Material Safety Data Sheet
Acetic-D3 Acid-D, 99.5 Atom % D

ACC# 97415

Section 1 - Chemical Product and Company Identification

MSDS Name: Acetic-D3 Acid-D, 99.5 Atom % D
Catalog Numbers: AC166210000, AC166210050, AC166210100, AC166210250
Synonyms: None known.
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

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
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<tbody>
<tr>
<td>1186-52-3</td>
<td>Acetic-D3 Acid-D</td>
<td>99.5</td>
<td>214-693-4</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Clear colourless liquid. Flash Point: 40 deg C.

**Danger!** Corrosive. Causes eye and skin burns. May cause skin sensitization by skin contact. Lachrymator (substance which increases the flow of tears). **Flammable liquid and vapor.** May cause severe respiratory tract irritation with possible burns. May cause severe digestive tract irritation with possible burns. May cause central nervous system depression. Hygroscopic (absorbs moisture from the air).

Target Organs: Kidneys, central nervous system, teeth.

Potential Health Effects

**Eye:** Contact with liquid or vapor causes severe burns and possible irreversible eye damage. Lachrymator (substance which increases the flow of tears). May cause chemical conjunctivitis and corneal damage.

**Skin:** May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Causes severe burns with delayed tissue destruction. Contact with the skin may cause blackening and hyperkeratosis of the skin of the hands. May cause cyanosis of the extremities. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

**Ingestion:** May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. Causes severe pain, nausea, vomiting, diarrhea, and shock. May cause polyuria, oliguria (excretion of a diminished amount of urine in relation to the fluid intake) and anuria (complete suppression of urination). Ingestion of large amounts may cause CNS depression. May cause systemic effects. Rapidly absorbed from the gastrointestinal tract.

**Inhalation:** Effects may be delayed. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. Exposure may lead to bronchitis, pharyngitis, and dental erosion. May cause systemic effects. May be absorbed through the lungs. May cause burning sensation in the chest.

**Chronic:** Prolonged or repeated skin contact may cause dermatitis. Repeated inhalation may cause chronic bronchitis. Repeated exposure may cause erosion of teeth. Effects may be delayed. Repeated exposure may lead to blackening and hyperkeratosis of the skin and hands, conjunctivitis, bronchitis and pharyngitis and erosion of the teeth. Prolonged exposure may cause corneal erosion, conjunctivitis, and possible blindness.

Section 4 - First Aid Measures

**Eyes:** Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

**Skin:** Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

**Ingestion:** Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Notes to Physician:** Persons with pre-existing skin disorders or impaired respiratory or pulmonary function may be at increased risk to the effects of this substance. Treat symptomatically and supportively.

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. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. 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. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Reacts with most metals to form highly flammable hydrogen gas which can form explosive mixtures with air. Vapors may be heavier than air. They can spread along the ground and collect...
in low or confined areas. May be ignited by friction, heat, sparks, or flame. May polymerize explosively when involved in a fire. Containers may explode when heated.

**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. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT get water inside containers. Do NOT use straight streams of water.

**Flash Point:** 40 deg C (104.00 deg F)

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** 4.00 vol %

**Explosion Limits, Upper:** 17.00 vol %

**NFPA Rating:** (estimated) Health: 3; Flammability: 2; Instability: 0

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**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. Use water spray to dilute spill to a non-flammable mixture. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Cover with material such as dry soda ash or calcium carbonate and place into a closed container for disposal. A vapor suppressing foam may be used to reduce vapors.

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**Section 7 - Handling and Storage**

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion-proof equipment. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not get on skin or in eyes. Do not ingest or inhale. Use with adequate ventilation. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep container closed when not in use. Keep under a nitrogen blanket. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Store in a suitable container in a dry area above the substance's freezing point. Do not store near alkaline substances.

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**Section 8 - Exposure Controls, Personal Protection**

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.

**Exposure Limits**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic-D3 Acid-D</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

**OSHA Vacated PELs:** Acetic-D3 Acid-D: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

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**Section 9 - Physical and Chemical Properties**

**Physical State:** Liquid

**Appearance:** Clear colourless liquid

**Odor:** Acetic odor

**pH:** Acidic (<2.0)

**Vapor Pressure:** Not available.

**Vapor Density:** 2.21

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** 115.5 deg C @ 760.00mm Hg

**Freezing/Melting Point:** 15 - 16 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Miscible.

**Specific Gravity/Density:** 1.1370g/cm3

**Molecular Formula:** C2D4O2

**Molecular Weight:** 64.08

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**Section 10 - Stability and Reactivity**

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.

**Conditions to Avoid:** Incompatible materials, ignition sources, excess heat, exposure to moist air or water.

**Incompatibilities with Other Materials:** Metals, oxidizing agents, bases, acetic anhydride, alcohols, amines, ammonia, ammonium nitrate, chlorine trifluoride, nitric acid, permanganates, peroxides, sodium hydroxide, sodium peroxide, alkylene oxides, alliphatic amines,
hydrogen peroxides, acetaldehyde, caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), isocyanates (e.g. methyl isocyanate), acid anhydrides, chlorosulfonic acid, oleum, chromium trioxide, potassium hydroxide, carbonates, bromine pentafluoride, perchloric acid, chromic anhydride, potassium-tert-butoxide, calcium salts, ethyleneimine, epichlorohydrin. Attacks some forms of plastics, rubbers, and coatings., 2-aminoethanol, ethylene diamine, phosphorus trichloride, alkanolamines, chromic acid anhydride, phosphorus isocyanate, diallyl methyl carbinol + ozone, nitric acid + acetone, xylene, sodium salts, chromic acid.

**Hazardous Decomposition Products:** Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

**Hazardous Polymerization:** Has not been reported

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**Section 11 - Toxicological Information**

**RTECS#:**
CAS# 1186-52-3 unlisted.

**CAS# 1186-52-3 unlisted.**

**LD50/LC50:**
Not available.

**Carcinogenicity:**
CAS# 1186-52-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:**
No information found

**Teratogenicity:**
Oral, rat: TDLo = 700 mg/kg (lactating female 18 day(s) post-birth) Effects on Newborn - behavioral. Effects on Newborn: behavioral, orf-rat TDLo=700 mg/kg.

**Reproductive Effects:**
Intratesticular, rat: TDLo = 400 mg/kg (male 1 day(s) pre-mating) Fertility - male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females).

**Mutagenicity:**
Sister Chromatid Exchange: Human, Lymphocyte = 5 mmol/L.; Unscheduled DNA Synthesis: Administration onto the skin, mouse = 79279 ug/kg.; Cytogenetic Analysis: Hamster, Ovary = 10 mmol/L.

**Neurotoxicity:**
No information available.

**Other Studies:**

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**Section 12 - Ecological Information**

**Ecotoxicity:**
Fish: Fathead Minnow: LC50 = 88 mg/L; 96 Hr; Static bioassay @ 18-22°C Fish: Bluegill/Sunfish: LC50 = 75 mg/L; 96 Hr; Unspecified

**Water flea Daphnia:** EC50 = 32-47 mg/L; 24-48 Hr; Unspecified

Bacteria:
Phytobacterium phosphoreum: EC50 = 8.86-11 mg/L; 5,15,25 min; Microtox test If released to water or soil, acetic acid will biodegrade readily. Evaporation from dry surfaces is likely to occur. When spilled on soil, the liquid will spread on the surface and penetrate into the soil at a rate dependent on the soil type and its water content. Acetic acid shows no potential for biological accumulation or food chain contamination.

**Environmental:**
If released to the atmosphere, it is degraded in the vapor-phase by reaction with photochemically produced hydroxyl radicals (estimated typical half-life of 26.7 days). It occurs in atmospheric particulate matter in acetate form and physical removal from air can occur via wet and dry deposition.

**Other:**
For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

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**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:** None listed.

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**Section 14 - Transport Information**

<table>
<thead>
<tr>
<th>Shipping Name:</th>
<th>US DOT</th>
<th>Canada TDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT regulated - small quantity provisions apply (see 49CFR173.4)</td>
<td></td>
<td>ACETIC ACID</td>
</tr>
</tbody>
</table>

**Hazard Class:**

**UN Number:**

**Packing Group:**

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**Section 15 - Regulatory Information**

**US FEDERAL**

**TSCA**
CAS# 1186-52-3 is not listed on the TSCA inventory. It is for research and development use only.

**Health & Safety Reporting List**
None of the chemicals are on the Health & Safety Reporting List.

**Chemical Test Rules**
None of the chemicals in this product are under a Chemical Test Rule.

**Section 12b**
None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**
None of the chemicals in this material have a SNUR under TSCA.

**CERCLA Hazardous Substances and corresponding RQs**
None of the chemicals in this material have an RQ.

**SARA Section 302 Extremely Hazardous Substances**
None of the chemicals in this product have a TPQ.

**Section 313**
No chemicals are reportable under Section 313.

**Clean Air Act:**
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**
None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**
CAS# 1186-52-3 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

**California Prop 65**
California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**
C

**Risk Phrases:**
R 10 Flammable.
R 35 Causes severe burns.

**Safety Phrases:**
S 16 Keep away from sources of ignition - No smoking.
S 23 Do not inhale gas/fumes/vapour/spray.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 33 Take precautionary measures against static discharges.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 9 Keep container in a well-ventilated place.

**WGK (Water Danger/Protection)**
CAS# 1186-52-3: No information available.

**Canada - DSL/NDSL**
None of the chemicals in this product are listed on the DSL or NDSL list.

**Canada - WHMIS**
This product has a WHMIS classification of B3, E.
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**

| Section 16 - Additional Information |

**MSDS Creation Date:** 9/02/1997
**Revision #5 Date:** 10/03/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.