Material Safety Data Sheet
Acrylonitrile, 99+% (inhibited with 35-45 ppm MEHQ)

ACC# 74704

Section 1 - Chemical Product and Company Identification

MSDS Name: Acrylonitrile, 99+% (inhibited with 35-45 ppm MEHQ)
Catalog Numbers: AC149630000, AC149630010, AC149630025, AC149630050, AC149631000
Synonyms: Acrylonitrile monomer; 2-Propenenitrile; Vinyl cyanide; Cyanoethylene.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
107-13-1	Acrylonitrile	>99	203-466-5
150-76-5	4-Methoxyphenol	.004	205-769-8

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: -5 deg C.
Danger! May be fatal if inhaled, absorbed through the skin or swallowed. Hazardous polymerization may occur. Causes eye, skin, and respiratory tract irritation. **Flammable liquid and vapor.** May cause allergic skin reaction. May cause cancer based on animal studies. This material has been reported to be susceptible to autoxidation and therefore should be classified as peroxidizable. Light sensitive. Hazardous due to peroxide initiation of polymerization.
Target Organs: Central nervous system, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes severe eye irritation. May result in corneal injury. Lachrymator (substance which increases the flow of tears). Causes redness and pain.
Skin: Causes skin irritation. Harmful if absorbed through the skin. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Causes symptoms similar to those of inhalation.
Ingestion: May be fatal if swallowed. Acrylonitrile forms very toxic cyanide in the body, but to a lesser extent than some other nitriles. There is a relatively low rate of conversion of acrylonitrile to cyanide (approximately 20% following oral exposure).
Inhalation: May be fatal if inhaled. Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Causes respiratory tract irritation. Exposure to high concentrations may cause weakness, asphyxia, and death. May be metabolized to cyanide which in turns act by inhibiting cytochrome oxidase impairing cellular respiration. Material volatilizes at room temperature.
Chronic: Acrylonitrile has caused nervous system effects (e.g. reduced nerve conduction) in animals exposed to very low concentrations, which have also been associated with the development of nervous system cancer. Inhalation of relatively low concentrations of acrylonitrile (20 ppm for 24 months) has caused degeneration and inflammatory changes in the nasal cavities of rats.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid immediately.
Skin: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.
Ingestion: POISON material. If swallowed, get medical aid immediately. Only induce vomiting if directed to do so by medical personnel. Never give anything by mouth to an unconscious person.
Inhalation: POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Notes to Physician: Treat symptomatically and supportively.
Antidote: Always have a cyanide antidote kit on hand when working with cyanide compounds. Get medical advice to use.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Fire or excessive heat may result in violent rupture of the container due to bulk polymerization. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

Flash Point: -5 deg C (23.00 deg F)
Autoignition Temperature: 481 deg C (897.80 deg F)
Explosion Limits, Lower:3.1%
Upper: 17.0%
NFPA Rating: (estimated) Health: 4; Flammability: 3; Instability: 2

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Scoop up with a nonsparking tool, then place into a suitable container for disposal. Remove all sources of ignition. Provide ventilation. Use water spray to reduce vapors or divert vapor cloud drift.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Do not breathe vapor. Keep away from heat, sparks and flame. Pure vapor will be uninhibited and may polymerize in vents or other confined spaces. Use only with adequate ventilation or respiratory protection.
Storage: Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. See 29CFR 1910.1045 for regulations applying to all occupational exposures to acrylonitrile.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Acrylonitrile	2 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous r oute	1 ppm TWA 85 ppm IDLH	2 ppm PEL; 10 ppm Excursion Limit (15 min); 1 ppm Action Level (skin and eye ex posure prohibited. Cancer hazard - see 29 CFR 1910.1045)
4-Methoxyphenol	5 mg/m3 TWA	5 mg/m3 TWA	none listed

OSHA Vacated PELs: Acrylonitrile: No OSHA Vacated PELs are listed for this chemical. 4-Methoxyphenol: 5 mg/m3 TWA
Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless
Odor: slightly pungent - garlic-like odor
pH: 5.5-7.5 (5% soln)
Vapor Pressure: 86.25 mm Hg @ 20 deg C
Vapor Density: 1.83 (air=1)
Evaporation Rate:4.54 (n-BuOAc =1)
Viscosity: 0.35 cps @ 20 deg C
Boiling Point: 77.3 deg C
Freezing/Melting Point:-83.55 deg C
Decomposition Temperature: Not available.
Solubility: Moderately Soluble 7.3g/100ml
Specific Gravity/Density:0.806 @ 20°C
Molecular Formula:C3H3N
Molecular Weight:53.06

Section 10 - Stability and Reactivity

Chemical Stability: Acrylonitrile vapor or uninhibited liquid may polymerize explosively, if heated, or exposed to sunlight (ultraviolet light), pressure, peroxides, or other incompatible materials. Inhibited liquid may polymerize explosively at temperatures > 200°C.
Conditions to Avoid: Light, ignition sources, excess heat, loss of inhibitor, confined spaces.
Incompatibilities with Other Materials: Strong bases, strong acids, halogens, amines, strong oxidizing agents, polymerizing initiators.
Hazardous Decomposition Products: Hydrogen cyanide, nitrogen oxides, carbon monoxide, carbon dioxide.
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 107-13-1: AT5250000
CAS# 150-76-5: SL7700000
LD50/LC50:
CAS# 107-13-1:
Dermal, guinea pig: LD50 = 202 mg/kg;
Draize test, rabbit, eye: 100 mg Moderate;
Draize test, rabbit, skin: 500 mg Severe;
Inhalation, rat: LC50 = 333 ppm/4H;
Oral, mouse: LD50 = 27 mg/kg;
Oral, rat: LD50 = 78 mg/kg;
Skin, rabbit: LD50 = 63 mg/kg;
Skin, rat: LD50 = 148 mg/kg;
.

CAS# 150-76-5:
Draize test, rabbit, skin: 6 gm/12D (Intermittent) Mild;
Draize test, rabbit, skin: 10%;
Oral, rat: LD50 = 1600 mg/kg;
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Carcinogenicity:
CAS# 107-13-1:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 7/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 150-76-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Overall, the earlier indications of an increased risk of lung cancer among employees exposed to acrylonitrile are not confirmed by the recent, more informative studies.
Teratogenicity: Fetotoxicity, teratogenicity and embryotoxicity have been observed in the offspring of rats exposed to acrylonitrile by inhalation or ingestion, but only at doses that also produced significant maternal toxicity.
Reproductive Effects: In one study with acrylonitrile, reduced sperm count and testicular effects were observed in mice, but reproductive outcome was not assessed.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Bluegill/Sunfish: 28mg/L; 24H; Fish: Fathead Minnow: 10,000ug/L; 96H; Flow-throughDaphnia: Water Flea: 13mg/L; 24H; No data available.
Environmental: Aquatic: Reacts to produce 3-hydroxypropionitrile and bis(2-cyanoethyl)ether in the presence of a catalyst. Terrestrial: Expected to evaporate rapidly if spilled on land. Because it is so poorly adsorbed to soil, it may also leach. Atmospheric: Will degrade by reaction with hydroxyl radicals; half-life of 3.5 12-hr sunlit days. The biodegradation is reported to occur readily at concentrations > 20 mg/l during anaerobic digestion process. Experimental and estimated factors indicate that bioconcentration in aquatic organisms is not significant.
Physical: Log P(oct) = 0.25
Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 107-13-1: waste number U009.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	ACRYLONITRILE, STABILIZED	ACRYLONITRILE, STABILIZED
Hazard Class:	3	3(6.1)
UN Number:	UN1093	UN1093
Packing Group:	I	I
Additional Info:		FLASHPOINT -5C

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 107-13-1 is listed on the TSCA inventory.
CAS# 150-76-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
CAS# 150-76-5: Testing required by manufacturers, processors
Section 12b
CAS# 150-76-5: Section 4
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 107-13-1: 100 lb final RQ; 45.4 kg final RQ
SARA Section 302 Extremely Hazardous Substances
CAS# 107-13-1: 10000 lb TPQ
SARA Codes
CAS # 107-13-1: immediate, delayed, fire, reactive.
CAS # 150-76-5: immediate.
Section 313
This material contains Acrylonitrile (CAS# 107-13-1, >99%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR
Clean Air Act:
CAS# 107-13-1 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
CAS# 107-13-1 is listed as a Hazardous Substance under the CWA. CAS# 107-13-1 is listed as a Priority Pollutant under the Clean Water Act. CAS# 107-13-1 is listed as a Toxic Pollutant under the Clean Water Act.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 107-13-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
CAS# 150-76-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:
WARNING: This product contains Acrylonitrile, a chemical known to the state of California to cause cancer.
California No Significant Risk Level: CAS# 107-13-1: 0.7 æg/day NSRL

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols:
T F N
Risk Phrases:
R 11 Highly flammable.
R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R 37/38 Irritating to respiratory system and skin.
R 41 Risk of serious damage to eyes.
R 43 May cause sensitization by skin contact.
R 45 May cause cancer.
R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
S 16 Keep away from sources of ignition - No smoking.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.
S 9 Keep container in a well-ventilated place.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)
CAS# 107-13-1: 3
CAS# 150-76-5: 1
Canada - DSL/NDSL
CAS# 107-13-1 is listed on Canada's DSL List.
CAS# 150-76-5 is listed on Canada's DSL List.
Canada - WHMIS
This product has a WHMIS classification of B2, D1A, D2A, F.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.
Canadian Ingredient Disclosure List
CAS# 107-13-1 is listed on the Canadian Ingredient Disclosure List.
CAS# 150-76-5 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 3/18/1999
Revision #6 Date: 10/16/2003