------|---|---------|--------------|

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### Hand protection

Remarks : required

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).  
Tightly fitting safety goggles

Skin and body protection : protective clothing

Hygiene measures : Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

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Color : yellow

Odor : No data available

Odor Threshold : No data available  
pH : No data available

Melting point : No data available

Boiling point/boiling range : 590 °F / 310 °C  
Method: lit.

Flash point : 230 °F / 110 °C  
Method: closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : No data available

Burning rate : No data available

Upper explosion limit /  
Upper flammability limit : No data available

Lower explosion limit /  
Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapour density : No data available

Relative density : No data available

Density : 1.07 g/mL (77 °F / 25 °C)  
Method: lit.

Water solubility : No data available

Partition coefficient: n-  
octanol/water : No data available

Autoignition temperature : No data available

Decomposition  
temperature : No data available

|                          |                                |
|--------------------------|--------------------------------|
| Viscosity, dynamic       | : No data available            |
| Viscosity, kinematic     | : No data available            |
| Flow time                | : No data available            |
| Explosive properties     | : Not classified as explosive. |
| Oxidizing properties     | : none                         |
| Molecular weight         | : 255.39 g/mol                 |
| Particle characteristics |                                |
| Particle size            | : No data available            |

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## SECTION 10. STABILITY AND REACTIVITY

|                                    |   |
|------------------------------------|---|
| Reactivity                         | : Forms explosive mixtures with air on intense heating.<br><br>A range from approx. 15 Kelvin below the flash point is to be rated as critical. |
| Chemical stability                 | : The product is chemically stable under standard ambient conditions (room temperature) .   |
| Possibility of hazardous reactions | : No data available   |
| Conditions to avoid                | : Exposure to moisture<br>Exposure to sunlight.<br><br>Strong heating.  |
| Incompatible materials             | : Strong oxidizing agents<br>Water  |
| Hazardous decomposition products   | : In the event of fire: see section 5   |

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

#### Skin corrosion/irritation

Remarks: No data available

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**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: 2A - Group 2A: Probably carcinogenic to humans (Aniline)

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 on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Inhalation of vapors may cause:, Cough, Headache, Nausea, Skin contact may provoke the following symptoms:, allergic dermatitis

Stomach - Irregularities - Based on Human Evidence

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Aniline:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 10.6 mg/l  
Exposure time: 96.0 h  
Test Type: flow-through test  
Analytical monitoring: yes  
Remarks: (ECHA)

Toxicity to daphnia and other aquatic : EC50 (Daphnia magna (Water flea)): 0.16 mg/l  
End point: Immobilization

invertebrates Exposure time: 48 h  
 Test Type: semi-static test  
 Analytical monitoring: yes  
 Method: US-EPA  
 GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Chlorella pyrenoidosa (algae)): 175 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.39 mg/l  
 Exposure time: 32 d  
 Test Type: flow-through test  
 Analytical monitoring: yes  
 Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.01 mg/l  
 End point: reproduction rate  
 Exposure time: 21 d  
 Test Type: flow-through test  
 Analytical monitoring: yes  
 Method: US-EPA  
 GLP: yes

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (activated sludge): 2,500 mg/l  
 Exposure time: 10 min  
 Remarks: (Lit.)

**Methanol:**

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill)): 15,400.0 mg/l  
 End point: mortality  
 Exposure time: 96 h  
 Test Type: flow-through test  
 Analytical monitoring: yes  
 Method: US-EPA

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 18,260 mg/l  
 End point: Immobilization  
 Exposure time: 96 h  
 Test Type: semi-static test  
 Method: OECD Test Guideline 202

|                                     |  |
|-------------------------------------|--|
| Toxicity to algae/aquatic plants    | : ErC50 (Pseudokirchneriella subcapitata (green algae)): ca. 22,000.0 mg/l<br>Exposure time: 96 h<br>Test Type: static test<br>Method: OECD Test Guideline 201 |
| Toxicity to fish (Chronic toxicity) | : NOEC (Oryzias latipes (Orange-red killifish)): 7,900 mg/l<br>Exposure time: 200 h<br>Remarks: (External MSDS)  |
| Toxicity to microorganisms          | : IC50 (activated sludge): > 1,000 mg/l<br>Exposure time: 3 h<br>Test Type: static test<br>Analytical monitoring: yes<br>Method: OECD Test Guideline 209       |

## **Persistence and degradability**

### **Components:**

#### **Aniline:**

|                  |  |
|------------------|--|
| Biodegradability | : aerobic<br>Inoculum: activated sludge, non-adapted<br>Concentration: 2 mg/l<br>Result: Readily biodegradable.<br>Biodegradation: ca. 90 %<br>Exposure time: 30 d<br>Method: OECD Test Guideline 301D |
|------------------|--|

#### **Methanol:**

|                  |   |
|------------------|---|
| Biodegradability | : Result: Readily biodegradable.<br>Biodegradation: 99 %<br>Exposure time: 30 d<br>Method: OECD Test Guideline 301D |
|------------------|---|

|                                 |   |
|---------------------------------|---|
| Biochemical Oxygen Demand (BOD) | : 600 - 1,120 mg/g<br>Incubation time: 5 d<br>Remarks: (IUCLID) |
|---------------------------------|---|

|                              |                                   |
|------------------------------|-----------------------------------|
| Chemical Oxygen Demand (COD) | : 1,420 mg/g<br>Remarks: (IUCLID) |
|------------------------------|-----------------------------------|

|      |                                 |
|------|---------------------------------|
| ThOD | : 1,500 mg/g<br>Remarks: (Lit.) |
|------|---------------------------------|

|          |  |
|----------|--|
| BOD/ThOD | : 76 %<br>Remarks: Closed Bottle test (IUCLID) |
|----------|--|

|                    |  |
|--------------------|--|
| Stability in water | : Hydrolysis: 83 - 91 % at 19 °C(72 h) |
|--------------------|--|

Remarks: Hydrolyses on contact with water.  
Hydrolyses readily.

Degradation half life: 2.2 yr  
Remarks: reaction with hydroxyl radicals  
(IUCLID)

Photodegradation : Degradation (direct photolysis): 50 % Degradation  
half life: 17.2 d

### **Bioaccumulative potential**

#### **Components:**

##### **Aniline:**

Bioaccumulation : Species: Danio rerio (zebra fish)  
Bioconcentration factor (BCF): 2.6  
Temperature: 79 °F / 26 °C  
Concentration: < 0.1 mg/l

Partition coefficient: n- : log Pow: 0.91  
octanol/water Remarks: Bioaccumulation is not expected.

##### **Methanol:**

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 1.0  
Exposure time: 72 d  
Temperature: 68 °F / 20 °C  
Concentration: 5 mg/l

Partition coefficient: n- : log Pow: -0.77 (77 °F / 25 °C)  
octanol/water Method: (experimental)  
Remarks: (HSDB)  
Bioaccumulation is not expected.

### **Mobility in soil**

#### **Components:**

##### **Methanol:**

Stability in soil : Remarks: Will not adsorb on soil.

### **Other adverse effects**

#### **Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part  
82 Protection of Stratospheric Ozone - CAA Section  
602 Class I Substances  
Remarks: This product neither contains, nor was  
manufactured with a Class I or Class II ODS as  
defined by the U.S. Clean Air Act Section 602 (40 CFR

**Components:**

**Aniline:**

Results of PBT and vPvB assessment : Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

**Methanol:**

Results of PBT and vPvB assessment : Not persistent, bioaccumulative, and toxic (PBT).

Additional ecological information : Avoid release to the environment.

**Endocrine disrupting properties**

No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS**

**Disposal methods**

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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**SECTION 14. TRANSPORT INFORMATION**

**International Regulations**

**IATA-DGR**

UN/ID No. : UN 3267  
Proper shipping name : Corrosive liquid, basic, organic, n.o.s. (N-[3-(Trimethoxysilyl)propyl]aniline)  
Class : 8  
Packing group : II  
Labels : Class 8 - Corrosive substances  
Packing instruction (cargo aircraft) : 855  
Packing instruction (passenger aircraft) : 851

**IMDG-Code**

UN number : UN 3267  
Proper shipping name : CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (N-[3-(Trimethoxysilyl)propyl]aniline)  
Class : 8  
Packing group : II

Labels : 8  
EmS Code : F-A, S-B  
Marine pollutant : no

### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

### National Regulations

#### 49 CFR

UN/ID/NA number : UN 3267  
Proper shipping name : Corrosive liquid, basic, organic, n.o.s.  
(N-[3-(Trimethoxysilyl)propyl]aniline)  
Class : 8  
  
Packing group : II  
Labels : Class 8 - Corrosive substances  
ERG Code : 153  
Marine pollutant : no  
Poison Inhalation Hazard : No

### Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

### SARA 304 Extremely Hazardous Substances Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

| Components | CAS-No. | Component TPQ (lbs) |
|------------|---------|---------------------|
| Aniline    | 62-53-3 | 1000                |

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Aniline                      62-53-3                      >= 1 - < 5 %

### Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

Aniline                      62-53-3                      >= 1 - < 5 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

|         |         |              |
|---------|---------|--------------|
| Aniline | 62-53-3 | >= 1 - < 5 % |
|---------|---------|--------------|

### **Clean Water Act**

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

|         |         |              |
|---------|---------|--------------|
| Aniline | 62-53-3 | >= 1 - < 5 % |
|---------|---------|--------------|

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

|         |         |              |
|---------|---------|--------------|
| Aniline | 62-53-3 | >= 1 - < 5 % |
|---------|---------|--------------|

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

### **US State Regulations**

#### **Massachusetts Right To Know**

|         |         |
|---------|---------|
| Aniline | 62-53-3 |
|---------|---------|

#### **Pennsylvania Right To Know**

|          |         |
|----------|---------|
| Aniline  | 62-53-3 |
| Methanol | 67-56-1 |

#### **Maine Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Vermont Chemicals of High Concern**

|         |         |
|---------|---------|
| Aniline | 62-53-3 |
|---------|---------|

#### **Washington Chemicals of High Concern**

|         |         |
|---------|---------|
| Aniline | 62-53-3 |
|---------|---------|

#### **California Prop. 65**

WARNING: This product can expose you to chemicals including Aniline, which is/are known to the State of California to cause cancer, and Methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov). **The components of this product are reported in the following inventories:**

US TSCA : All substances listed as active on the TSCA inventory

#### **TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## **SECTION 16. OTHER INFORMATION**

### **Full text of other abbreviations**

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The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

**MILLIPORE  
SIGMA**

|                 |   |   |
|-----------------|---|---|
| ACGIH           | : | USA. ACGIH Threshold Limit Values (TLV)   |
| ACGIH BEI       | : | ACGIH - Biological Exposure Indices (BEI)   |
| NIOSH REL       | : | USA. NIOSH Recommended Exposure Limits  |
| OSHA Z-1        | : | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants          |
| ACGIH / TWA     | : | 8-hour, time-weighted average   |
| ACGIH / STEL    | : | Short-term exposure limit   |
| NIOSH REL / TWA | : | Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek |
| NIOSH REL / ST  | : | STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday    |
| OSHA Z-1 / TWA  | : | 8-hour time weighted average  |

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall

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