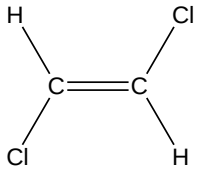
VersaTRANS™ Solvent

Refer to the Safety Data Sheet (SDS) for additional information and before handling this material.

CAS Number: 156-60-5
Synonyms: 1,2-DCE; trans-1,2-DCE; 1,2-dichloroethylene; trans-1,2-dichloroethylene
Chemical Formula: $C_2H_2Cl_2$
Molecular Weight: 96.95
Chemical Structure:



Description: *VersaTRANS solvent* is a clear, colorless liquid at room temperature. It is highly flammable and has a sharp, harsh odor.

Product Overview

VersaTRANS™ Solvent is a specialty chemical with unique solvency characteristics and a favorable toxicological profile. *VersaTRANS solvent* has a negligible global warming potential, is not regulated as an Ozone Depleting Chemical in the United States, and is not listed as a Hazardous Air Pollutant. The development of *VersaTRANS solvent* was based on the need for a solvent that reduces environmental impact and helps to maintain public safety. *VersaTRANS solvent* is produced at the Lake Charles, Louisiana facility. It is available in a variety of product grades to meet the end use application requirements.

VersaTRANS solvent has a high Kauri-butanol (kB) value and a fast evaporation rate, making it an excellent solvent choice for a variety of applications. It is compatible with a number of substrates and has received Significant New Alternatives Policy (SNAP) approval from the US EPA for aerosol, electronic, metal and precision cleaning applications. It has also received EPA SNAP approval in some foam blowing formulations. While there are no known government approved applications, *VersaTRANS* may be used as a co-solvent in a variety of military applications.

Production

Axiall manufactures *VersaTRANS solvent* with a proprietary process through the high temperature chlorination of hydrocarbons. The resulting product is cis/trans-1,2-dichloroethylene, which is isomerized to trans-1,2-dichloroethylene.

Uses

VersaTRANS solvent is useful in a variety of different applications. It can be used neat or as a co-solvent in a variety of azeotropic or non-azeotropic blends. *VersaTRANS* enhances the functionality and economics of a wide array of solvent formulations. It enables customized blends based upon end-use requirements, and increases the solvency power of many fluoro-fluids. With all downstream applications, appropriate registrations and/or approvals may be required. Possible uses are described below:

- **Electronic Cleaning** - *VersaTRANS solvent* is used to precision clean delicate electronics and computer parts without disturbing circuitry.

- **Aerosol Cleaning** - Due to a very fast evaporation rate, *VersaTRANS solvent* is particularly suited to aerosol cleaning formulations.
- **Foam Blowing** - *VersaTRANS* solvent has been approved by the US EPA under its Significant New Alternatives Policy (SNAP) rule for replacement of chemicals that have been regulated due to ozone depletion, a few of which are being phased out in the foam blowing segment.
- **Electronic Etching** - *VersaTRANS solvent* is used as a source of pure hydrochloric acid through a controlled decomposition process in the electronics industry manufacturing and etching of silicon chips.
- **Vapor Degreasing** - Vapor degreasing is a process designed to finish a surface. It uses solvents in vapor form to clean the surface in preparation for further finishing processes, such as coating or electroplating. This process is optimal for electronic parts where water can't be used. *VersaTRANS solvent* is an excellent degreaser, and can remove oil, grease, wax and other non-water soluble particles.

Health Effects

Read and follow all instructions on the product label and review the Safety Data Sheet (SDS) to understand and avoid the hazards associated with *VersaTRANS solvent*. Wear appropriate personal protective equipment and avoid direct contact. Eye contact with *VersaTRANS solvent* causes serious eye irritation. Skin contact with *VersaTRANS solvent* causes skin irritation. Ingestion of *VersaTRANS solvent* may be harmful if swallowed. *VersaTRANS solvent* may be aspirated into lungs during ingestion and/or subsequent vomiting; aspiration of this material will cause severe lung injury, chemical pneumonitis, pulmonary edema or death. Inhalation of *VersaTRANS solvent* may be harmful and may affect the central nervous system; symptoms may include dizziness, drowsiness, lethargy, coma and death. Adrenaline should only be administered after careful consideration following overexposure to *VersaTRANS solvent*; increased sensitivity of the heart to adrenaline may be caused by overexposure to this product.

The American Conference of Governmental Industrial Hygienists® (ACGIH) has recommended occupational airborne exposure limits for *VersaTRANS solvent*. They currently recommend a Threshold Limit Value (TLV) of 200 ppm for an 8-hour time weighted average (TWA).

Studies evaluating the effects of repeated exposure to *VersaTRANS solvent* have been performed by different routes of exposure (i.e., inhalation, dosed feed, drinking water). Few adverse effects and no histopathological changes were noted in these studies conducted at relatively high doses. For example, in a 90-day inhalation study, no adverse effects were observed in rats exposed to 4000 ppm, the highest concentration tested in the study. Genotoxicity studies used to evaluate the potential of a chemical to be a carcinogen have been negative. Exposure of pregnant animals to *VersaTRANS solvent* did not produce any adverse effects on the fetus.

Depending on conditions, when *VersaTRANS solvent* is exposed to high temperatures, heat, or ignition, hydrogen chloride gas, which is highly irritating to the nose and throat, as well as trace levels of phosgene gas, an extremely poisonous gas, may be produced.

Before handling, it is important that engineering controls are operating and protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use and should be given the opportunity to review this document and the safety data sheet.

Environmental Effects

VersaTRANS solvent should be kept out of lakes, streams, ponds, or other water sources. *VersaTRANS solvent* shows a low bioaccumulation potential and it is not readily biodegradable.

Exposure Potential

Precautions should be taken to minimize potential harm to people, animals, and the environment. Potential for exposure may vary depending upon site-specific conditions. When handling *VersaTRANS solvent*, refer to the Safety Data Sheet and Product Warning Label and follow all instructions and warnings. Based on the expected uses for *VersaTRANS*, exposure could be through:

- **Workplace exposure** - Exposure can occur either in a *VersaTRANS* manufacturing facility or in the various industrial facilities that use *VersaTRANS*. Good industrial hygiene practices and the use of personal protective equipment will, when combined with proper training and environment, health and safety practices, contribute to a safe work environment.
- **Environmental releases** - In the event of a spill, contain the spill to prevent contaminated soil, surface or ground water. Industrial spills (releases to soil or water) should be controlled by workplace spill programs which include containment around loading and unloading operations and storage tanks and employee training. Many aspects of a spill control program are mandated by federal, state and local requirements. In addition, if a spill occurs, governmental reporting may be required. Refer to the Safety Data Sheet for instructions to contain and clean up a spill to minimize exposure.
- **Consumer exposure** - *VersaTRANS* is not sold directly to consumers, however it is an ingredient in some consumer products. Keep all chemical products out of the reach of children.

Safe Handling and Storage

VersaTRANS solvent is a flammable liquid and vapor. *VersaTRANS solvent* vapor concentrations between 6.7% and 18% by volume in air are explosive by ignition. When exposed to open flames, open electrical elements, or electrical arcs, including arc welding, *VersaTRANS solvent* liquid or vapor can decompose to form toxic and corrosive acid fumes including phosgene. Fire and explosion hazards can be minimized by adequate ventilation, using the proper types and arrangement of equipment, and reasonable precautions and care in handling.

VersaTRANS solvent should be stored away from direct sunlight in a dry, cool and well-ventilated area away from incompatible materials. Depending on conditions, when *VersaTRANS solvent* is exposed to high temperatures, heat, or ignition, hydrogen chloride gas, which is highly irritating to the nose and throat, as well as trace levels of phosgene gas, an extremely poisonous gas, may be produced. As a result, all ignition sources should be eliminated. All metal parts of equipment must be grounded to avoid ignition of vapors by static electricity discharge. Avoid contact with strong alkalis, such as caustic soda, strong acids, and oxidizing agents.

Appropriate personal protective equipment, as described in the *VersaTRANS solvent* Safety Data Sheet, should always be worn to avoid contact with the eyes, skin and clothing or to prevent the inhalation of the gas, fumes or vapor.

Packaging and Shipping

Axiall ships *VersaTRANS solvent* in drums, tank trucks, and isocontainers.

- **Drums** - Most *VersaTRANS solvent* shipments are made in drums with a capacity of 55 gallons.
- **Tank trucks** - Axiall makes bulk shipments in tank trucks with a capacity of 22 tons.
- **Isocontainers** - Axiall makes bulk shipments in isocontainers with a capacity of 20 tons.

Fire and Explosion Hazards

VersaTRANS solvent is a highly flammable liquid and vapor. If heated or in a fire, a pressure increase will occur and the container may burst, with the risk of subsequent explosion. Since vapors are heavier than air, they will

spread along the ground and may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.

During a fire, promptly isolate the scene by removing all persons from the vicinity of the incident. No other action shall be taken without suitable training. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Physical and Chemical Properties

VersaTRANS solvent is a chlorinated 2-carbon solvent. Chlorinated hydrocarbons tend to decompose when exposed to heat, light, oxygen, or water. This decomposition process is accelerated by the presence of metals and metal salts, and presence of decomposed solvent itself tends to catalyze further decomposition. To maximize stability and product life, Axiall stabilizes *VersaTRANS solvent* prior to shipment. The types of stabilizers are customized according to end use application.

Properties of *VersaTRANS*	
Boiling Point	118°F (48°C)
Freezing Point	-58°F (-50°C)
Flash Point, tag open cup	36°F (2.2°C)
Auto-ignition temperature	860°F (460°C)
Specific Gravity at 25°C	1.27
Vapor Pressure at 25°C	336 mm Hg
Density at 20°C	10.6 lbs/gal

Regulatory Information

The *VersaTRANS solvent* Safety Data Sheet contains regulatory information, including Chemical Inventory Status, California Proposition 65 status, and Transportation Classifications. The following is additional regulatory information.

North American Regulatory Information

- **CONEG Regulation/Model Toxics in Packaging Legislation** - Lead, cadmium, mercury and hexavalent chromium are not intentionally added to *VersaTRANS solvent*, and based on the formula and Axiall's experience with the product, the sum of the incidental concentration levels of these metals is not expected to exceed 100 parts per million (ppm) by weight.
- **RCRA** – Commercial grade *VersaTRANS solvent*, if discarded or spilled, would be a listed hazardous waste under 40 CFR 261.33, specifically U079 – 1,2-dichloroethene (1,2-dichloroethylene) CAS 156-60-5. In addition, *VersaTRANS solvent*, if discarded or spilled, as well as other wastes generated during use of *VersaTRANS solvent* or containing *VersaTRANS solvent* may exhibit one or more hazardous waste characteristics under 40 CFR 261.24, including D001 – ignitable. (Note: Axiall provides information on U.S. hazardous waste criteria for the product as manufactured. It remains the obligation of the user to evaluate their specific waste and to manage, treat, and dispose of

unused material, residues, and containers in accordance with applicable federal, state, and local requirements.)

- **VOC Information** - *VersaTRANS solvent* contains volatile organic compounds (VOC) based on the definition in 40 CFR 51.100.
- **HAP Information** - *VersaTRANS solvent* is not considered a hazardous air pollutant (HAP) as listed in the Clean Air Act Amendments of 1990, 42 USC 7412 (b).
- **Ozone-Depleting Chemicals** - *VersaTRANS solvent* is not/does not contain ozone depleting chemicals (40 CFR 82, Subpart A, Appendix F)
- **Toxic Pollutants / Priority Pollutants** - *VersaTRANS solvent* contains toxic pollutants/priority pollutants as listed in 40 CFR 401.15.
- **CERCLA Hazardous Substance** – *VersaTRANS solvent* (1,2-dichloroethylene) appears in the List of Hazardous Substances and Reportable Quantities table (40 CFR 302.4) with a reportable quantity (RQ) of 1000 pounds (454 Kg).
- **TSCA Information** - This product is not currently subject to any rule or order under TSCA Sections 4,5,7,8(a), or 8(d).

Other Regulatory Information

- **RoHS/WEEE** - *VersaTRANS solvent* has been reviewed with regard to the EU Directive 2011/65/EU "Restriction on the Use of Certain Hazardous Substances" (RoHS 2). Based on our knowledge of this product and information on the raw material suppliers' Safety Data Sheets, this product does not contain cadmium, hexavalent chromium, lead, mercury, polybrominated biphenyls (PBBs) or polybrominated diphenyl ethers (PBDEs) at levels greater than the tolerated maximum concentration values established by the directive.

Additional Product Information

- **Source** - *VersaTRANS solvent* is derived from mineral and petroleum sources and has not been derived from plant, animal, synthetic or fermentation sources.
- **Allergenic Materials** - *VersaTRANS solvent* is not manufactured using any of the following allergenic materials: carmine/cochineal extracts, celery, colors/color additives, dyes/food dyes, eggs/egg products, seafood/fish/shellfish/crustaceans, flavors, glutens, legumes, milk, mollusks, monosodium glutamate (MSG), mustard, plant nuts/seeds/oils (sesame, sunflower, safflower, canola, etc.), peanuts/peanut products, protein hydrolysates, soy/soybeans/soybean products, spices, sulfites, sulfates, tree nuts/tree nut oils and wheat.
- **Bovine Spongiform Encephalopathy** - *VersaTRANS solvent* is not of animal origin, and, to Axiall's knowledge, does not contribute to Transmissible Spongiform Encephalopathy (TSE)/Bovine Spongiform Encephalopathy (BSE).
- **Genetically Modified Organisms (GMOs)** - *VersaTRANS solvent* is not manufactured with and does not contain genetically modified organisms.
- **Natural Latex Rubber** - *VersaTRANS solvent* is not manufactured with and does not contain natural latex rubber as defined in 21 CFR 801.437(b)(1).
- **Nutritional Value** - *VersaTRANS solvent* does not have nutritional value.

Product Stewardship

Axiall Corporation is committed to managing *VersaTRANS solvent* so that it can be safely used by its employees and customers. Axiall's relationships with its customers encourage communication about safety and environmental stewardship.

Additional Information

For more information regarding Axiall's *VersaTRANS solvent*, contact our customer service department by calling 800-243-6774.

References

- Axiall Corporation Web page: http://www.axiall.com/
- Axiall Safety Data Sheets: http://www.axiall.com/products/safety-data-sheets/

Notice

Prior to its use, the user is responsible for determining the suitability of the product or products covered by this Product Stewardship Summary and for complying with all federal, state, and local laws and regulations in connection with its use. Neither Axiall Corporation nor any of its affiliates shall be responsible for any damages of any kind whatsoever resulting from the use of or reliance on this Product Stewardship Summary or product or products to which it refers.

This Product Stewardship Summary is intended only to provide a general summary of the potential hazards associated with the product or products described herein. It is not intended to provide detailed information about potential health effects and safe use and handling information and, although Axiall Corporation believes this information is correct, Axiall Corporation makes no warranties as to its completeness or accuracy. Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the Axiall Corporation product(s) mentioned in this document. Before working with any of these products, users must read and become familiar with the available information on product hazards, proper use, and handling. Information is available in several forms, such as safety data sheets (SDS) and product labels. A copy of Axiall's SDS for *VersaTRANS solvent* can be obtained by going to the company's website www.axiall.com.

This information is subject to change without notice.

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