

ACRYLONITRILE -- Chemical Fact Sheet

<i>What is it?</i>	<p>Acrylonitrile is the chemical compound with the formula CH₂CHCN. This pungent-smelling, colorless liquid often appears yellow due to impurities. It is an important monomer for the manufacture of useful plastics. In terms of its molecular structure, it consists of a vinyl group linked to a nitrile.</p> <p>Also known as: 2-Propenenitrile, Vinyl cyanide; Cyanoethylene, AN</p>
<i>Where does it come from?</i>	<p>Acrylonitrile is the nitrile that is likely manufactured on the largest scale. Most industrial acrylonitrile is produced through the Sohio process, the catalytic ammoxidation of propylene:</p> $\text{CH}_3\text{-CH=CH}_2 + \text{NH}_3 + 1.5\text{O}_2 \rightarrow \text{CH}_2=\text{CH-C}\equiv\text{N} + 3\text{H}_2\text{O}$
<i>What are the common uses for it?</i>	<p>Acrylonitrile has many uses:</p> <ul style="list-style-type: none">• In the manufacture of synthetic polymers, especially polyacrylonitrile which comprises acrylic fibers• As a component of synthetic rubber• Used in the synthesis of certain nylons• As a fumigant• Or, as in the case at the Dow Pittsburg Plant, used to make the glue that holds carpet to the backing
<i>How is it transported in CCC?</i>	<p>Acrylonitrile is shipped by railcar.</p>
<i>How is it stored in CCC?</i>	<p>Acrylonitrile is stored in pressurized tanks.</p>

Health Hazards from Exposure

<i>Exposure Route</i>	<i>Symptoms</i>	<i>First Aid</i>
<p>Acrylonitrile is very toxic by ingestion, inhalation, or absorption through the skin. Symptoms of poisoning will begin with irritation of the eyes, limb weakness, difficulty in breathing, dizziness and impaired judgment. If the degree of poisoning increases, the symptoms will progress to cyanosis, nausea, collapse and loss of consciousness, irregular breathing, convulsions, respiratory arrest and possible death. Cardiac arrest can occur without warning when advanced symptoms of poisoning are exhibited. Based on animal evidence, chronic exposure to this material may cause cancer.</p>		
Inhalation	Toxic if inhaled. Irritating to respiratory system. May cause headache, weakness, dizziness, shortness of breath, cyanosis, rapid heart beat, unconsciousness, and possible death. Odor does not provide reliable warning of exposure. Contains material which can cause cancer.	Remove to fresh air. Obtain medical attention immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Eyes	Causes severe eye irritation. Liquid will cause conjunctival irritation and corneal damage. Vapor may cause conjunctival irritation.	Rinse eyes immediately with plenty of water for at least 15 minutes. Obtain medical attention immediately.
Skin	Toxic if absorbed through skin. Causes skin burns. May cause allergic skin reaction. Liquid or vapor may be absorbed in toxicologically significant amounts. Skin absorption may be a significant route for exposure. Absorption will be rapid. Effects will be similar to those resulting from ingestion. Contains material which can cause cancer.	Wash skin immediately with plenty of soapy water. Remove contaminated clothing and shoes without delay. Get medical attention if pain or irritation persists after washing or if signs and symptoms of overexposure appear.

Contra Costa RMP/CalARP Companies
that Use, Store or Manufacture this Chemical

The Dow Chemical Company

For More Information

Poison Control Center	www.calpoison.org	(800) 876 – 4766
California Health Service Department Sacramento	www.dhs.ca.gov	(916) 540 – 3014
US Environmental Protection Agency and Technology Transfer Network	http://www.epa.gov/ttn/atw/allabout.html	(800) 535 – 0202 EPCRA Hotline (919) 541 – 0888
National Institute of Occupational Safety & Health and the Agency for Toxic Substances and Disease Registry	http://www.atsdr.cdc.gov/tfacts69.html www.cdc.gov/niosh	(800) 477 – 1544
Occupational Safety and Health Administration	www.osha.gov	(202) 219 – 8151 or (202) 219 – 7056
ChemFinder®	http://Chemfinder.camsoft.com	(800) 315 – 7300
International Safety Cards	http://siri.org/msds/mf/cards/list.html	
MSDS Sites	http://www.msds.com/ http://siri.org/msds/ www.msdsonline.com	
Contra Costa County Health Services – Hazardous Materials Department	http://www.cchealth.org/groups/hazmat/	(925) 646 – 2286

This is a brief summary of information on this chemical. For more detailed information you can obtain a Material Safety Data Sheet from Contra Costa Health Services. You can also call any of the companies listed above for more information.