Material Safety Data Sheet
Butyraldehyde, P.A. Contains Less Than 1% Butyric Acid

ACC# 71307

Section 1 - Chemical Product and Company Identification

MSDS Name: Butyraldehyde, P.A. Contains Less Than 1% Butyric Acid
Catalog Numbers: AC220300000, AC220302500
Synonyms: Butanal; Butyl Aldehyde; Butal; Butyric Aldehyde.
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
123-72-8	Butyraldehyde	99	204-646-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: -12 deg C.
Danger! Highly flammable. Corrosive. Causes eye and skin burns. Causes digestive and respiratory tract burns. May cause allergic respiratory reaction. May form explosive peroxides. May cause central nervous system depression.
Target Organs: Central nervous system, lungs.

Potential Health Effects
Eye: Causes eye burns.
Skin: Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.
Ingestion: May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. May cause central nervous system depression.
Inhalation: May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Exposure produces central nervous system depression. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. May cause an allergic response. Vapors may cause dizziness or suffocation.
Chronic: Repeated inhalation may cause nasal and tracheal inflammation.

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. Destroy contaminated shoes.
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.
Notes to Physician: Treat symptomatically.

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. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Flammable liquid and vapor. May form explosive peroxides. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. 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. Use water spray to cool fire-exposed containers. Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water.
Flash Point: -12 deg C (10.40 deg F)
Autoignition Temperature: 230 deg C (446.00 deg F)
Explosion Limits, Lower:2.5
Upper: 12.5
NFPA Rating: (estimated) Health: ; Flammability: ; Instability:

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. Use water spray to disperse the gas/vapor. Remove all sources of ignition. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Do not ingest or inhale. If peroxide formation is suspected, do not open or move container. 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 from contact with oxidizing materials. Keep under an argon blanket. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Keep away from acids. Do not store near alkaline substances. Keep away from strong bases. After opening, purge container with nitrogen before reclosing. Periodically test for peroxide formation on long-term storage. Addition of water or appropriate reducing materials will lessen peroxide formation.

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.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Butyraldehyde	none listed	none listed	none listed

OSHA Vacated PELs: Butyraldehyde: 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 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: Pungent, nutty, suffocating odor.
pH: Not available.
Vapor Pressure: 88.5 mm Hg @20 C.
Vapor Density: 2.5
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 76 deg C
Freezing/Melting Point:-99 deg C
Decomposition Temperature: Not available.
Solubility: Soluble in water.
Specific Gravity/Density:0.8
Molecular Formula:C4H8O
Molecular Weight:72.0554

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Peroxide formation may occur in containers that have been opened and remain in storage.
Conditions to Avoid: High temperatures, mechanical shock, incompatible materials, ignition sources, strong oxidants.
Incompatibilities with Other Materials: Oxidizing agents, strong bases, strong reducing agents, and strong acids. Reacts vigorously with chlorosulfonic acid, nitric acid, oleum, and sulfuric acid.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 123-72-8: ES2275000
LD50/LC50:
CAS# 123-72-8:
Draize test, rabbit, eye: 20 mg/24H Moderate;
Inhalation, mouse: LC50 = 44610 mg/m3/2H;

Inhalation, mouse: LC50 = 36000 mg/m3/2H;
Inhalation, rat: LC50 = 6400 ppm/4H;
Oral, rat: LD50 = 2490 mg/kg;
Oral, rat: LD50 = 5890 mg/kg;
Skin, rabbit: LD50 = 3560 uL/kg;
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Carcinogenicity:
CAS# 123-72-8: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 16-25.8 mg/L; 96 Hr.; UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 16.4-16.5 mg/L; 5 minutes; Microtox testBacteria: Phytobacterium phosphoreum: EC50 = 98.21-268 mg/L; 5,15,30 minutes; Microtox test No data available.
Environmental: TERRESTRIAL FATE: The primary degradation process in soil is expected to be biodegradation. A number of biological screening studies have demonstrated that butyraldehyde is readily biodegradable. Estimated Koc values of 9 and 71 suggest that butyraldehyde will leach readily. Butyraldehyde's vapor pressure of 111.4 mm Hg at 25 deg C indicates that it will evaporate rapidly from surfaces. AQUATIC FATE: The major environmental fate processes for butyraldehyde in water are biodegradation and volatilization.
Physical: ATMOSPHERIC FATE: In excess of 99% of the butyraldehyde present in the atmosphere will occur in the vapor phase, although a small fraction has been shown to occur in the particulate aerosol. Vapor phase butyraldehyde will degrade relatively rapidly in an average ambient atmosphere by reaction with photochemically produced hydroxyl radicals (estimated half-life of 16.4 hours). Direct photolysis may also be a major degradation process. During intense smog-pollution episodes, the natural formation rate of butyraldehyde can exceed the degradation rate.
Other: Degradation in anaerobic reactor (after 52 days of acclimation) was 82%. Butyraldehyde is considered amendable to anaerobic biodegradation.

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:	BUTYRALDEHYDE	BUTYRALDEHYDE
Hazard Class:	3	3
UN Number:	UN1129	UN1129
Packing Group:	II	II
Additional Info:		FLASHPOINT -6 C

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 123-72-8 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 123-72-8: Effective 12/16/88, Sunset 12/19/95
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.
SARA Codes
CAS # 123-72-8: immediate, fire.
Section 313
This material contains Butyraldehyde (CAS# 123-72-8, 99%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
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# 123-72-8 can be found on the following state right to know lists: New Jersey, Pennsylvania, Minnesota, 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:

F

Risk Phrases:

R 11 Highly flammable.

Safety Phrases:

S 29 Do not empty into drains.
S 33 Take precautionary measures against static discharges.
S 9 Keep container in a well-ventilated place.

WGK (Water Danger/Protection)

CAS# 123-72-8: 1

Canada - DSL/NDSL

CAS# 123-72-8 is listed on Canada's DSL List.

Canada - WHMIS

not available.

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# 123-72-8 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/16/1999
Revision #3 Date: 10/03/2005