Material Safety Data Sheet
p-Toluenesulfonic acid, 12% in acetic acid

ACC# 79835

Section 1 - Chemical Product and Company Identification

MSDS Name: p-Toluenesulfonic acid, 12% in acetic acid
Catalog Numbers: AC421220000, AC421220010, AC421222500
Synonyms: PTSA in acetic acid.
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
64-19-7	Acetic acid	88	200-580-7
104-15-4	p-Toluenesulfonic acid	12	203-180-0

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear colorless to light yellow liquid. Flash Point: 41 deg C.
Danger! Causes eye and skin irritation and burns. Causes digestive and respiratory tract burns. **Flammable liquid and vapor.** May be harmful if absorbed through the skin.
Target Organs: Respiratory system, teeth, eyes, skin, mucous membranes.

Potential Health Effects

Eye: Causes severe eye irritation. Contact with liquid or vapor causes severe burns and possible irreversible eye damage.
Skin: Causes skin burns. May be harmful if absorbed through the skin. Contact with the skin may cause blackening and hyperkeratosis of the skin of the hands.
Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. Causes severe pain, nausea, vomiting, diarrhea, and shock.
Inhalation: Effects may be delayed. Causes chemical burns to the respiratory tract. Exposure may lead to bronchitis, pharyngitis, and dental erosion. May be absorbed through the lungs.
Chronic: Chronic exposure to acetic acid may cause erosion of dental enamel, bronchitis, eye irritation, darkening of the skin, and chronic inflammation of the respiratory tract. Acetic acid can cause occupational asthma. One case of a delayed asthmatic response to glacial acetic acid has been reported in a person with bronchial asthma. Skin sensitization to acetic acid is rare, but has occurred.

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: If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: 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. Flammable liquid and vapor. 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.
Flash Point: 41 deg C (105.80 deg F)
Autoignition Temperature: 426 deg C (798.80 deg F)
Explosion Limits, Lower:4.0%
Upper: 19.9%
NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Use water spray to dilute spill to a non-flammable mixture. Avoid runoff into storm sewers and ditches which lead to waterways. Wash area with soap and water. Use water spray to disperse the gas/vapor. 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. U.S. regulations require reporting spills and releases to soil, water and air in excess of reportable quantities.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. 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 ingest or inhale. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame.
Storage: Keep away from heat, sparks, and flame. Keep from freezing. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not store near alkaline substances. Acetic acid should be kept above its freezing point of 62°F(17°C) to allow it to be handled as a liquid. It will contract slightly on freezing. Freezing and thawing does not affect product quality.

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 exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Acetic acid	10 ppm TWA; 15 ppm STEL	10 ppm TWA; 25 mg/m3 TWA 50 ppm IDLH	10 ppm TWA; 25 mg/m3 TWA
p-Toluenesulfonic acid	none listed	none listed	none listed

OSHA Vacated PELs: Acetic acid: 10 ppm TWA; 25 mg/m3 TWA p-Toluenesulfonic acid: No OSHA Vacated PELs are listed for this chemical.
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: 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.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear colorless to light yellow
Odor: Acetic acid odor
pH: Not available.
Vapor Pressure: 14 mm Hg @ 20 deg C
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 116 deg C @ 760mm Hg
Freezing/Melting Point: Not available.
Decomposition Temperature: Not available.
Solubility: soluble in water
Specific Gravity/Density:1.0700g/cm3
Molecular Formula:C7H8O3S
Molecular Weight:172.20

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Ignition sources, excess heat, freezing temperatures.
Incompatibilities with Other Materials: Metals, strong oxidizing agents, strong bases, nitric acid, peroxides, chromic acid.
Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 64-19-7: AF1225000
CAS# 104-15-4: XT6300000
LD50/LC50:
CAS# 64-19-7:
Draize test, rabbit, skin: 50 mg/24H Mild;

Inhalation, mouse: LC50 = 5620 ppm/1H;
Oral, rat: LD50 = 3310 mg/kg;
Skin, rabbit: LD50 = 1060 uL/kg;
.

CAS# 104-15-4:
Oral, rat: LD50 = 2480 mg/kg;
.

Carcinogenicity:
CAS# 64-19-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
CAS# 104-15-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No teratogenic effects were observed among the offspring of mice, rats, or rabbits that had been given very large doses of apple cider vinegar (containing acetic acid) during pregnancy.Acetic acid treatment of suckling rats (via maternal administration) was associated with abnormalities of behavioral testing.
Reproductive Effects: CAS# 64-19-7: TDLo: Oral, rat = 700 mg/kg (lactating female 18 day(s) post-birth-- Effects on Newborn).; TDLo: Intratesticular, rat = 400 mg/kg (male 1 day(s) pre-mating--Fertility - male fertility index).
Mutagenicity: CAS# 64-19-7: Sex chromosome loss and nondisjunction: Inhalation, Drosophila melanogaster = 1000 ppm/24H.; Sex chromosome loss and nondisjunction: Oral, Drosophila melanogaster = 1000 ppm.; Sister chromatid exchange: Human Lymphocyte 5 mmol/L.; Unscheduled DNA synthesis: Administration onto the skin, mouse = 79279 ug/kg.; Mutation test systems - not otherwise specified: Administration onto the skin, mouse = 1201 mg/kg.; Cytogenetic analysis: hamster Ovary = 10 mmol/L.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: >315 mg/L; 1Hr; CAS# 64-19-7Fish: Fathead Minnow: 175 mg/L; 1Hr; CAS# 64-19-7Fish: Bluegill/Sunfish: 45 mg/L; 96Hr; CAS# 64-19-7Daphnia: Water Flea: 47 mg/L; 24 Hr; CAS# 64-19-7Fish: Bluegill/Sunfish: LC50 = 75 mg/L; 96 Hr; CAS# 64-19-7: UnspecifiedFish: Goldfish: LC50 = 423 mg/L; 24 Hr; CAS# 64-19-7: UnspecifiedWater flea Daphnia: EC50 = 32-47 mg/L; 24-48 Hr; CAS# 64-19-7: UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 8.86-11 mg/L; 5,15,25 min; CAS# 64-19-7: Microtox testFish: Fathead Minnow: LC50 = 88 mg/L; 96 Hr; CAS# 64-19-7: Static bioassay @ 18-22°C CAS#: 104-15-4 Estimated BCF value = 0.2. This would indicate that p-toluenesulfonic acid would not bioconcentrate in aquatic organisms. The log Koc estimated from molecular structure = 19. This estimated Koc suggests that p-toluenesulfonic acid is highly mobile in soil and would readily leach. CAS#: 64-19-7 Based on a log Kow of -0.17(1), the BCF for acetic acid can be estimated to be <1. This indicates that bioconcentration is not significant. Acetic acid has been noted to leach from biological disposal areas, however, it is expected to efficiently biodegrade during its migration.
Environmental: No information available.
Physical: No information available.
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: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	CORROSIVE LIQUIDS, FLAMMABLE, N.O.S.	Corrosive Liquid, Flammable, N.O.S.
Hazard Class:	8	8(3)
UN Number:	UN2920	UN2920
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 64-19-7 is listed on the TSCA inventory.
CAS# 104-15-4 is listed on the TSCA inventory.
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
CAS# 64-19-7: 5000 lb final RQ; 2270 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.

SARA Codes
CAS # 64-19-7: immediate, delayed, fire.
CAS # 104-15-4: immediate.
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:
CAS# 64-19-7 is listed as a Hazardous Substance 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# 64-19-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.
CAS# 104-15-4 can be found on the following state right to know lists: Pennsylvania, Massachusetts.

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 34 Causes burns.

Safety Phrases:
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 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)
CAS# 64-19-7: 1
CAS# 104-15-4: 1
Canada - DSL/NDSL
CAS# 64-19-7 is listed on Canada's DSL List.
CAS# 104-15-4 is listed on Canada's DSL 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
CAS# 64-19-7 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 2/26/1999
Revision #6 Date: 5/20/2005