

# Material Safety Data Sheet

Liquid Buffer

MSDS No. 12092

Date of Preparation: 3/20/2006

Revision: 3/9/2012

## Section 1 - Chemical Product and Company Identification

**Product/Chemical Name:** Liquid Buffer

**Chemical Formula:** Proprietary blend

**CAS Number:** see Section 2

**Other Designations:** 12092

**Manufactured for:** Plews Schrader Division, 1550 Franklin Grove Road, Airport Industrial Park, Dixon IL 61021,  
Phone (815)288-3344, FAX (815)288-0708 (Monday –Friday 8:00-5:00),

EMERGENCY RESPONSE INFOTRAC 1-800-535-5053

## Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt or % vol
Trichloroethylene	79-01-6	52-56
Methylene Chloride	75-09-2	28-32
Mixed Xylenes	1330-20-7	8-12
Ethylbenzenes	100-41-4	<3

### Trace Impurities:

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
Trichloroethylene	100 ppm	100 ppm	50 ppm	100 ppm	none estab.	none estab.	none estab.
Methylene Chloride	25 ppm	125 ppm	50 ppm	125 ppm	none estab.	none estab.	none estab.
Mixed Xylenes	100 ppm	150 ppm	100 ppm	150 ppm	None estab	None estab	None estab
Ethylbenzene	100 ppm	125 ppm	100 ppm	125 ppm	None estab	None estab	None estab

## Section 3 - Hazards Identification

### ☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

<b>HMIS</b>
H 3
F 2
R 0
PPE†
†Sec. 8

### Potential Health Effects

**Primary Entry Routes:** Eyes, inhalation, skin, ingestion

**Target Organs:** Central nervous system, kidneys, heart, liver and lungs

#### Acute Effects

**Inhalation:** Anesthetic. Irritates respiratory tract. Acute overexposure can cause serious nervous system depression which can cause death. Vapor harmful. Concentrated vapor in confined areas may be fatal. Exposure increases carbon monoxide level of blood. OSHA required periodic vapor monitoring whenever Methylene Chloride vapors may exceed the action level (12.5 parts per million).

**Eye:** Primary irritation to eyes, redness, tearing, blurred vision. Liquid can cause eye burns. Wash thoroughly after handling.

**Skin:** Primary irritation to skin, defatting, dermatitis. Absorption thru skin increases exposure.

**Ingestion:** Harmful or fatal if swallowed. Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.

**Carcinogenicity, Reproductive, and other chronic hazards:** IARC, NTP, and OSHA does list Trichloroethylene, Methylene Chloride and Benzene as a carcinogen. Potential cancer hazard based on tests with laboratory animals using Trichloroethylene, Methylene Chloride and Benzene. Mammary, lung, liver tumors have been reported in laboratory mice. Overexposure may create cancer risk. This product may contain less than 13 ppm of Benzene, not considered hazardous in such low concentrations. Absorption through skin may be harmful. Studies with laboratory animals indicate this product can cause damage to fetus.

**Medical Conditions Aggravated by Long-Term Exposure:** Persons with tumors, severe heart, skin, liver or kidney problems should avoid use.

**Chronic Effects:** Chronic overexposure can cause damage to kidneys, blood, nerves, liver & lungs.

## Section 4 - First Aid Measures

**Inhalation:** After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped give artificial respiration. CALL A PHYSICIAN IMMEDIATELY.

**Eye Contact:** For eyes, flush with plenty of water for 15 minutes and get medical attention.

**Skin Contact:** In case of contact with skin immediately remove contaminated clothing. Wash thoroughly with soap & water. Wash contaminated clothing before reuse. (Discard contaminated shoes.)

**Ingestion:** If swallowed, CALL A PHYSICIAN IMMEDIATELY. DO NOT induce vomiting. Have patient lie down & keep warm. Vomiting may lead to pneumonitis, which may be fatal.

*After first aid, get appropriate in-plant, paramedic, or community medical support.*

**Note to Physicians:** Give oxygen until recovery. Do not give patient sympathomimetic amines such as epinephrine, which can cause arrhythmias.

## Section 5 - Fire-Fighting Measures

**Flash Point:** No Flash to boiling point

**Flash Point Method:** N/A

**Burning Rate:** N/A

**Auto ignition Temperature:** 775 °F (412 °C)

**LEL:** 1.1% v/v

**Flammability Classification:** Class IIIA

**Extinguishing Media:** NFPA Class B extinguishers (carbon dioxide or foam) for Class IIIA liquid fires.

**Unusual Fire or Explosion Hazards:** Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used. Do not enter confined fire-space without full bunker gear. Use NIOSH approved positive pressure self contained breathing apparatus. COMBUSTIBLE! Keep containers tightly closed. Isolate from oxidizers, heat & open flame. Closed containers may explode if exposed to extreme heat. Applying to hot surfaces requires special precautions. Empty container very hazardous! Continue all label precautions!

**Fire-Fighting Instructions:** Do not release runoff from fire control methods to sewers or waterways.

**Fire-Fighting Equipment:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.



## Section 6 - Accidental Release Measures

**Spill /Leak Procedures:** Stop spill at the source. Dike area & Contain. Clean up remainder with absorbent materials. Mop up & dispose of.

**Waste Disposal Method:** Recycle or dispose of observing local, state & Federal health, safety & pollution laws. If questions exist, contact the appropriate agencies.

**Other Precautions:** Do not drink alcohol shortly before, during or after use.

**Regulatory Requirements:** Follow applicable OSHA regulations (29 CFR 1910.120).

## Section 7 - Handling and Storage

**Handling Precautions:** Isolate from oxidizers, heat and open flame. Use only with adequate ventilation. Avoid breathing of vapor or spray mist. Do not get in eyes, on skin or clothing. Wear OSHA Standard goggles or face shield. Consult safety equipment supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse. Avoid free fall of liquid. Ground containers when transferring. Do not flame cut, braze, or weld. Empty container very hazardous! Continue all label precautions! Drinking alcohol shortly before, during or after use can cause unwanted effects.

**Storage Requirements:** When using, loosen bung slowly to relieve pressure. Do no store above 38C/ 100F. Store large amounts in structures made for OSHA Class IIIA liquids. Contact with hot surfaces can produce toxic gases. Keep container tightly closed & upright when not in use to prevent leakage.

## Section 8 - Exposure Controls / Personal Protection

### Engineering Controls:

**Ventilation:** Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

**Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA.

*Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

**Protective Clothing/Equipment:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

**Safety Stations:** Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

**Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance and Odor:** Water-white, chlorinated solvent

**Vapor Pressure:** 181.0 Hg at 20 °C

**Vapor Density (Air=1):** 3.8

**Density:** 10.829 pounds/gallon

**Specific Gravity (H<sub>2</sub>O=1, at 4 °C):** 1.30

**Boiling Range:** 38 84 142 C/ 102 184 288 F

**Total VOC's:** 100.00 Vol %

**Hazardous Air Pollutants (HAPS):** >100.00%

**Percentage Volatile by Volume:** >90%

## Section 10 - Stability and Reactivity

**Stability:** Liquid Buffer is stable at room temperature in closed containers under normal storage and handling conditions.

**Polymerization:** Hazardous polymerization cannot occur.

**Chemical Incompatibilities:** Isolate from strong oxidizers, such as permanganates, chromates, and peroxides.

**Conditions to Avoid:** Avoid open flames, welding arcs or other high temperatures. Hydrolysis producing small amounts of hydrochloric acid possible with gross water contamination.

**Hazardous Decomposition Products:** Thermal oxidative decomposition of Liquid Buffer can produce no known.

## Section 11- Toxicological Information

### Toxicity Data: Trichloroethylene

Experimental poisons by intravenous and subcutaneous routes. Moderately toxic experimentally by ingestion and intraperitoneal routes. Mildly toxic to humans by ingestion and inhalation. Mildly toxic experimentally by inhalation. An experimental carcinogen, tumorigen and teratogen. Human systemic effects by ingestion and inhalation, including irregular heartbeats. Target organs include kidneys, liver and central nervous system. Experimental reproductive effects. Human mutagenic data. An eye and severe skin irritant. A form of addiction has been observed in exposed workers.

**Eye Effects:** rabbit 20/mg/ 24 hour

MOD

**Skin Effects:** rabbit 2 mg/ 24 hour

SEV

#### Acute Inhalation Effects:

Human, inhalation, LC<sub>50</sub>: 2900 ppm

#### Acute Oral Effects:

Rat, oral, LD<sub>50</sub>: 812 mg/kg

#### Carcinogenicity:

IARC: Limited evidence in animals, inadequate evidence in humans; Group 3: not classifiable as a human carcinogen

NTP: Suspect carcinogen, inadequate study on male and female rat, positive male and female mouse

California prop 65: listed as a carcinogen

NIOSH: Occupational carcinogen

ACGIH: A5-not suspected as human carcinogen

OSHA: possible select carcinogen

**Mutagenicity and Teratogenicity and Reproductive effects:** IARC and NTP state that variability in the mutagenicity test results may be due to the presence of various stabilizers used which may be present (epoxybutane, epichlorohydrin). 1988 EPA Genotoxic Program-Positive for S cerevisiae-reversion, cell transformation RLV F344 rat embryo and mouse spot test (sperm morphology)

**Toxicity Data: Methylene Chloride**

Poison by intravenous route. Moderately toxic by ingestion, subcutaneous and intraperitoneal routes. Mildly toxic by inhalation. An experimental carcinogen and tumorigen. An experimental teratogen. Experimental reproductive effects. An eye and severe skin irritant. Human mutagenic data.

**Eye Effects:** rabbit 500 mg/ 24 hour MOD

**Acute Inhalation Effects:**

Mouse, inhalation, LC<sub>50</sub>: 14400 ppm

**Acute Oral Effects:**

Mouse, oral, LD<sub>50</sub>: 1600 mg/kg

**Carcinogenicity:**

IARC: Sufficient evidence in animals, inadequate evidence in humans , Group 2:

Possible human carcinogen

NTP: Anticipated human carcinogen, clear evidence- female rat, some evidence male rat

California prop 65: listed as a carcinogen

NIOSH: Occupational carcinogen

ACGIH: A2-suspect human carcinogen

OSHA: possible select carcinogen

**Mutagenicity and Teratogenicity and Reproductive effects:** Although results of Ames bacterial teste have generally been positive, overall the data suggest that genotoxic potential does not appear to be significant factor. 1988 EPA Genotoxic Program-Positive for S cerevisiae-reversion, cell transformation RLV F344 rat embryo

**Toxicity Data: Xylene****Moderate via inhalation and oral routes**

**Eye Effects:** rabbit 5 mg/ 24 hour MOD

**Acute Inhalation Effects:**

Human, inhalation, LC<sub>Lo</sub>: 50 mg/kg

**Acute Oral Effects:**

Mouse, oral, LD<sub>50</sub>: 4300 mg/kg

**Carcinogenicity:**

IARC: Inadequate evidence in animals, Inadequate evidence in humans; Group 3: not classifiable as a human carcinogen

NTP: Suspect carcinogen, No evidence-male and female rat, No evidence-male/ female mouse

California prop 65: listed as a carcinogen

NIOSH: Occupational carcinogen

ACGIH: A4-not classifiable as human carcinogen

OSHA: possible select carcinogen

**Mutagenicity and Teratogenicity and Reproductive effects:** No information available.

**Toxicity Data: Ethyl Benzene****Moderate via irritation to the skin, eyes and mucous membranes, and via oral and inhalation routes. A Concentration of 0.19% vapor in air will irritate eyes; 0.2% is extremely irritating. An experimental teratogen.**

**Eye Effects:** rabbit 100 mg/ 24 hour MOD

**Acute Inhalation Effects:**

Human, inhalation, TC<sub>Lo</sub>: 100 ppm

**Acute Oral Effects:**

Rat, oral, LD<sub>50</sub>: 4000 mg/kg

**Carcinogenicity:**

IARC: Not listed

NTP: Not listed

California prop 65: not listed

NIOSH: Not listed

ACGIH: Not listed

OSHA: Not listed

**Mutagenicity and Teratogenicity and Reproductive effects:** No information available.

**Toxicity Data: Toluene**

Poison by intraperitoneal route. Moderately toxic by intravenous, subcutaneous and possibly other routes. Mildly toxic by inhalation. An experimental teratogen. Human systemic effects by inhalation. Experimental reproductive effects. Mutagenic data. A human eye irritant. An experimental skin and severe eye irritant. In the few cases of acute poisoning reported, the effect has been that of a narcotic, the workman passing through a stage of intoxication into one of coma. Recovery following removal from exposure has been the rule.

**Eye Effects:** rabbit 2 mg/ 24 hour MOD

**Skin Effects:** rabbit 20 mg/ 24 hour SEV

**Acute Inhalation Effects:**

Mouse, inhalation, LC<sub>50</sub>: 5320 ppm

**Acute Oral Effects:**

Human, oral, LD<sub>50</sub>: 50 mg/kg

**Carcinogenicity:**

IARC: Inadequate evidence in animals, inadequate evidence in humans, Group 3: not classifiable as a human carcinogen

NTP: Suspect carcinogen, no evidence in male and female rat, no evidence in male and female mouse

California prop 65: listed as a carcinogen

NIOSH: Occupational carcinogen

ACGIH: A4-not classifiable as human carcinogen

OSHA: possible select carcinogen

**Mutagenicity and Teratogenicity and Reproductive effects:** Specific

developmental abnormalities included craniofacial effects involving the nose and tongue, musculoskeletal effects, urogenital and metabolic effects in studies on mice and rats by the inhalation and oral routes of exposure. Some evidence of fetotoxicity with reduced fetal weight and retarded skeletal development has been reported in mice and rats. Effects on fertility such as abortion were reported in rabbits by inhalation. Paternal effects were noted in rats by inhalation. These effects involved the testes, sperm duct and epididymis.

**Section 12 - Ecological Information**

**Acute effects:** Ingredients range from moderate (Trichloroethylene, Methylene Chloride) to high (Xylene) toxicity to aquatic life. Insufficient data are available to evaluate or predict the short-term effects to birds or land animals.

**Chronic Effects:** Ingredients range from moderate (Trichloroethylene, Methylene Chloride) to high (Xylene) toxicity to aquatic life. Insufficient data are available to evaluate or predict the short-term effects to birds or land animals.

**Distribution and Persistence in the Environment:** Trichloroethylene is non-persistent in water, with a half-life of less than 2 days. About 99.6% of Trichloroethylene will eventually end up in air; the rest will end up in the water. Methylene Chloride is slightly persistent in water, with a half-life of between 2 to 200 days. About 99% of Methylene Chloride will eventually end up in air; the rest will end up in the water. Xylene is non-persistent in water, with a half-life of less than 2 days. About 99.3% of Xylene will eventually end up in water, about 0.5% will end up in water, about 0.1%, respectively will end up in terrestrial soils and in aquatic sediments.

**Bioaccumulation in Aquatic Organisms:** The concentration of Trichloroethylene and Xylene found in fish tissues is expected to be somewhat higher than the average concentration in the water from which the fish was taken.

**Section 13 - Disposal Considerations**

**Disposal:** When disposing of the unused contents, the preferred options are to send to licensed reclaimer, or to a permitted incinerator. Any disposal practice must be in compliance with local, state, and federal laws and regulations. Do not dump into sewer, on the ground or into any body of water.

**Section 14 - Transport Information****DOT Transportation Data (49 CFR 172.101):**

**Not meant to be all inclusive-check local, state, and federal laws and regulations.**

**Shipping Name:** Toxic liquid, organic NOS (contains Trichloroethylene and Methylene Chloride)

**Hazard Class:** 6.1

**ID No.:** UN2810

**Packing Group:** III (ORM-D)

## Section 15 - Regulatory Information

**TSCA:** All ingredients are listed on the TSCA inventory. None of the ingredients are listed under Chemical Test Rules, Section 12B, or Significant New Use Rules.

**CERCLA RQ's (40 CFR Part 302)**

Trichloroethylene	100 pounds
Methylene Chloride	1000 pounds
Xylene	1000 pounds
Ethyl Benzene	1000 pounds
Toluene	1000 pounds

**RCRA:**

Trichloroethylene	U228
Methylene Chloride	U080
Xylene	U239
Toluene	U220

**SARA (40 CFR Part 355) TPQ's**

None of the ingredients are listed

**SARA Title III Section 313**

All ingredients listed

**CLEAN AIR ACT-Hazardous Air Pollutants**

All ingredients listed

**CLEAN AIR ACT-Ozone Depleting List**

None of the ingredients are listed as Class I or 2 ozone depleters

**California Prop 65**

All ingredients listed

**OSHA**

All ingredients are listed as hazardous under 29 CFR 1910.1200

**Canada's DSL/NDSL List**

All ingredients listed

**Canada's Ingredient Disclosure List**

All ingredients listed

## Section 16 - Other Information

**Prepared By:** TLC/ THI

**Revision Notes:** 3/9/2012 Updates

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