

1. PRODUCT AND COMPANY IDENTIFICATION

Product Code: IU-DSQT, IU-DSGL
Product Name: Type D Solvent

Company Name: Universal Stenciling & Marking Systems, Inc.
205 15th Avenue S.E.
Saint Petersburg, FL 33701

Phone Number: (727) 894-3027

Web site address: www.universal-marking.com

Emergency Contact: Infotrac (800) 535-5053

2. HAZARDS IDENTIFICATION

Acute Toxicity: Oral, Category 4
Acute Toxicity: Skin, Category 4
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2A
Acute Toxicity: Inhalation, Category 4



Warning

GHS Hazard Phrases: Harmful if swallowed.
Harmful in contact with skin.
Causes skin irritation.
Causes serious eye irritation.
Harmful if inhaled.

GHS Precaution Phrases: Avoid breathing dust/fume/gas/mist/vapors/spray.
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

GHS Response Phrases: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.
IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash it before reuse.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
Call a POISON CENTER or doctor/physician if you feel unwell.

GHS Storage and Disposal Phrases: Store in a dry place and/or in closed container.

Potential Health Effects (Acute and Chronic):	Chronic: May cause liver and kidney damage. Sophisticated modeling has clearly proven that 2-butoxyethanol does not build up in the body under any kinds of normal use.
Inhalation:	Harmful if inhaled. May cause respiratory tract irritation. May cause narcotic effects in high concentration. May cause lung damage. May cause anemia. May cause central nervous system effects such as nausea and headache.
Skin Contact:	Causes skin irritation. Harmful if absorbed through the skin. Substance is rapidly absorbed through the skin. Causes symptoms similar to those of inhalation. Skin sensitization testing with human volunteers produced negative results. A skin notation is not recommended by ACGIH, based on estimates from physiologically based pharmacokinetic models which indicate that, even in worst-case dermal-exposure scenarios, 2-butoxyethanol is not absorbed in amounts sufficient to cause red blood cell hemolysis in humans.
Eye Contact:	Causes eye irritation. Causes redness and pain.
Ingestion:	Harmful if swallowed. May cause irritation of the digestive tract. May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Hazardous Components (Chemical Name)	Concentration	Molecular Formula
111-76-2	Ethanol, 2-Butoxy-	>85.0 %	CH ₃ (CH ₂) ₃ OCH ₂ CH ₂ OH

4. FIRST AID MEASURES

Emergency and First Aid Procedures:

In Case of Inhalation:	Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
In Case of Skin Contact:	Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
In Case of Eye Contact:	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
In Case of Ingestion:	Do NOT induce vomiting. Call a poison control center.
Note to Physician:	Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flash Pt:	Combustible Liquid 144.00 F (62.2 C)
Explosive Limits:	LEL: 1.1% UEL: 10.6
Autoignition Pt:	446.00 F (230.0 C)
Suitable Extinguishing Media:	Use water spray, dry chemical, carbon dioxide, or chemical foam.
Fire Fighting Instructions:	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Will burn if involved in a fire. Combustible liquid and vapor.
Flammable Properties and Hazards:	No data available. No data available.

Flammability

6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken In Case Material Is Released Or Spilled: 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. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

7. HANDLING AND STORAGE

Precautions To Be Taken in Handling: Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Do not ingest or inhale.

Precautions To Be Taken in Storing: Keep away from sources of ignition. Store in a cool, dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
111-76-2	Ethanol, 2-Butoxy-	PEL: 50 ppm	TLV: 20 ppm	No data.

Respiratory Equipment (Specify Type): 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.

Eye Protection: 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.

Protective Gloves: Wear appropriate protective gloves to prevent skin exposure.

Other Protective Clothing: Wear appropriate protective clothing to prevent skin exposure.

Engineering Controls (Ventilation etc.): Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States: [] Gas [X] Liquid [] Solid

Appearance and Odor: Liquid. Clear colorless. Mild sweet, ester.

pH: NA

Melting Point: -102.00 F (-74.4 C)

Boiling Point: 331.00 F (166.1 C)

Flash Pt: 144.00 F (62.2 C)

Evaporation Rate: 0.1 (n-butyl)

Flammability (solid, gas): No data available.

Explosive Limits: LEL: 1.1% UEL: 10.6

Vapor Pressure (vs. Air or mm Hg): .6 MM_HG at 68.0 F (20.0 C)

Vapor Density (vs. Air = 1): 4.1 (air=1)

Specific Gravity (Water = 1): 0.916
Density: 7.51 G/CC
Solubility in Water: Soluble.
Percent Volatile: No data.
Autoignition Pt: 446.00 F (230.0 C)
Decomposition Temperature: NA
Viscosity: 5.31 MPAS at 20.0 C (68.0 F)
Molecular Formula & Weight: C6H14O2 118.18

10. STABILITY AND REACTIVITY

Stability: Unstable [] Stable []
Conditions To Avoid - Instability: Incompatible materials, ignition sources.
Incompatibility - Materials To Avoid: Strong oxidizing agents, Strong bases, Aluminum.
Hazardous Decomposition or Byproducts: Carbon monoxide.
Possibility of Hazardous Reactions: Will occur [] Will not occur []
Conditions To Avoid - Hazardous Reactions: No data available.

11. TOXICOLOGICAL INFORMATION

Toxicological Information: Epidemiology: No information found.
Teratogenicity: No information available. Reproductive Effects: Mutagenicity: Neurotoxicity:
Carcinogenicity/Other Information: CAS# 111-76-2: ACGIH: A3 - Confirmed animal carcinogen with unknown relevance to humans.
California: Not listed.
NTP: Not listed.
IARC: Not listed.

Additional Toxicological Information

12. ECOLOGICAL INFORMATION

General Ecological Information: Environmental: TERRESTRIAL FATE: Based on a recommended classification scheme, an estimated Koc value of 67,, determined from an experimental log Kow and a recommended regression-derived equation, indicates that ethylene glycol mono-n-butyl ether is expected to have high mobility in soil. An estimated BCF value of 2.5 was calculated for ethylene glycol mono-n-butyl ether, using an experimental log Kow of 0.83 and a recommended regression-derived equation. According to a recommended classification scheme, this BCF value suggests that bioconcentration in aquatic organisms is low.
Physical: No information found.
Other: An estimated BCF value of 2.5,, from an experimental log Kow, suggests that ethylene glycol mono-n-butyl ether bioconcentration in aquatic organisms will be low, according to a recommended classification scheme.

Additional Ecological Information

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: 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. 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.

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name:	BULK: Combustible liquids, N.O.S. (2-Butoxyethanol), 3, PGIII
DOT Hazard Class:	NON BULK: (Exception 49 cfr § 173.150) – Not Regulated by D.O.T.
UN/NA Number:	3 COMBUSTIBLE LIQUID
	NA1993 Packing Group: III



LAND TRANSPORT (Canadian TDG):

TDG Shipping Name: Not Regulated.

Additional Transport Information

15. REGULATORY INFORMATION

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
111-76-2	Ethanol, 2-Butoxy-	No	No	Yes-Cat. N230

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

[X] Yes [] No	Acute (immediate) Health Hazard
[] Yes [X] No	Chronic (delayed) Health Hazard
[] Yes [X] No	Fire Hazard
[] Yes [X] No	Sudden Release of Pressure Hazard
[] Yes [X] No	Reactive Hazard

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
111-76-2	Ethanol, 2-Butoxy-	MA Oil/HazMat: Yes

The components of this product are reported in the following inventories:

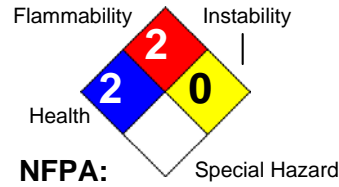
United States TSCA Inventory : y (positive listing)
(All components of this product on the TSCA 8(b) Inventory are designated active.)

16. OTHER INFORMATION

Hazard Rating System:

HMIS:

HEALTH		2
FLAMMABILIT		2
PHYSICAL		0
PPE		B



**Additional Information
About This Product:**

No data available.

**Additional Miscellaneous
Information**










**Company Policy or
Disclaimer:**

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

Information contained herein is believed to be accurate as of the issue date. However, no Warranty of Merchantability, Fitness for any purpose, or any other warranty is expressed or to be implied regarding the accuracy or completeness of this information, or the product, or hazards relating to its use. This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk for his use thereof.

SAFETY DATA SHEET TYPE D SOLVENT

HCS Pictograms and Hazards

Health Hazard	Flame	Exclamation Mark
		
<p>Carcinogen</p> <p>Mutagenicity</p> <p>Reproductive Toxicity</p> <p>Respiratory Sensitizer</p> <p>Target Organ Toxicity</p> <p>Aspiration Toxicity</p>	<ul style="list-style-type: none"> Flammables Pyrophorics Self-Heating Emits Flammable Gas Self-Reactives Organic Peroxides 	<ul style="list-style-type: none"> Irritant (skin and eye) Skin Sensitizer Acute Toxicity (harmful) Narcotic Effects Respiratory Tract Irritant Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder	Corrosion	Exploding Bomb
		
<p>Gases under Pressure</p>	<ul style="list-style-type: none"> Skin Corrosion/ burns Eye Damage Corrosive to Metals 	<ul style="list-style-type: none"> Explosives Self-Reactives Organic Peroxides
Flame over Circle	Environment (Non Mandatory)	Skull and Crossbones
		
<p>Oxidizers</p>	<ul style="list-style-type: none"> Aquatic Toxicity 	<ul style="list-style-type: none"> Acute Toxicity (fatal or toxic)

HMIS Hazardous Materials Identification System

HMIS Label Example

HMIS[®]

Chemical Name

HEALTH	*	2
FLAMMABILITY	1	
PHYSICAL HAZARD	0	

PERSONAL PROTECTION **A**

Emergency Overview:
Summarize the nature and appearance of the chemical and the important health hazards.

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PERSONAL PROTECTION INDEX							
A				G			
B				H			
C				I			
D				J			
E				K			
F				X	Consult your supervisor or S.O.P. for "SPECIAL" handling directions		
A		n		o		p	
	Safety Glasses		Splash Goggles		Face Shield & Eye Protection		Gloves
						q	
							Boots
						r	
							Synthetic Apron
						s	
							Full Suit
t		u		w		y	
	Dust Respirator		Vapor Respirator		Dust & Vapor Respirator		Full Face Respirator
						z	
							Airline Hood or Mask
						Additional Information	

HMIS HEALTH HAZARD RATING CHART	
* CHRONIC HAZARD	Chronic (long-term) health effects may result repeated overexposure.
0=MINIMAL HAZARD	No significant risk to health.
1=SLIGHT HAZARD	Irritation or minor reversible injury possible.
2=MODERATE HAZARD	Temporary or minor injury may occur.
3=SERIOUS HAZARD	Major injury likely unless prompt action is taken and medical treatment is given.
4=SEVERE HAZARD	Life-threatening, major or permanent damage may result from single or repeated overexposures.

Key for Section 11



The criteria for listing an agent, substance, mixture, or exposure circumstance in the RoC are as follows:

Known To Be Human Carcinogen:

There is sufficient evidence of carcinogenicity from studies in humans * , which indicates a causal relationship between exposure to the agent, substance, or mixture, and human cancer.

Reasonably Anticipated To Be Human Carcinogen:

There is limited evidence of carcinogenicity from studies in humans * , which indicates that causal interpretation is credible, but that alternative explanations, such as chance, bias, or confounding factors, could not adequately be excluded,

or

there is sufficient evidence of carcinogenicity from studies in experimental animals, which indicates there is an increased incidence of malignant and/or a combination of malignant and benign tumors (1) in multiple species or at multiple tissue sites, or (2) by multiple routes of exposure, or (3) to an unusual degree with regard to incidence, site, or type of tumor, or age at onset,

or

there is less than sufficient evidence of carcinogenicity in humans or laboratory animals; however, the agent, substance, or mixture belongs to a well-defined, structurally related class of substances whose members are listed in a previous Report on Carcinogens as either known to be a human carcinogen or reasonably anticipated to be a human carcinogen, or there is convincing relevant information that the agent acts through mechanisms indicating it would likely cause cancer in humans.

Conclusions regarding carcinogenicity in humans or experimental animals are based on scientific judgment, with consideration given to all relevant information. Relevant information includes, but is not limited to, dose response, route of exposure, chemical structure, metabolism, pharmacokinetics, sensitive sub-populations, genetic effects, or other data relating to mechanism of action or factors that may be unique to a given substance. For example, there may be substances for which there is evidence of carcinogenicity in laboratory animals, but there are compelling data indicating that the agent acts through mechanisms which do not operate in humans and would therefore not reasonably be anticipated to cause cancer in humans.

* This evidence can include traditional cancer epidemiology studies, data from clinical studies, and/or data derived from the study of tissues or cells from humans exposed to the substance in question that can be useful for evaluating whether a relevant cancer mechanism is operating in people.

Key for Section 11

A) IARC CLASSIFICATION

International Agency for Research on Cancer



The **International Agency for Research on Cancer (IARC or CIRC in French)** distinguishes four main groups or physical factors on the basis of existing scientific data to assess their carcinogenic potential.

GROUP 1: the agent may be a carcinogenic mixture for humans (proven carcinogen or certainly carcinogenic). The exposure circumstance entails exposures that are carcinogenic to humans. This category is only used when sufficient indications of carcinogenicity for humans are available. Beginning of August 2012, 108 agents are classified in Group 1 of IARC. This group is divided in sub-groups: agents and groups of agents, complex mixtures, occupational exposures and others.

GROUP 2A: The mentioned agents are probably carcinogenic for human beings. The classification of an agent in this category is recommended if there is no formal evidence of carcinogenicity in humans, but corroborating indicators of its carcinogenicity for humans and sufficient evidence of carcinogenicity in experimental animals. Beginning of August 2012, 64 agents and group of agents are included in this list.

GROUP 2B: 272 agents appear on this list of agents probably carcinogenic to humans. There is limited evidence of carcinogenicity in humans and evidence for animals, or insufficient evidence for human beings but sufficient evidence of carcinogenicity in experimental animals (possible carcinogens).

GROUP 3: 508 agents appear on this list and are not classifiable as to their carcinogenicity to humans. (Insufficient evidence for human beings and insufficient or limited for animals).

GROUP 4: to indicate agents which are probably not carcinogenic for human beings. (Evidence suggesting lack of carcinogenicity in humans and in experimental animals). Only one agent is thus classified: Caprolactam

B) CLASSIFICATION OF THE ACGIH



The **American Conference of Governmental Industrial Hygienists (ACGIH)** distinguishes five categories of chemicals or carcinogenic agents:

GROUP A1: confirmed human carcinogens (group 1 of IARC and category 1A of the European Union).

GROUP A2: suspected human carcinogens (group 2A of IARC and category 1B of European Union).

GROUP A3: confirmed animal carcinogens with unknown relevance to humans (group 2B of IARC and category 2 of the European Union).

GROUP A4: regroups agents non-classifiable as to their carcinogenicity to humans (group 3 of IARC).

GROUP A5: regroups agents suspected not to be carcinogenic to humans (group 4 of IARC).

Key for Section 11



Carcinogenicity in humans:

The evidence relevant to carcinogenicity from studies in humans is classified into one of the following categories:

(a) **Sufficient evidence of carcinogenicity:** A causal relationship has been established between exposure to the agent and human cancer. That is, a positive relationship has been observed between the exposure and cancer in studies in which chance, bias and confounding could be ruled out with reasonable confidence.

(b) **Limited evidence of carcinogenicity:** A positive association has been observed between exposure to the agent and cancer for which a causal interpretation is considered by the Working Group to be credible, but chance, bias or confounding could not be ruled out with reasonable confidence.

In some instances, the above categories may be used to classify the degree of evidence related to carcinogenicity in specific organs or tissues.

Carcinogenicity in experimental animals:

The evidence relevant to carcinogenicity in experimental animals is classified into one of the following categories:

(a) **Sufficient evidence of carcinogenicity:** A causal relationship has been established between the agent and an increased incidence of malignant neoplasms or of an appropriate combination of benign and malignant neoplasms in (i) two or more species of animals or (ii) two or more independent studies in one species carried out at different times or in different laboratories or under different protocols. An increased incidence of tumors in both sexes of a single species in a well-conducted study, ideally conducted under Good Laboratory Practices, can also provide sufficient evidence.

Exceptionally, a single study in one species and sex might be considered to provide sufficient evidence of carcinogenicity when malignant neoplasms occur to an unusual degree with regard to incidence, site, type of tumor or age at onset, or when there are strong findings of tumors at multiple sites.

(a) **Limited evidence of carcinogenicity:** The data suggest a carcinogenic effect but are limited for making a definitive evaluation because, e.g. (i) the evidence of carcinogenicity is restricted to a single experiment; (ii) there are unresolved questions regarding the adequacy of the design, conduct or interpretation of the studies; (iii) the agent increases the incidence only of benign neoplasms or lesions of uncertain neoplastic potential; or (iv) the evidence of carcinogenicity is restricted to studies that demonstrate only promoting activity in a narrow range of tissues or organs.