



MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor "Essentially Similar" to Form LSB-OQS-4)



PRODUCT NAME: BUTYL CELLOSOLVE®
CHEMICAL NAME: 2-Butoxyethanol; Ethylene Glycol Monobutyl Ether
CHEMICAL FAMILY: Glycol Ethers
FORMULA: C₄H₉OC₂H₄OH
MOLECULAR WEIGHT: 118.18
SYNONYMS: Butyl CELLOSOLVE®

PLAINTIFF'S EXHIBIT

BIR-819

I. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	171.2 °C (340.2 °F)	FREEZING POINT	- 70.4 °C
SPECIFIC GRAVITY (H ₂ O = 1)	0.9019 at 20/20 °C	VAPOR PRESSURE AT 20°C.	0.6 mm Hg
VAPOR DENSITY (air = 1)	4.1	SOLUBILITY IN WATER, % by wt.	Complete
PER CENT VOLATILES BY VOLUME	Nil	EVAPORATION RATE (Butyl Acetate = 1)	0.06
APPEARANCE AND ODOR	Colorless liquid; mild odor.		

II. HAZARDOUS INGREDIENTS

MATERIAL	%	TLV (Units)
Butyl CELLOSOLVE®		50 ppm ACGIH (Skin) OSHA
(See Sections III through VIII)		

III. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT [test method(s)]	140 °F, Tag closed cup ASTM D 56		AUTOIGNITION TEMPERATURE	472 °F	
FLAMMABLE LIMITS IN AIR, % by volume		LOWER	1.1	UPPER	10.6
EXTINGUISHING MEDIA	Use carbon dioxide or dry chemical for small fires. Use alcohol-type foam or water spray for large fires.				
SPECIAL FIRE FIGHTING PROCEDURES	None				
UNUSUAL FIRE AND EXPLOSION HAZARDS	None				

EMERGENCY PHONE NUMBER

304/744-3487

This number is available days, nights, weekends, and holidays.

While Union Carbide Corporation believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Union Carbide Corporation assumes legal responsibility. They are offered solely for your consideration, investigation, and verification. Any use of these data and information must be determined by the user to be in accordance with applicable Federal, State, and local laws and regulations.

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IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	50 ppm. (Skin) ACGIH (1976) OSHA — CFR 29 § 1000 Table G1
EFFECTS OF OVEREXPOSURE	Headache, nausea, dizziness, and vomiting may result from breathing vapors or from absorption through skin. Eyes are irritated by the liquid. Vapors may be irritating to breathe.
EMERGENCY AND FIRST AID PROCEDURES	If inhaled, remove to fresh air. Call a physician. In case of contact with skin or eyes, immediately flush with plenty of water. Get medical care for eyes.

V. REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID	None
UNSTABLE	STABLE		
--	✓		
INCOMPATIBILITY (materials to avoid)		Avoid contamination with alkalis.	
DANGEROUS COMPOSITION PRODUCTS		Thermal decomposition or burning may produce carbon monoxide and/or carbon dioxide.	
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID	None
May Occur	Will not Occur		
--	✓		

VI. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED	Small spills should be flushed with large quantities of water. Larger spills should be collected for disposal.
WASTE DISPOSAL METHOD	Atomize into a furnace, and incinerate where permitted under appropriate Federal, State, and local regulations. (Combustion may be improved by mixing with a more flammable solvent.)

VII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)		All-purpose canister mask	
VENTILATION	LOCAL EXHAUST	Preferable	SPECIAL --
	MECHANICAL (general)	Acceptable	OTHER --
PROTECTIVE GLOVES		Rubber gloves	EYE PROTECTION Face shield
OTHER PROTECTIVE EQUIPMENT		Eye bath and safety shower	

VIII SPECIAL PRECAUTIONS

PRECAUTIONARY LABELING

BUTYL CELLOSOLVE®
Ethylene Glycol Monobutyl Ether

**WARNING! HARMFUL IF ABSORBED THROUGH SKIN
HARMFUL IF INHALED
COMBUSTIBLE**

Avoid contact with eyes, skin and clothing.
Avoid breathing vapor.
Keep away from heat and open flame.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

FIRST AID: In case of contact, immediately flush eyes or skin
with plenty of water for at least 15 minutes while
removing contaminated clothing and shoes.
Call a physician. Wash clothing before reuse.

If inhaled, remove to fresh air. If not breathing,
give artificial respiration. If breathing is difficult,
give oxygen. Call a physician.

FOR INDUSTRY USE ONLY

OTHER HANDLING AND STORAGE CONDITIONS