

MSDS ID: 8061070

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT PART NUMBER: 8061070
DESCRIPTION: 7281 BLACK

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

2. HAZARDOUS INGREDIENTS

COMPONENT	CAS #	PCT(WT)
Carbon black	1333-86-4	5-10
Neopentyl glycol diglycidyl ether	17557-23-2	1-5
Tributyl phosphate	126-73-8	10-30
Propylene carbonate	108-32-7	1-5
Silica, amorphous	7631-86-9	1-5
Cycloaliphatic epoxy resin	2386-87-0	20-40

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).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS RATING SYSTEM
Health: 3
Flammability: 1
Reactivity: 1
Protection: B

NFPA RATING SYSTEM
Health: 3
Flammability: 1
Reactivity: 1

POTENTIAL HEALTH CONSIDERATIONS

LIKELY ROUTES OF ENTRY:

Contact; Inhalation; Absorption; Ingestion

TARGET ORGANS:

Eyes; Respiratory Tract; Skin; Liver; Kidneys; Bladder; Nervous System; Lungs;

3. HAZARDS IDENTIFICATION (Cont.)

POTENTIAL IMMEDIATE EFFECTS FROM OVEREXPOSURE

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 respiratory irritation, dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.

INGESTION

Toxic. If swallowed, may cause abdominal discomfort, nausea, vomiting, diarrhea and systemic poisoning.

POTENTIAL LONG-TERM EFFECTS FROM OVEREXPOSURE:

CANCER INFORMATION

Contains a substance that can cause cancer in laboratory animals at high oral doses. Not a carcinogen according to NTP, IARC, or OSHA.
No IARC cancer hazard information available.
Classified by ACGIH as A4: Not classifiable as a human carcinogen.
No NTP cancer hazard information available.
Classified by IARC as Group 2B: The agent (mixture) is possibly carcinogenic to humans.

REPRODUCTIVE SYSTEM INFORMATION

None of the substances in this product have been shown to cause reproductive system disorders.

ADDITIONAL HEALTH HAZARD INFORMATION

Neopentyl glycol diglycidyl ether: This substance was found to be carcinogenic in skin painting tests on mice. This material may be mutagenic based on laboratory tests. A small residual of epichlorohydrin remain and has been shown to produce cancer in lab animals.
Tributyl phosphate: TBP was found not to be neurotoxic either acutely at 1000 mg/kg or after three months of exposure at up to 325 mg/kg/day. Assuming similar absorption of TBP by oral and inhalation routes of exposure and a breathing rate of approximately 170 mL/min, these values are approximately equivalent to inhalation exposures of 4900 mg/cu m acutely and 1590 mg/cu m per day subchronically. The ACGIH TLV (TWA) for TBP is 2.2 mg/cu m. This

3. HAZARDS IDENTIFICATION (Cont.)

indicates that a minimum of a 700-fold safety factor exists for TBP as a potential neurotoxin(1). Large doses have been reported to cause dyspnea, weakness, pulmonary edema, and twitching in rats. Chronic inhalation of large doses can lead to general poisoning with paralysis, urinary bladder hyperplasia, and increased liver weight.(1) Healy, C.E.; Beyrouthy, P.C.; and Broxup, B.R., Am. Ind. Hyg. Assoc J. 56:349-355 (1995).

Amorphous silica: This product contains amorphous silica. Silica can be hazardous if respirated 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

4. FIRST AID MEASURES

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.

5. FIRE FIGHTING MEASURES

FLAMMABILITY DATA

FLASH POINT: 239 F, 114 C

EXPLOSIVE/FLAMMABILITY LIMITS ESTIMATED FROM INGREDIENTS:

LOWER LIMIT: 1.7 %

UPPER LIMIT: 32.5 %

AUTOIGNITION TEMPERATURE ESTIMATED FROM INGREDIENTS:

500 F, 260 C

GENERAL HAZARDS

Material may ignite if heated to temperatures above the flash point in the presence of a source of ignition.

EXTINGUISHING MEDIA

Small Fires: Dry chemical, CO₂, 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

5. FIRE FIGHTING MEASURES (Cont.)

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.

HAZARDOUS COMBUSTION PRODUCTS

carbon dioxide; carbon monoxide; fluorine containing gases; smoke; phosphorus compounds

6. ACCIDENTAL RELEASE MEASURES

SPILL CLEAN-UP PROCEDURES

Prevent the spread of any spill to minimize harm to human health and the environment. Dike with suitable absorbent material. Wear complete and proper personal protective equipment and ventilate the area.

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.

7. HANDLING AND STORAGE

HANDLING

Avoid contact with material, avoid breathing vapors, use only in a well ventilated area.

STORAGE

Store in a cool, dry place. Isolate from incompatible materials.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

ENGINEERING CONTROLS

Local exhaust ventilation or other engineering controls are normally required when handling or using this product to keep exposure to airborne contaminants below the TLV, PEL, or other recommended exposure limit and/or maintain operator comfort.

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

 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION (Cont.)

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.

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:

Butyl rubber, Polyethylene, Polyvinyl chloride,

 9. PHYSICAL AND CHEMICAL PROPERTIES - PRODUCT

APPEARANCE:	Liquid
COLOR:	Black
ODOR:	Mild solvent odor
SPECIFIC GRAVITY(g/ml):	1.20
PERCENT VOLATILE:	22
VOC CONTENT(lb/gal):	Not determined
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)

 9.1 EXPOSURE, PHYSICAL AND CHEMICAL PROPERTIES FOR COMPONENTS

COMPONENT	ACGIH		OSHA	
	TWA\CEIL	STEL	TWA	CEIL
1333-86-4	3.5 mg/m ³	NE	3.5 mg/m ³	NE
17557-23-2	NE	NE	NE	NE
126-73-8	0.2 ppm	NE	0.2 ppm	NE
108-32-7	NE	NE	NE	NE
7631-86-9	10 mg/m ³	NE	6 MPPCF	NE
2386-87-0	NE	NE	NE	NE

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

COMPONENT CAS NUMBER	SPECIFIC GRAVITY	EVAP RATE N-BUTYL ACETATE=1	WATER SOLUBILITY Weight %	VAPOR PRESSURE mmHg at F
1333-86-4	1.800	ND	Negligible;ND	
17557-23-2	1.060	ND	ND	ND
126-73-8	0.980	<0.01	Negligible;7.3@302F	
108-32-7	1.207	0.5-2	Low; 10-24%.03@20	
7631-86-9	1.000	ND	ND	ND
2386-87-0	1.175	ND	ND	ND

10. STABILITY AND REACTIVITY

STABILITY

Stable under normal conditions.

CONDITIONS TO AVOID

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

INCOMPATIBILITY

strong oxidizing agents; None Known; acids; caustics (bases)

HAZARDOUS DECOMPOSITION PRODUCTS

carbon dioxide; carbon monoxide; fluorine containing gases; smoke; phosphorus compounds

11. TOXICOLOGICAL INFORMATION

Carbon black:

Carcinogenicity

NTP: Not classified

OSHA: Not classified

ACGIH: Not classifiable as a human carcinogen (A4)

IARC: Carbon black is possibly carcinogenic to humans (Group 2B)

Evaluation: There is inadequate evidence in humans for the carcinogenicity of carbon black. There is sufficient evidence in experimental animals for the carcinogenicity of carbon black. There is sufficient evidence in experimental animals for the carcinogenicity of carbon black extracts.

Overall evaluation: Carbon black is possibly carcinogenic to humans (Group 2B) [IARC. Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. Geneva: World Health Organization, International Agency for Research on Cancer, 1972-PRESENT. (Multivolume work)., p. 65 247 (1996)].

Summary of Data Reported and Evaluation:

Exposure data: In the late 1980s and early 1990s, more extensive studies in western Europe and the United States have found ... even lower exposures may occur among some workers in industries using carbon black, such as rubber, printing ink and paint manufacture, and exposures to carbon black in the use of rubber, printing ink or paint are negligible.

11. TOXICOLOGICAL INFORMATION (Cont.)

[IARC. Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man. Geneva: World Health Organization, International Agency for Research on Cancer, 1972-PRESENT. VOL.: 65 (1996) (p. 149)].

LD50 (oral, rat): >8000 mg/kg

LC50 (inhalation, rat): 27000 mg/m³ (27 mg/L) (1-hour exposure).

CHRONIC INHALATION: Hamsters, mice, guinea pigs, rabbits and monkeys exposed to carbon blacks (channel black or furnace black) at concentrations of 85 mg/m³ (channel black) and 56 mg/m³ (furnace black) intermittently for periods up to 3000 hours (13,000 hours for monkeys) showed no significant effects other than accumulation of dusts in the lungs. The channel black contained extremely low levels of benzene-extractable material and the furnace black contained 0.28% extractable material.

SUBCHRONIC TOXICITY:

Rat, inhalation, duration 90 days

Target organ: lungs

Effect: inflammation, hyperplasia, fibrosis

NOEL =1.1 mg/m³

Neopentyl glycol diglycidyl ether:

Oral LD50 rat: 4500 mg/kg

Tributyl phosphate:

Acute toxicity:

Oral LD50 rat: 1390 mg/kg, Effect: kidney, ureter, bladder (changes in tubules)

Inhalation LC50 rat: 28 gm/m³/1H

Eye rabbit: 500 mg, Effect: Severe

Propylene carbonate

LD50 (oral, rat): 29 g/kg

LD50 (oral, mouse): 20.7 g/kg

LD50 (dermal, rabbit): 24 g/kg

12. ECOLOGICAL INFORMATION

No information available.

13. DISPOSAL CONSIDERATIONS

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

 14. TRANSPORT INFORMATION, DOT and IATA:

DOT & IATA: NOT RESTRICTED

 15. REGULATORY INFORMATION

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%
None			

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

CASRN	DESCRIPTION
None	

None

SARA TITLE III

SECTION 302 Extremely Hazardous Substances (EHS)

CASRN	DESCRIPTION
None	

None

SECTION 311/312 Community Right to Know

CASRN	DESCRIPTION
None	

None

SARA HAZARD CATEGORY INFORMATION

FIRE: NO

SUDDEN RELEASE OF PRESSURE: NO

REACTIVE: NO

IMMEDIATE (ACUTE) HEALTH HAZARD: NO

DELAYED (CHRONIC) HEALTH HAZARD: NO

SECTION 313 Toxic Chemical Release Inventory Reporting (TRI)

CASRN	DESCRIPTION
None	

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

CASRN	DESCRIPTION
126-73-8	TRIBUTYL PHOSPHATE

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%
71-43-2	BENZENE	<0.001
1333-86-4	CARBON BLACK	5-10
106-89-8	EPICHLOROHYDRIN	<0.001
75-21-8	ETHYLENE OXIDE	<0.001
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:

CASRN	DESCRIPTION	WGT%
71-43-2	BENZENE	<0.001

 15. REGULATORY INFORMATION (Cont.)

MASSACHUSETTS Right to Know Law

CASRN	DESCRIPTION	%
1333-86-4	CARBON BLACK	5-10
126-73-8	TRIBUTYL PHOSPHATE	10-30
7631-86-9	AMORPHOUS SILICA	1-5

NEW JERSEY Right to Know Law

CASRN	DESCRIPTION	%
1333-86-4	CARBON BLACK	5-10
126-73-8	TRIBUTYL PHOSPHATE	10-30
7631-86-9	SILICA, AMORPHOUS	1-5

PENNSYLVANIA Right to Know Law

CASRN	DESCRIPTION	%
1333-86-4	CARBON BLACK	5-10
126-73-8	TRIBUTYL PHOSPHATE	10-30
7631-86-9	SILICA, AMORPHOUS	1-5

 16. OTHER INFORMATION

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.