

MSDS ID: 8026928

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1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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PRODUCT PART NUMBER: 8026928  
DESCRIPTION: 4466 WHITE

COMPANY:  
Markem Corporation  
150 Congress Street  
Keene, NH 03431

EMERGENCY RESPONSE NUMBERS:  
Transportation:  
United States: (800) 424-9300  
International: (703) 527-3887(collect)  
Product Safety and Environmental:  
(603) 352-1130

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2. HAZARDOUS INGREDIENTS

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COMPONENT	CAS #	PCT(WT)
N-butyl acetate	123-86-4	10-30
Silica, amorphous	7631-86-9	0.1-1
Telomer B monoether with polyethylene glycol	65545-80-4	0.5-1.5
Acrylate monomer	TS0000-11-0	10-30

Exposure and physical property information is presented in Section 9. If the total percentage is less than 100, the balance of this product is not considered to be hazardous as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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3. HAZARDS IDENTIFICATION

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EMERGENCY OVERVIEW

HMIS RATING SYSTEM	NFPA RATING SYSTEM
Health: 2	Health: 2
Flammability: 3	Flammability: 3
Reactivity: 2	Reactivity: 2
Protection: B	

POTENTIAL HEALTH CONSIDERATIONS

LIKELY ROUTES OF ENTRY:  
Contact; Inhalation; Absorption

TARGET ORGANS:  
Lungs; Respiratory Tract; Eyes; Skin; Nervous System;

POTENTIAL IMMEDIATE EFFECTS FROM OVEREXPOSURE

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### 3. HAZARDS IDENTIFICATION (Cont.)

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#### EYE CONTACT

Can cause severe eye irritation, tearing and reddening, but not likely to permanently injure eye tissue. Temporary vision impairment (cloudy or blurred vision) is possible.

#### SKIN CONTACT

Can cause severe skin irritation, defatting, and dermatitis. Not likely to cause permanent skin damage.  
Skin Sensitizer! Avoid exposure. If sensitized, repeated exposures will result in skin irritation, even at very low concentrations.

#### SKIN ABSORPTION

Toxic if absorbed through the skin causing systemic damage.

#### INHALATION

Can cause severe respiratory irritation, dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.  
Respiratory Sensitizer! Avoid exposure. If sensitized, repeated exposures will result in respiratory irritation and shortness of breath, even at very low concentrations. These asthma-type symptoms may develop immediately or be delayed up to several hours.

#### INGESTION

Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.

#### POTENTIAL LONG-TERM EFFECTS FROM OVEREXPOSURE:

#### CANCER INFORMATION

Contains a substance that is a possible cancer hazard based on human studies.  
No IARC cancer hazard information available.  
No ACGIH cancer hazard information available.  
No NTP cancer hazard information available.  
No OSHA cancer hazard information available.

#### REPRODUCTIVE SYSTEM INFORMATION

Contains a substance that is a possible reproductive hazard based on tests with laboratory animals.

#### ADDITIONAL HEALTH HAZARD INFORMATION

Butyl acetate: Throat irritation has been noted in human subjects at 200ppm.  
Amorphous silica: This product contains amorphous silica. Silica can be hazardous if respired into the lungs. The silica in this product is bound to the polymers present in the ink and will not become a hazard unless the printed surface is abraded in a manner that creates respirable dust.

#### MEDICAL CONDITIONS POTENTIALLY AGGRAVATED BY OVEREXPOSURE

Skin disease including eczema and sensitization, Liver disease, Kidney disease, Respiratory disease including asthma and bronchitis,

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#### 4. FIRST AID MEASURES

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##### EYE CONTACT

Immediately flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Get immediate medical attention.

##### SKIN CONTACT

Wash with soap and water. Remove contaminated clothing and launder. Get medical attention if irritation develops or persists.

##### INHALATION

Remove to fresh air. If not breathing, perform rescue breathing and, if available, have a trained person administer oxygen. Get medical attention immediately.

##### INGESTION

Emergency personnel should be contacted immediately and be provided with this MSDS. For ingestion of small quantities of chemicals, the risk associated with inducing vomiting usually exceeds the poisoning risk.

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#### 5. FIRE FIGHTING MEASURES

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##### FLAMMABILITY DATA

FLASH POINT: 82 F, 28 C

EXPLOSIVE/FLAMMABILITY LIMITS ESTIMATED FROM INGREDIENTS:

LOWER LIMIT: 1.7 %

UPPER LIMIT: 15.0 %

AUTOIGNITION TEMPERATURE ESTIMATED FROM INGREDIENTS:

789 F, 421 C

##### GENERAL HAZARDS

Vapors may be ignited by heat, sparks, flames or other sources of ignition giving rise to a Class B fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Container may explode in heat of fire. Empty container may still contain residual material that can ignite and/or result in an explosion. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty container to heat, flame, sparks, static electricity, or other sources of ignition.

##### EXTINGUISHING MEDIA

Small Fires: Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam. Large Fires: Water spray, fog or alcohol-resistant foam. Move containers from fire area if it can be done without risk. Apply cooling water to containers that are exposed to flames until well after fire is out.

##### FIRE FIGHTING INSTRUCTIONS

Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location. Heat may build pressure and rupture closed containers, spreading fire and increasing risk of burns or injuries. Use water spray/fog for cooling. Even if material is water soluble, it may not be practical to extinguish fire by water dilution. Notify authorities if liquid enters sewers or other public waters.

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## 5. FIRE FIGHTING MEASURES (Cont.)

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Water may be used to cool containers exposed to heat from the fire.

### HAZARDOUS COMBUSTION PRODUCTS

carbon monoxide; carbon dioxide; formaldehyde; Phenol,

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## 6. ACCIDENTAL RELEASE MEASURES

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### SPILL CLEAN-UP PROCEDURES

Shut off ignition sources; smoking, flames or other sources of ignition must not be permitted in the area. Small Spills: Take up with sand or other noncombustible absorbent material and put into properly labeled containers for disposal. Large Spills: Dike ahead of liquid spill area to minimize migration and vapor generation. Ventilate the area. Get professional help from outside contractors, the fire department or your trained spill brigade.

### HEALTH CONSIDERATIONS AND PROTECTIVE EQUIPMENT

Information on the selection and use of personal protective equipment is found in Section 8 of this MSDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; material spilled, quantity, the area in which it occurred and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits and consider that the evaporation of volatile solvents can lead to the displacement of air creating an environment that can cause asphyxiation.

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## 7. HANDLING AND STORAGE

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### HANDLING

Avoid contact with material, avoid breathing vapors, use only in a well ventilated area, use bonding and grounding when transferring this material.

### STORAGE

Store in a cool dry ventilated location, away from oxidizers, heat, flame or other incompatible conditions. Keep container(s) closed if possible. Keep from freezing

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

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### ENGINEERING CONTROLS

Local exhaust ventilation or other engineering controls may be needed when handling or using this product to keep exposure to airborne contaminants below the exposure limit. These controls should be explosion-proof when exhausting flammable vapors.

Facilities storing or using this material should be equipped with an eyewash and safety shower.

### RESPIRATORY PROTECTION

If air monitoring indicates airborne concentrations at or above the limits, or symptoms of inhalation over-exposure occur, a respiratory protection program may be required. Engineering controls to reduce the exposure below acceptable limits are usually preferable to a respirator program.

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## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION (Cont.)

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If this product is used in a manner that results in the generation of an aerosol, adequate ventilation or containment must be provided to prevent inhalation or skin exposure to the particles.

### EYE PROTECTION

Chemically resistant safety glasses with side shields must be worn when handling this product. Further eye protection such as chemical splash goggles and/or face shield must be worn when the possibility exists for eye contact due to splashing or spraying liquid or airborne particles. Contact lenses should not be worn. An eye wash station should be available.

### SKIN PROTECTION

Prevent skin contact by wearing gloves and other protective equipment. Inspect gloves for chemical break-through and replace if detected. Clean protective equipment thoroughly after each use. Do not remove from workplace. An emergency shower in the area is recommended.

Appropriate gloves to be used for MARKEM products that are mixtures have not been determined. Glove type(s) for ingredients present at 10% or more (if known) are:

Nitrile

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## 9. PHYSICAL AND CHEMICAL PROPERTIES - PRODUCT

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APPEARANCE:	Liquid
COLOR:	White
ODOR:	Characteristic
SPECIFIC GRAVITY(g/ml):	1.41
PERCENT VOLATILE:	16
VOC CONTENT(lb/gl):	1.644
VAPOR PRESSURE (Pa):	Not determined
BOILING PT OR RANGE(F):	ND
pH:	NA
VISCOSITY:	ND
VAPOR DENSITY:	Heavier than air
FREEZING POINT(F):	ND
EVAPORATION RATE:	0.5-2 (n-Butyl acetate = 1)

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### 9.1 EXPOSURE, PHYSICAL AND CHEMICAL PROPERTIES FOR COMPONENTS

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COMPONENT	ACGIH		OSHA	
	TWA\CEIL	STEL	TWA	CEIL
123-86-4	150 ppm	200 ppm	150 ppm	NE
7631-86-9	10 mg/m3	NE	6 MPPCF	NE
65545-80-4	NE	NE	NE	NE
TS0000-11-0	NE	NE	NE	NE

  

COMPONENT CAS NUMBER	SPECIFIC GRAVITY	EVAP RATE N-BUTYL ACETATE=1	WATER SOLUBILITY Weight %	VAPOR PRESSURE mmHg at F

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**9.1 EXPOSURE, PHYSICAL AND CHEMICAL PROPERTIES FOR COMPONENTS (Cont.)**


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7631-86-9	1.000	ND	ND	ND
65545-80-4	1.360	ND	ND	ND
TS0000-11-0	1.100	ND	Negligible;	ND

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**10. STABILITY AND REACTIVITY**


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**STABILITY**

Stable under normal conditions.

**CONDITIONS TO AVOID**

Elevated temperatures in combination with sparks, open flames, or other sources of ignition.

**INCOMPATIBILITY**

acids; caustics (bases); strong oxidizing agents; strong reducing agents

**HAZARDOUS DECOMPOSITION PRODUCTS**

carbon monoxide; carbon dioxide; formaldehyde; Phenol,

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**11. TOXICOLOGICAL INFORMATION**


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**n-Butyl acetate:**

LC50 (inhalation, rat): 2000 ppm (4-hour exposure).

LC50 (inhalation, mouse): 6000 mg/m<sup>3</sup> (1260 ppm) (2-hour exposure).

LD50 (oral, rat): 13100 mg/kg.

LD50 (oral, mouse): 7060 mg/kg.

LD50 (oral, rabbit): 7400 mg/kg.

LD50 (oral, guinea pig): 4700 mg/kg.

LD50 (dermal, rabbit): Greater than 5000 mg/kg.

**TERATOGENICITY AND EMBRYOTOXICITY:**

Rats exposed to 1500 ppm, 7 hours/day on days 1-16 of pregnancy showed signs of maternal toxicity and fetal toxicity (retarded growth).

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**12. ECOLOGICAL INFORMATION**


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**Butyl acetate:**

LC50 Pimephales promelas (fathead minnow): 18 mg/l/96 hr ,

LC50 Lepomis macrochirus (Bluegill): 100 ppm/96 hr at 23 deg C.

LC50 Menidia peninsulae (tidewater silverside): 185 ppm/96 hr

If released to soil, n-butyl acetate may be susceptible to significant biodegradation based on its demonstrated biodegradability with a screening test. Chemical hydrolysis in moist alkaline soils (pH approaching 9 or higher) is expected to be important. Volatilization from dry soil surfaces is likely to rapid.

If released to water, biodegradation and volatilization are expected to be the important removal mechanisms. BOD studies using either a sewage inoculum or a natural river-water inoculum have demonstrated that n-butyl acetate is significantly biodegradable.

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12. ECOLOGICAL INFORMATION (Cont.)

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If released to air, the dominant removal mechanism will be the vapor-phase reaction with photochemically produced hydroxyl radicals which has an estimated half-life of about 6 days in an average atmosphere.

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13. DISPOSAL CONSIDERATIONS

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Dispose of in accordance with all federal, state, local or provincial regulations.

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14. TRANSPORT INFORMATION, DOT and IATA:

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DOT: PRINTING INK, 3, UN1210, PG III  
IATA: PRINTING INK RELATED MATERIAL, 3, UN1210, PG III,  
LABEL REQUIRED: FLAMMABLE LIQUID

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15. REGULATORY INFORMATION

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Those ingredients appearing on the following list that do not appear in Section 2 are present at <0.1% for carcinogens, <1% for other hazardous substances, or are not considered hazardous in this product.

UNITED STATES OF AMERICA  
FEDERAL REGULATIONS

CERCLA: The following components have CERCLA reportable quantities:

CASRN	DESCRIPTION	CERCLA RQ	WEIGHT%
123-86-4	BUTYL ACETATE	5000 lb final RQ;	16
		2270 kg final RQ	

RCRA: The following components are subject to RCRA land disposal restrictions:

CASRN	DESCRIPTION
None	

SARA TITLE III

SECTION 302 Extremely Hazardous Substances (EHS)

CASRN	DESCRIPTION
None	

SECTION 311/312 Community Right to Know

CASRN	DESCRIPTION
None	

SARA HAZARD CATEGORY INFORMATION

FIRE: YES

SUDDEN RELEASE OF PRESSURE: NO

REACTIVE: NO

IMMEDIATE (ACUTE) HEALTH HAZARD: YES

DELAYED (CHRONIC) HEALTH HAZARD: YES

SECTION 313 Toxic Chemical Release Inventory Reporting (TRI)

CASRN	DESCRIPTION
None	

TSCA

SECTION 8(b) Inventory: All chemicals in this product appear in the inventory or are exempt from the listing requirements.

SECTION 12(b) Export: The following chemicals are subject to export reporting

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 15. REGULATORY INFORMATION (Cont.)
 

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CASRN	DESCRIPTION	
123-86-4	N-BUTYL ACETATE	
STATE REGULATIONS		
CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65)		
The following chemical(s) in this product are known to the State of California to cause cancer:		
CASRN	DESCRIPTION	WGT%
123-91-1	1,4-DIOXANE	0.001-0
The following chemical(s) in this product are known to the State of California to be hazards to reproductive health:		
None		
MASSACHUSETTS Right to Know Law		
CASRN	DESCRIPTION	%
123-86-4	BUTYL ACETATE	10-30
7631-86-9	AMORPHOUS SILICA	0.1-1
NEW JERSEY Right to Know Law		
CASRN	DESCRIPTION	%
123-86-4	N-BUTYL ACETATE	10-30
7631-86-9	SILICA, AMORPHOUS	0.1-1
PENNSYLVANIA Right to Know Law		
CASRN	DESCRIPTION	%
123-86-4	ACETIC ACID, BUTYL ESTER	10-30
7631-86-9	SILICA, AMORPHOUS	0.1-1

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 16. OTHER INFORMATION
 

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Note: A CAS number in the form TSXXXX-XX-X is a trade secret.

NA= Not applicable

ND= Not determined

TS= Trade secret

MSDS prepared by Richard C. Berry

This information is offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is made. The recommended industrial hygiene and safe handling practices are believed to be generally applicable, however each user must review the recommendations and determine the suitability for their intended use.