



BUTYL ACRYLATE PROCESS WASTE STREAM - LIGHTS

Material Safety Data Sheet

Arkema Inc.

1 PRODUCT AND COMPANY IDENTIFICATION

Acrylic Monomers

Arkema Inc.
2000 Market Street
Philadelphia, PA 19103

EMERGENCY PHONE NUMBERS:

Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(866) 767-5089 (24Hrs)

Information Telephone Numbers	Phone Number	Available Hrs
Customer Service	800-338-1015	8:00 to 6:00 EST

Product Name BUTYL ACRYLATE PROCESS WASTE STREAM - LIGHTS

Product Synonym(s)

Chemical Family Mixture

Chemical Formula Mixture

Chemical Name

EPA Reg Num

Product Use

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical Wt. %	OSHA
1-Butanol	71-36-3	50 - 95	Y
Butyl acrylate	141-32-2	15 - 35	Y
Water	7732-18-5	3 - 10	N
n-Butyl acetate	123-86-4	1 - 10	Y
Dibutyl ether	142-96-1	0.09 - 0.6	Y
Phenothiazine	92-84-2	0.01 - 0.1	Y

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

This material is classified as hazardous under Federal OSHA regulation.

The components of this product are all on the TSCA Inventory list.

3 HAZARDS IDENTIFICATION

Emergency Overview

Clear liquid with pungent odor

WARNING!

FLAMMABLE LIQUID AND VAPOR.

MAY CAUSE EYE AND SKIN IRRITATION.

MAY CAUSE ALLERGIC SKIN REACTION.

PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE IRRITATION.

MAY CAUSE RESPIRATORY TRACT IRRITATION.

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on



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its composition, it is anticipated to be moderately irritating to the eyes, skin and respiratory tract. Repeated exposure may cause an allergic skin reaction. Prolonged or repeated contact removes oils from the skin and may dry skin and cause irritation, redness and rash. High vapor concentrations may be irritating to the eyes and respiratory tract, and may result in central nervous system (CNS) effects such as headache, dizziness, nausea, drowsiness and, in severe exposures, loss of consciousness and death. Increased hearing loss has been reported in workers with repeated or prolonged exposure to a component of this material. If swallowed, this material may cause CNS effects, mouth and throat irritation. Mild to severe lung injury may occur if this material is drawn into the lungs (aspirated) during swallowing, or during vomiting after swallowing. Symptoms of injury may include increased breathing and heart rate, coughing and related signs of respiratory distress.

4 FIRST AID MEASURES

IF IN EYES, immediately flush with plenty of water. Get medical attention if irritation persists.

IF ON SKIN, immediately wash with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Thoroughly clean shoes before reuse.

IF SWALLOWED, induce vomiting as directed by medical personnel. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED, remove to fresh air. If breathing is difficult, get medical attention.

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	NE	
Flash Point	>22 C (>71.6 F)	Flash Point Method
Flammable Limits- Upper	NE	
Lower	NE	

Extinguishing Media

Use water spray, carbon dioxide, foam or dry chemical.

Fire Fighting Instructions

Water may be ineffective. Use water spray or water fog to cool surrounding surfaces and prevent fire damage or rupture of containers. Fire fighters and others who may be exposed to products of combustion should wear full fire fighting gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Explosion Hazards

When burned, the following hazardous products of combustion can occur:
Oxides of carbon

A large amount of heat can be generated when monomers are exposed to a fire. Heated sealed containers can explode.

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Stop the leak if you can do so without risk. Ventilate the area and remove all ignition sources. Contain the spill by building a dike using absorbent material. Collect the liquid and solid absorbent into a drum approved

**6 ACCIDENTAL RELEASE MEASURES**

for waste disposal. Contaminated monomer may be unstable. Add inhibitor to prevent polymerization.

The product can be neutralized with sodium bicarbonate, lime, or soda ash. CAUTION: neutralization of the acid may result in an exothermic reaction, accompanied by some spattering of unreacted material. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7 HANDLING AND STORAGE**Handling**

Keep away from heat, sparks and flames.

Keep container closed.

Use only with adequate ventilation.

Avoid contact with eyes, skin and clothing.

Avoid prolonged or repeated contact with skin.

Wash thoroughly after handling.

Use grounding and bonding connection when transferring material to prevent static discharges, fire or explosion.

Use spark resistant tools.

Use explosion proof equipment.

CONTAINER HAZARDOUS WHEN EMPTY. Emptied container retains vapor and product residue. Follow labeled warnings even after container is emptied. RESIDUAL VAPORS MAY EXPLODE ON IGNITION. DO NOT CUT, DRILL GRIND OR WELD ON OR NEAR THIS CONTAINER. Improper disposal or reuse of this container may be dangerous and/or illegal.

Storage

This product should be stored in a closed container, away from direct sunlight, at ambient temperatures. Storage of this product at elevated temperatures (>30 C or >85 F) reduces the shelf-life. The typical shelf-life for this product is 12 months. An air space is required above the liquid in all containers; avoid storage under an oxygen-free atmosphere.

The stability of this product should be checked periodically; typically every 90 days for bulk containers. Materials recommended for packaging include: stainless steel, aluminum, glass, HDPE, PP or PTFE.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION**Engineering Controls**

Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposure. Dilution ventilation is acceptable, but local mechanical exhaust ventilation preferred, if practical, at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Eye / Face Protection

Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

**8 EXPOSURE CONTROLS / PERSONAL PROTECTION****Skin Protection**

Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Wear face shield and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse contaminated skin promptly. Wash contaminated clothing and clean protective equipment before reuse. Wash skin thoroughly after handling.

Respiratory Protection

Avoid breathing fume. When airborne exposure limits are exceeded (see below), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Airborne Exposure Guidelines for Ingredients

Exposure Limit		Value
n-Butyl acetate		
ACGIH STEL	-	950 mg/m ³ (200 ppm)
ACGIH TWA	-	713 mg/m ³ (150 ppm)
OSHA TWA PEL	-	710 mg/m ³ (150 ppm)
1-Butanol		
ACGIH TWA	-	20 ppm
OSHA TWA PEL	-	100 ppm (300 mg/m ³)
Butyl acrylate		
ACGIH Sensitizer Designator	-	Y
ACGIH TWA	-	2 ppm (11 mg/m ³)
Phenothiazine		
ACGIH Skin designator	-	Y
ACGIH TWA	-	5 mg/m ³

-Only those components with exposure limits are printed in this section.

-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.

-WEEL-AIHA Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic skin reactions.

**9 PHYSICAL AND CHEMICAL PROPERTIES**

Appearance/Odor	Clear liquid with pungent odor
pH	NE
Specific Gravity	NE
Vapor Pressure	NE
Vapor Density	NE
Melting Point	NA
Freezing Point	NE
Boiling Point	NE
Solubility In Water	NE
Other Physical Data	Density: 0.857 metric tons/m ³ @ 25 C Viscosity: 0.8 cP @ 104 F

10 STABILITY AND REACTIVITY**Stability**

This material is chemically stable under normal and anticipated storage and handling conditions. However, this material can undergo hazardous polymerization. See Hazardous Polymerization below for conditions to avoid.

Hazardous Polymerization

An uncontrolled polymerization may produce a rapid release of energy with the potential for an explosion of unvented closed containers or inadequately vented containers.

Incompatibility

This material may polymerize exothermically in the presence of heat, contamination, free radicals, peroxides, and depletion of inhibitor.

Hazardous Decomposition Products

None known.

11 TOXICOLOGICAL INFORMATION**Toxicological Information**

Data on this material and/or its components are summarized below.

Butyl Acrylate

Single exposure (acute) studies indicate that this material is slightly toxic to practically non-toxic if swallowed (rat LD50 3,700-9,100 mg/kg), slightly toxic if absorbed through skin (rabbit LD50 1,800-3,400 mg/kg), practically non-toxic if inhaled (rat 4-hr LC50 10.2-14.0 mg/l; 1-hr LC50 22.9 mg/l), moderately irritating to rabbit eyes and severely irritating to rabbit skin.

Skin allergy was observed in guinea pigs following repeated exposure. Following repeated inhalation, eye and nose irritation, increased liver weights and respiratory tract damage (only at levels producing death in most animals) were reported in rats. Following repeated exposure in their drinking water, rats exhibited decreased weight gain and water consumption. Repeated oral administration (gavage) produced a slight increase in liver weight in rats. Long-term inhalation by rats produced nasal mucosa changes and changes in relative heart and liver weights with partially reversible eye (cornea) changes. No tumors were observed in this study. No skin tumors were observed in mice following life time skin application. No birth defects were observed in the

11 TOXICOLOGICAL INFORMATION

offspring of rats exposed during pregnancy at levels which produced adverse effects on the mothers, including reduced weight gain, eye and nasal irritation, and embryoletality. Birth defects and embryoletality were observed in mice exposed orally during pregnancy at doses producing adverse effects, including death, in the mothers. Generally, no genetic changes were observed in tests using bacteria, animal cells or animals. On positive response has been reported in a test using animals.

1-Butanol

Single exposure (acute) studies indicate that this material is slightly toxic if swallowed (rat LD50 700-2,510 mg/kg), practically non-toxic to slightly toxic if absorbed through skin (rabbit LD50 3,400-5,300 mg/kg), practically non-toxic if inhaled (rat 4-hr LC50 24.6 mg/l), severely irritating to rabbit eyes and moderately irritating to rabbit skin (24-hr exposure).

Acute oral administration or inhalation by rats and mice produced irritation and narcosis. In repeat inhalation studies (guinea pigs, rats), this material produced changes in lung, kidney and liver, narcosis and blood cell effects. Following repeated oral dosing, reduced activity and loss of coordination were observed in rats. A slight increase in skeletal defects was observed in the offspring of rats exposed by inhalation during pregnancy at a level which produced adverse effects on the mother and reduced fetal weights. No genetic changes were observed in tests using bacteria and animal or human cells.

Dibutyl Ether

Single exposure (acute) studies indicate that this material is practically non-toxic if swallowed (rat LD50 7,400 mg/kg), absorbed through skin (rabbit LD50 7,740 mg/kg) or inhaled (rat 4-hr LC50 >21 mg/l; vapor), severely irritating to rabbit skin and slightly irritating to rabbit eyes.

No genetic changes were observed in tests using bacteria.

n-Butylacetate

Single exposure (acute) studies indicate that this material is practically non-toxic if swallowed (rat LD50 13,100-14,130 mg/kg) or absorbed through skin (rabbit LD50 >20 ml/kg), slightly toxic to practically non-toxic if inhaled (rat LC50 >6,335 ppm; vapor & 160-391 ppm; aerosol), non-irritating to rabbit skin (4-hr exposure, 0.0/8.0) and moderately irritating to rabbit eyes.

Human exposures have reported unpleasant smell and eye, nose and throat irritation. No skin allergy was observed in humans or guinea pigs following repeated exposure; however, there is a case report of skin allergy following occupational exposure. Acute inhalation produced narcosis and eye and respiratory tract irritation in cats; no effects were observed in dogs. Liver and kidney effects were observed in rats following repeated inhalation. No birth defects were observed in the offspring of rats or rabbits exposed by inhalation during pregnancy. No genetic changes were observed in tests using bacteria or animal cells.

12 ECOLOGICAL INFORMATION**Ecotoxicological Information**

Data on this material and/or its components are summarized below.

Butyl Acrylate

This material is moderately toxic to algae (96-hr LC50 5.5 mg/l), *Daphnia magna* (48-hr EC50 8.2 mg/l), sheepshead minnow (96-hr LC50 2.1 mg/l) and rainbow trout (96-hr LC50 5.2 mg/l).

1-Butanol

This material is practically non-toxic to brine shrimp (24-hr LC50 2,950 mg/l), creek club (24-hr LC50 1,900-2,300 mg/l), goldfish (24-hr LC50 1,900 mg/l), *Daphnia magna* (24-hr LC50 1,880 mg/l; 48-hr EC50 1,983 mg/l), clawed toad (48-hr LC50 1,200 mg/l), golden orfe (48-hr LC50 1,200 mg/l), fathead minnow (96-hr LC50 1,730-

**12 ECOLOGICAL INFORMATION**

1,910 mg/l), bleak (96-hr LC50 2,250-2,400 mg/l) and harpacticoid copepod (96-hr LC50 1,900-2,300 mg/l). The 8-day no observable effect levels for green algae and blue-green algae are 875 and 100 mg/l, respectively.

Dibutyl Ether

This material is slightly toxic to *Daphnia magna* (48-hr LC50 26 mg/l), fathead minnow (96-hr LC50 32.3 mg/l) and killifish (48-hr LC50 30.7 mg/l). It is practically non-toxic to sheepshead minnow (96-hr LC50 >430 ppm).

n-Butylacetate

This material is slightly toxic to fathead minnow (96-hr LC50 18 ppm), bluegill sunfish (96-hr LC50 100 ppm), tidewater silversides (96-hr LC50 85 ppm) and algae (96-hr Toxicity Threshold 21 ppm). It is practically non-toxic to *Daphnia magna* (24-hr LC50 110 ppm), protozoa (72 hr Toxicity Threshold 321 ppm) and bacteria (16 hr Toxicity Threshold 115 ppm).

Chemical Fate Information

Data on this material and/or its components are summarized below.

Butyl Acrylate

This material is readily biodegradable (BOD5/COD = 0.6; 14-day BOD 61%; 28-day BOD 57.8%) and slightly bioaccumulable (log Pow = 2.4). It is slowly hydrolyzed in water and the half-life is effected by the pH (4-hours at pH 11; 2800-days at pH 7; 1100 days at pH 3).

1-Butanol

This material is readily biodegradable (98% after 19-days). It is slightly adsorptive in soil and sediment (log Koc 1.85) and practically not bioaccumulable (log Pow 0.88). It has a half-life of 22.6 hours in air.

Dibutyl Ether

This material has a log Pow of 3.08, a 28-day BOD of 3% and a BCF of 47-83 in carp.

n-Butylacetate

This material is readily biodegradable (83% after 28-days). It has a log Pow of 1.73-1.82 and a BCF of 14.

13 DISPOSAL CONSIDERATIONS**Waste Disposal**

Incineration is the recommended method for disposal observing all local, state and federal regulations.

14 TRANSPORT INFORMATION

DOT Name	Flammable liquids, n.o.s.
DOT Technical Name	(Butanol, Butyl acetate)
DOT Hazard Class	3
UN Number	UN 1993
DOT Packing Group	PG II
RQ	5000 lbs (Butanol, Butyl acetate)

15 REGULATORY INFORMATION



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Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

Immediate (Acute) Health	Y	Fire	Y
Delayed (Chronic) Health	N	Reactive	Y
		Sudden Release of Pressure	N

The components of this product are all on the TSCA Inventory list.

Ingredient Related Regulatory Information:

SARA Reportable Quantities

	CERCLA RQ	SARA TPQ
n-Butyl acetate	5000 LBS	
1-Butanol	5000 LBS	
Water	NE	
Butyl acrylate	NE	
Phenothiazine	NE	
Dibutyl ether	100 LBS	

SARA Title III, Section 313

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. See Section 2

1-Butanol

Butyl acrylate

Massachusetts Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

1-Butanol

Butyl acrylate

Dibutyl ether

Phenothiazine

n-Butyl acetate

New Jersey Right to Know

This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.

1-Butanol

Butyl acrylate

Dibutyl ether

Phenothiazine

n-Butyl acetate

Pennsylvania Environmental Hazard

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Environmental Hazard List.

1-Butanol

Butyl acrylate

n-Butyl acetate

Pennsylvania Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.

1-Butanol

Butyl acrylate

Dibutyl ether

Phenothiazine

n-Butyl acetate



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16 OTHER INFORMATION

Revision Information

Revision Date 11 OCT 2004 Revision Number 3

Supercedes Revision Dated 17-JUN-2000

Revision Summary

A TOFINA Chemicals, Inc. has changed its name to Arkema Inc.

Key

NE= Not Established NA= Not Applicable (R) = Registered Trademark

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