Material Safety Data Sheet
Acrylonitrile MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acrylonitrile
Catalog Codes: SLA2566
CAS#: 107-13-1
RTECS: Not available.
TSCA: TSCA 8(b) inventory: Acrylonitrile
CI#: Not available.
Synonym: Vinyl Cyanide; Propenitrile
Chemical Name: Acrylonitrile
Chemical Formula: C3-H3-N
Contact Information:
Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396
US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**
Order Online: ScienceLab.com
CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300
International CHEMTREC, call: 1-703-527-3887
For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:
Name CAS # % by Weight
Acrylonitrile 1017-13-1 >99
Toxicological Data on Ingredients: Acrylonitrile: ORAL (LD50): Acute: 78 mg/kg [Rat]. 27 mg/kg [Mouse]. DERMAL (LD50):
Acute: 63 mg/kg [Rabbit]. VAPOR (LC50): Acute: 333 ppm 4 hours [Rat]. >90 ppm 4 hours [Monkey].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator), of
eye contact (irritant). Severe over-exposure can result in death.
Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for
mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE].
The substance may be toxic to blood, kidneys, liver, cardiovascular system, central nervous system (CNS). Repeated or
prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may
produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15
minutes. Cold water may be used. WARM water MUST be used. Get medical attention.
Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing
and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get
medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical
attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical
attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband.
WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is
toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an
unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 481.11°C (898°F)

Flash Points: CLOSED CUP: -1.1111°C (30°F). OPEN CUP: 0°C (32°F).

Flammable Limits: LOWER: 3.1% UPPER: 17%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:

Highly flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in
presence of static discharge: Not available. Explosive in presence of oxidizing materials, of acids, of alkalis.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam,
water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards:

In the presences of catalysts, or when the substance is confined, the polymerization rate may be accelerated leading to
explosion. Acrylonitrile forms explosive mixtures with air based on its low flash point. It easily forms violently explosive
polymerides when exposed to heat, light, strong bases, strong acids, strong oxidizers, azoisobuytronitrile, dibenzoyl peroxide,
di-tert-butylperoxide, bromine or silver nitrate. Acrylonitrile may explosive reactions with benzyltrimethylammonium hydroxide +
pyrrole. It may also have explosive reactions with tetrahydrocarbazole + benzyltrimethylammonium hydroxide.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk.
Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled
material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call
for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the
MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do
not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear
suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid
contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.
Storage:
Light Sensitive. Store in light-resistant containers. Store in a segregated and approved area. Keep container in a cool, wellventilated
area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or
flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective
threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid
inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this
product.
Exposure Limits:
TWA: 2 (ppm) from ACGIH (TLV) [United States] TWA: 4.3 (mg/m3) TWA: 1 CEIL: 10 from NIOSH TWA: 2 STEL: 10 (ppm)
from OSHA (PEL) [United States] TWA: 2 (ppm) [United Kingdom (UK)] TWA: 4.3 (mg/m3) [United Kingdom (UK)] TWA: 2
STEL: 4 (ppm) [Canada] TWA: 4.3 STEL: 8.6 (mg/m3) [Canada]3 Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.
Odor: mild Peach kernels. (Slight.)
Taste: Not available.
Molecular Weight: 53.06 g/mole
Color: Clear Colorless.
pH (1% soln/water): Not available.
Boiling Point: 77.3°C (171.1°F)
Melting Point: -82°C (-115.6°F)

Critical Temperature: 262.78°C (505°F)
Specific Gravity: 0.806(Water = 1)
Vapor Pressure: 11.1 kPa (@ 20°C)
Vapor Density: 1.8 (Air = 1)
Volatility: Not available.
Odor Threshold: Not available.
Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 0.3
Ionicity (in Water): Not available.
Dispersion Properties: See solubility in water, diethyl ether, acetone.
Solubility:
Soluble in diethyl ether, acetone. Very slightly soluble in cold water, hot water. Soluble in all common organic substances and
Isopropyl alcohol. Soluble in benzene and alcohol

Section 10: Stability and Reactivity Data

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability:
Heat, ignition sources, light, loss of inhibitor. Polymerization may occur, especially when exposed to visible light or in the
absence of oxygen
Incompatibility with various substances:
Highly reactive with oxidizing agents, acids, alkalis. Reactive with metals.
Corrosivity: Highly corrosive in presence of aluminum, of copper.
Special Remarks on Reactivity:
Light Sensitive. Incompatible with strong oxidizers, strong acids (nitric acid, sulfuric acid, chlorosulfonic acid), strong bases
(potassium hydroxide, sodium hydroxide), amines, 2-aminoethanol, bromine, ethylene diamine, oleum. Unless inhibited
(usually with methylhydroquinone), this material may spontaneously polymerize, or it may spontaneously polymerization
under certain conditions. Polymerization reactions are usually highly exothermic. Small amounts of acids (nitric or sulfuric)
may neutralize the ammonia used to inhibit acrylonitrile and create unhibited, unstable acrylonitrile. Strong bases will cause
acrylonitrile to violently polymerize. It may spontaneously polymerize when heated, or exposed to light.
Special Remarks on Corrosivity: It attacks copper, copper alloys, and aluminum in high concentrations.
Polymerization: Yes.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral
toxicity (LD50): 27 mg/kg [Mouse]. Acute dermal toxicity (LD50): 63 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): >90 4
hours [Monkey].
Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for
mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE].
May cause damage to the following organs: blood, kidneys, liver, cardiovascular system, central nervous system (CNS).

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (fetotoxicity, maternal effects on fertility, paternal effects on fertility). May affect genetic material (mutagenic). May cause cancer (tumorigenic) based on animal data. It is a suspect human carcinogen. May cause birth defects (musculoskeletal, central nervous system, cardiovascular)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes severe skin irritation. Prolonged skin contact may cause formation of large vesicles after a latent period of several hours. The burns resemble second degree thermal burns, but with little pain or inflammation. May be absorbed through skin. May be harmful if absorbed through skin. May affect behavior/central nervous system, respiration and gastrointestinal tract is absorbed through skin. Eyes: Causes moderate eye irritation. Lachrymator.

Inhalation: May be harmful if inhaled. Inhalation of high concentrations may affect behavior/central nervous system with symptoms including central nervous system depression, seizures, weakness in the limbs, dizziness, impaired judgement, irritabilitiy, apprehension, weakness, lightheadedness, headache, anxiety, agitation, stupor, seizures, ataxia, confusion, coma.

May also affect cardiovascular system (palpitations, arrhythmias, cardiac conduction defects, rapid heartbeat), respiration (hyperventillation, dyspnea), gastrointestinal system (nausea, vomiting). Inhalation may cause cyanosis (a bluish discoloration of the skin due to deficient oxygenation of the blood). Ingestion: Harmful if swallowed. Causes digestive tract irritation with nausea, and vomiting. May affect behavior/central nervous system, and respiration with symptoms similar to inhalation.

Chronic Potential Health Effects: Repeated contact by inhalation or ingestion may affect the liver (jaundice), urinary system (kidneys), metabolism. Repeated contact by ingestion may also affect the blood (anemia).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification:

CLASS 3: Flammable liquid. CLASS 6.1: Poisonous material.

Identification: : Acrylonitrile, inhibited UNNA: 1093 PG: I

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer,

birth defects or other reproductive harm, which would require a warning under the statute: Acrylonitrile California prop. 65:
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This product contains the following ingredients for which the State of California has found to cause cancer which would
require a warning under the statute: Acrylonitrile Connecticut hazardous material survey.: Acrylonitrile Illinois toxic substances
disclosure to employee act: Acrylonitrile Illinois chemical safety act: Acrylonitrile
Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
EINECS: This product is on the
European Inventory of Existing Commercial Chemical Substances.
Other Classifications:
WHMIS (Canada): Not controlled under WHMIS (Canada).
DSCL (EEC):
R11- Highly flammable. R16- Explosive when mixed with oxidizing substances. R23/24/25- Toxic by inhalation, in contact
with skin and if swallowed. R36/38- Irritating to eyes and skin. R40- Possible risks of irreversible effects. R62- Possible risk
of impaired fertility. R63- Possible risk of harm to the unborn child. S1/2- Keep locked up and out of the reach of children.
S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice
immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or
label.
HMIS (U.S.A.):
Health Hazard: 3
Fire Hazard: 3
Reactivity: 1
Personal Protection: h
National Fire Protection Association (U.S.A.):
Health: 4
Flammability: 3
Reactivity: 2
Specific hazard:
Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

Section 16: Other Information

References: Not available.
Other Special Considerations: Not available.
Created: 10/09/2005 03:37 PM
Last Updated: 11/01/2010 12:00 PM
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lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com
has been advised of the possibility of such damages.

Specifications for Acrylonitrile

Color APHA, (Max.) 15
Moisture, (Wt. % Max) 0.5
Specific Gravity @ 20 ^{o}C 0.799 – 0.802
Acidity as CH3COOH (Wt. % Max) Report
Distillation Range, ^{o}C 74.5- 79.0
Iron as Fe, (Wt. ppm Max) Report
Copper, (Wt. ppm Max.) Report
PH (5 % Aq. Solution) 6.0 – 7.5
Refractive Index @ 25 ^{o}C 1.3882 – 1.3895
Inhibitor (MEHQ, Wt. ppm) 35 – 45
Non volatile matter,(ppm Max) 50
Oxidation Stability,(Minutes. Min) 240
Aldehyde as CH_3CHO, (ppm Max) Report
Acroline, (ppm Max) Report
Acetone, (ppm Max) Report
Acetonitrile, (ppm Max.) Report
Purity, (Wt. % Min) 99.4

Uses:

Polymer In mfr of acrylic fibres
Coating As resin
Adhesives As resin
Pharma In mfr of antioxidants
Agrochemicals as pesticide fumigant