

MATERIAL SAFETY DATA SHEET

A/C FLUSH PART NO. 69990/400990

Page 1 of 6

LFK INDUSTRIES, INC.
PO BOX 578
SEAGOVILLE, TEXAS 75159

HMIS RATINGS

HEALTH: 1
FIRE: 0
REACTIVITY: 0

DATE PREPARED: 06/01/02

SECTION 1 - PRODUCT IDENTIFICATION

PRODUCT NAME: N-Propyl Bromide (NPB) Stabilized
CAS NUMBER: Not Applicable- Mixture CHEMICAL
FAMILY: N/A

SECTION II - COMPOSITION / INFORMATION ON INGREDIENTS

AS NUMBER	HAZARDOUS COMPONENT	NTP	IARC	OSHA PEL	ACGIH TLV (ppm)	OTHER LIMITS (ppm)
106-94-5	N-Propyl Bromide	N	N	N/A	N/E	25-100**
106-88-7	1,2 Butylene Oxide	Y	2B	N/A	N/E	N/E
78-92-2	See Butyl Alcohol	N	N	150	100	150 ST NIOSH
75-65-0	2-Methyl-2-Propanol (T-Butyl Alcohol)	N	N	100	100	N/E
109-87-5	Dimethoxymethane	N	N	1000	1000	N/E
646-06-0	1,3-Dioxolane	N	N	N/E	N/E	N/E
Proprietary	Ethers	N	N	N/E	N/E	N/E

SECTION III- HAZARD IDENTIFICATION

ROUTES OF ENTRY:

Inhalation and dermal are the primary routes of entry, although other avenues should be considered.

INHALATION:

Exposure to high doses may cause central nervous system (CNS) depression (anesthetic-like effects). Doses that affect the CNS in this fashion may also cause adverse effects on the liver, lung, and kidney. Possible changes to bone marrow. Symptoms of inhalation exposure may include: headache, dizziness, nausea, shortness of breath, and irritation of the respiratory tract (nose, throat, and lungs) including sore throat and cough.

EYE

Eye irritant. Contact with eyes may cause discomfort and pain.

DERMAL

Product may cause mild irritation, rashes, defatting and possibly dermatitis. Problem may be accentuated by trapping the liquid against the skin.

** Manufacturers of N-Propyl Bromide have set varying levels of exposure ranging from 25 to 100 ppm. Preliminary test data suggests the final value may lie somewhere within this range. Neither EPA nor OSHA has set exposure values for this material.

MATERIAL SAFETY DATA SHEET

A/C Flush Part No. 69990/400990

Page 2 of 6

SECTION III- HEALTH HAZARD INFORMATION

INGESTION:

May irritate the digestive tract Symptoms may include mild nausea, abdominal pain, vomiting, and diarrhea. Low order of Toxicity.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:

Persons with pre-existing skin disorders, or impaired liver, kidney or pulmonary function disorders may be more susceptible to certain components of this product.

GENERAL

Product may cause reproductive effects based on animal studies. Target organs include kidneys, CNS, liver, and bone marrow. 1,3-Dioxolane is listed as a Mutagen.

SECTION IV - FIRST AID MEASURES

INHALATION:

Remove individual to fresh air. If breathing is difficult provide oxygen by a trained health care professional. If not breathing, give artificial respiration, preferably mouth-to-mouth. Consult a physician.

EYE:

Flush eyes with copious amounts of water for at least 15 minutes. Contact physician if irritation persists.

SKIN CONTACT:

Thoroughly wash affected area with soap and water at least 15 minutes; consult physician if irritation persists or is severe. Remove all contaminated clothing and laundry prior to reuse. Properly discard all leather articles that are soaked with product.

INGESTION:

Do NOT induce vomiting, seek medical attention. If unconscious or in convulsions take immediately to the hospital. If conscious, give 1 pint of water. Never administer anything by mouth to an unconscious person. If vomiting occurs spontaneously keep individual's head below their hips to prevent aspiration of material into the lungs.

NOTE: consult a physician in all areas of exposure. First-aiders need to provide for their own safety before attempting to provide assistance.

SECTION V -FIRE FIGHTING MEASURES

FLASH POINT: N/A

FLAMMABLE LIMITS:

LEL: N/D

UEL: N/D

EXTINGUISHING MEDIA:

Dry chemical (BC or ABC), foam, or carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES:

Firefighters should wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus for possible exposure to toxic by-products of combustion as denoted in Section X. Protective gear may be needed to prevent skin contact. Water may be used to keep containers cool.

UNUSUAL FIRE FIGHTING PROCEDURES:

Vapors of this product are heavier than air and can travel considerable distances. Product may form flammable mixtures with air in some cases. Toxic and corrosive gases can be generated if exposed to a source of ignition or high temperatures. NFPA rates N-Propyl Bromide as flammable (FP <75°F). Testing of similar DETRIDE products using a Pensky-Martin apparatus did not produce ignition within the cup, indicating there is no flash

MATERIAL SAFETY DATA SHEET

A/C Flush Part No. 69990/400990

Page 3 of 6

point. However, vapors at elevated temperatures did burn as long as an external source of ignition, such as an open flame, was provided. Removal of the ignition source extinguished the flame.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Immediately evacuate the area and provide maximum ventilation. Shut off sources of ignition. Unprotected personnel should move upwind of the spill. Only personnel equipped with proper respiratory and skin/eye protection should be permitted in the area. Dike area to contain the spill. Take precautions as necessary to prevent contamination of the ground and surface waters. Recover spilled material on absorbents, such as sawdust or vermiculite, and sweep into closed containers for disposal. After all visible traces, including vapors, have been removed, thoroughly wet vacuum the area. Do not flush to the sewer. If area is porous, remove as much earth and gravel, etc., as necessary and place in closed containers for disposal.

SECTION VII -HANDLING AND STORAGE

- Wear PPE when handling this material. Wash exposed body areas with soap and water prior to using lavatory facilities, consuming food or beverages or applying cosmetics.
- Ventilation must be sufficient to limit employees' exposure. Do not use in poorly ventilated or confined spaces without proper respiratory protection.
- Do not eat, drink or smoke in work areas.
- Avoid contact with eyes and skin.
- Do not ingest.
- Do not use cutting or welding torches on containers that contained this product, unless, the containers are properly purged and cleaned.
- Store in the original, closed, properly sealed and labeled container.

SECTION VIII -EXPOSURE CONTROLS/ PERSONAL PROTECTION

VENTILATION:

General ventilation is recommended to keep employees exposure to below established OSHA and recommended manufacturer's limits.

RESPIRATORY PROTECTION:

To limit employees' exposure, OSHA requires that the use of administrative or engineering controls must first be developed and implemented whenever feasible (29CFR1910.1000 (e)). When controls are not feasible, and exposure exceeds established limits, then protective equipment such as respirators are recommended. Use only OSHA/NIOSH approved respirators according to the manufacturer's directions and OSHA requirements. Positive pressure, self-contained units (i.e., SCBAs) are required whenever: there is insufficient oxygen, IDLH conditions exist, and when determined necessary by surrounding environmental conditions.

EYE PROTECTION:

Splash proof goggles, face shields where splashing may be present. Eyewash should be available in areas where this product is handled.

DERMAL PROTECTION:

Protect all exposed skin from liquid contact. Use chemically resistant gloves. Aprons and other protective equipment should be used when there is a chance for splashing.

MATERIAL SAFETY DATA SHEET

A/C Flush Part No. 69990/400990

Page 4 of 6

SECTION IX-PHYSICAL/CHEMICAL PROPERTIES

BOILING POINT	Approx. 71°C	SPECIFIC GRAVITY	1.32
VAPOR PRESSURE(mm Hg)	>140 @ 20°C	MELTING POINT	-110°C
VAPOR DENSITY (AIR=1)	>3	EVAPORATION RATE (Butyl Acetate=1)	> 2
SOLUBILITY IN WATER: 2.5 g/l; stabilizers are Soluble.	APPEARANCE AND ODOR: Clear, colorless liquid with Ether like Odor.		
OTHER INFORMATION VOLATILE: 100%			

SECTION X -STABILITY & REACTIVITY

STABILITY: STABLE

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:

Products of decomposition include: CO, CO₂, HBr, Methyl Bromide, and other unknown products of decomposition.

HAZARDOUS POLYMERIZATION: Hazardous polymerization does not occur.

INCOMPATIBILITY:

CONDITIONS TO AVOID:

Do not store or expose material to elevated temperatures. Avoid contact with open flames, electric arcs, or other sources of ignition.

MATERIALS TO AVOID:

Strong alkalis and strong oxidizers. Prolonged contact with metals such as aluminum, magnesium, or zinc must be avoided. Care should be used when storing used NPB, which may contain aluminum fines as a reaction may occur.

SECTION XI- TOXICOLOGICAL INFORMATION

TOXICOLOGY STUDIES:

Toxicology studies have not been conducted on this product as a whole.

	LD ₅₀ (oral-rat)	LD ₅₀ (dermal-rabbit)	LC ₅₀ (inhalation-rat)
n-Propyl Bromide	4,260 mg/kg	N/D	253,000 mg/m ³ /0.5 hr
1,2 Butylene Oxide	1,600 mg/kg	N/D	8,800 mg/m ³ /30m
Sec-Butyl Alcohol	6,480 mg/kg	N/D	16,000 ppm / 4hr.
T-Butyl Alcohol	3,500 mg/kg	N/D	5,000 ppm /7Hr (female)
Dimethoxymethane	5,708 mg/kg	N/D	15,000 ppm
1,3-Diozolane	3,000 mg/kg	8,480 mg/kg	20,650 mg/M ³ /4hr

SECTION X11- ECOLOGICAL INFORMATION

Sec-Butyl Alcohol: is expected to readily biodegrade when released to soil or water. Half-life in water is expected to be between 1 to 10 days. Bio Accumulation factor (BAF) is estimated as being less than 100. Material has an octanol-water partition coefficient of less than 3.0..

n-Propyl Bromide: 96 hour LC₅₀for fathead minnows is 67,300 ug/l

1,2 Butylene Oxide has an octanol / water coefficient, as log POW of 0.416

MATERIAL SAFETY DATA SHEET

A/C Flush Part No.

69990/400990

Page 5 of 6

SECTION X111- DISPOSAL CONSIDERATIONS

Contaminated sawdust, vermiculite or porous surface must be properly disposed. Recovered liquids may be reprocessed or properly disposed. Care must be taken when using or disposing of chemical materials and/or their containers in accordance with the Clean Air Act, The Clean Water Act, The Resource Conservation And Recovery Act, The Department of Transportation, as well as any other relevant federal, state, or local laws/regulations regarding disposal.

SECTION XIV - TRANSPORT INFORMATION

DOT PROPER SHIPPING NAME:	Non-Hazardous
HAZARD CLASS:	N/A
IDENTIFICATION NUMBER:	N/A
PACKING GROUP: REQUIRED	N/A
LABELS: REPORTABLE	N/A
QUANTITY:	N/A

SECTION XV - REGULATORY INFORMATION

OSHA

This product is subject to the Hazard Communication Standard under 29 CFR 19190.1200 based on the ingredients found in Section II.

STATE

Components of this product are listed under the following state RTK programs: FL, PA, and MA

RCRA

Refer to Section XIII for information

SARA

302 (40 CFR § 355):	this product does not contain any Extremely Hazardous Substances
311/312(40 CFR § 370):	Submission of MSDS to the LEPC, SERC. and the local fire department are required, Material meets the following EPA hazard categories for reporting:

X	Acute health hazard	X	Chronic health hazard
	Fire hazard		Reactive hazard
	Sudden release of pressure hazard		

313 (40 CFR § 372):	This product may trigger reporting requirements for the end user of this product for the following materials:
---------------------	---

2-Methyl-2-Propanol	< 5%
1.2-Ethoxybutane	< 5%

CAA

1,2 Butylene Oxide is listed as a HAP under the CAA

TSCA

All materials in this product are listed in Inventory List.

MATERIAL SAFETY DATA SHEET

A/C Flush Part No. 69990/400990 Page
6 of 6

SECTION XV -OTHER INFORMATION

N/A = NOT APPLICABLE

N/E = NOT ESTABLISHED

ST = SHORT TERM EXPOSURE LIMIT

N/D = NOT DETERMINED

S = SUSPECTED

C = CEILING

2B- The agent is possibly carcinogenic to humans. The exposure circumstance entails exposures that are possibly carcinogenic to humans.

This category is generally used for agents for which there are limited evidence in humans in the absence of sufficient evidence in experimental animals. It may also be used when there is inadequate evidence of carcinogenicity in experimental animals. In some instances, an agent for which there is inadequate evidence or no data in humans, but limited evidence of carcinogenicity in experimental animals together with supporting evidence from other relevant data, may be placed in this group.

DISCLAIMER: LFK Corporation believes the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. No warranty of fitness for any particular purpose, warranty of merchantability, or any other warranty, expressed or *implied, is made* concerning *the* information provided herein. The information provided herein relates only to the specific product designed and may not be valid where such product is used in combination with any other materials or in any *process*. Further, since the conditions and methods of use of the product and of the information referred to herein are beyond the control of *LFK Corporation*, LFK expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information