

MSDS ID: 8060022

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT PART NUMBER: 8060022
DESCRIPTION: 7261 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	7-13
Formaldehyde	50-00-0	0.1-1
Phenol	108-95-2	1-5
Tributyl phosphate	126-73-8	40-60

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: 2
Flammability: 1
Reactivity: 0
Protection: B

NFPA RATING SYSTEM
Health: 2
Flammability: 1
Reactivity: 0

POTENTIAL HEALTH CONSIDERATIONS

LIKELY ROUTES OF ENTRY:
Contact; Inhalation; Absorption; Ingestion

TARGET ORGANS:
Respiratory Tract;

POTENTIAL IMMEDIATE EFFECTS FROM OVEREXPOSURE

3. HAZARDS IDENTIFICATION (Cont.)

EYE CONTACT

Can cause minor eye irritation, tearing or reddening.

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.

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.

Contains a substance which is 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

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

ADDITIONAL HEALTH HAZARD INFORMATION

Formaldehyde: Exposure to formaldehyde vapor at concentrations >1 ppm may cause significant irritation of the eyes and respiratory tract. Irritation threshold is about 0.3 ppm. Formaldehyde was found to be weakly active in in vitro genotoxicity tests, but inactive in vivo. Lifetime inhalation of formaldehyde vapor at concentrations above 5 ppm for 6 hours/day caused nasal tumors in laboratory 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

3. HAZARDS IDENTIFICATION (Cont.)

per day subchronically. The ACGIH TLV (TWA) for TBP is 2.2 mg/cu m. This 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).

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: >200 F, >93 C

EXPLOSIVE/FLAMMABILITY LIMITS ESTIMATED FROM INGREDIENTS:

LOWER LIMIT: ND %

UPPER LIMIT: ND %

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

Use alcohol foam, carbon dioxide (CO₂) or dry chemical. Water may not be effective to extinguish fire. Use water spray to cool fire-exposed containers and to protect personnel.

FIRE FIGHTING INSTRUCTIONS

Do not enter fire area without proper protection including self-contained

5. FIRE FIGHTING MEASURES (Cont.)

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; 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 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.

RESPIRATORY PROTECTION

A component of this material has an extremely low established exposure limit. If air monitoring indicates airborne concentrations at or above the exposure limit a respiratory protection program is required. Engineering controls are usually preferable to a respirator program. Use engineering or administrative controls to minimize exposure in preference to using respirators. Protection provided by air purifying respirators is

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION (Cont.)

limited. Use a positive pressure air supplied respiratory if there is any potential for an uncontrolled release, exposure levels are not known, the work atmosphere may be deficient of oxygen, or any other circumstances where air purifying respirators may not provide adequate protection.

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:

Neoprene; Butyl rubber, Polyethylene,

9. PHYSICAL AND CHEMICAL PROPERTIES - PRODUCT

APPEARANCE:	Liquid
COLOR:	Black
ODOR:	Characteristic
SPECIFIC GRAVITY(g/ml):	1.17
PERCENT VOLATILE:	44
VOC CONTENT(lb/gal):	2.49 lb/gal
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:	<0.01 (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
50-00-0	0.3 ppm C	2 ppm	0.75 ppm	NE
108-95-2	5 ppm	NE	5 ppm	NE
126-73-8	0.2 ppm	NE	0.2 ppm	NE

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	

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

50-00-0	1.000	ND	ND	ND
108-95-2	1.070	ND	ND	ND
126-73-8	0.980	<0.01	Negligible;7.3@302F	

10. STABILITY AND REACTIVITY

STABILITY

Stable under normal conditions.

CONDITIONS TO AVOID

Heat, sparks, open flame, other ignition sources, oxidizing conditions, and elevated temperatures.

INCOMPATIBILITY

strong oxidizing agents;

HAZARDOUS DECOMPOSITION PRODUCTS

carbon dioxide; carbon monoxide; 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.

[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).

11. TOXICOLOGICAL INFORMATION (Cont.)

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

Formaldehyde:

LD50 (oral, rat): 590 mg/kg

LC50 (inh, rat): 1000 mg/m³ (30-minute exposure).

LD50 (dermal, rabbit): 270 mg/kg.

CARCINOGENICITY: Rats and mice were exposed to 0, 2, 5.6 and 14.3 ppm formaldehyde for 2 years and observed for an additional 6 months. Significant increases in the incidence of squamous cell carcinomas in the nasal cavities were observed in the rats exposed to 14.3 ppm. Two nasal cancers were observed in the mice. Male monkeys, rats and hamsters were exposed to up to 3 ppm for 22 hours per day for 26 wks. Non-cancerous growths were observed in the noses of the monkeys and rats. No effects were demonstrated in the hamsters.

IARC evaluation of the carcinogenicity of formaldehyde to experimental animals: sufficient evidence.

SKIN SENSITIZATION: Formaldehyde was a potent skin sensitizer in guinea pigs.

Phenol:

Eye rabbit: 5 mg, Effect: Severe

Oral LDLo infant: 10 mg/kg Effect: Behavioral (Muscle weakness);

Lungs, Thorax or Respiration LUNGS, (Cyanosis)

Oral LDLo human: 14 gm/kg Effect: Behavioral (Muscle weakness),

Lungs, thorax or Respiration (Cyanosis)

Oral LDLo human: 140 mg/kg Effect: Behavioral (Hallucinations, distorted perceptions), Skin and appendages (Sweating)

Oral LD50 rat: 317 mg/kg

Inhalation LC50 rat: 316 mg/m³

Skin LD50 rat: 669 mg/kg Effect: Behavioral (Tremor), Kidney, Ureter, Bladder (Hematuria);

Skin and Appendages (After topical application: Cutaneous sensitization).

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

 11. TOXICOLOGICAL INFORMATION (Cont.)

 12. ECOLOGICAL INFORMATION

Phenol:

TDLO Minnows 30 min 79 ug/l, LC50

Crangon crangon 5600 mg/l 3 min, 20 mg/l 1 hr, 80 mg/l 3 hr, 40 mg/l 6-24 hr, 30 mg/l 48-72 hr, 25 mg/l 96 hr,

LC50 Fathead minnow >50 mg/l/1 hr, >50 mg/l/24 hr, 33 mg/l/72 hr, 32 mg/l/96 hr.

If it is released to the environment, its primary removal mechanism is biodegradation which is generally rapid (days). Since phenol is a benchmark chemical for biodegradability studies, there is a large body of information on its degradation which concludes that phenol rapidly degrades in sewage, soil, fresh water and seawater.

If phenol is released to the atmosphere, it will exist predominantly in the vapor phase. Phenol's estimated half-life by reaction with hydroxyl radicals in air is 0.61 days.

 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%
50-00-0	FORMALDEHYDE	100 lb final RQ; 45.4 kg final RQ	0
108-95-2	PHENOL	1000 lb final RQ; 454 kg final RQ	4

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

CASRN	DESCRIPTION
108-95-2	PHENOL

SARA TITLE III

SECTION 302 Extremely Hazardous Substances (EHS)

CASRN	DESCRIPTION
50-00-0	FORMALDEHYDE
108-95-2	PHENOL

15. REGULATORY INFORMATION (Cont.)

SECTION 311/312 Community Right to Know

CASRN DESCRIPTION

50-00-0 FORMALDEHYDE

108-95-2 PHENOL

SARA HAZARD CATEGORY INFORMATION

FIRE: NO

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

50-00-0 FORMALDEHYDE 0

108-95-2 PHENOL 4

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%
1333-86-4	CARBON BLACK	7-13
50-00-0	FORMALDEHYDE	0.1-1

The following chemical(s) in this product are known to the State of
California to be hazards to reproductive health:WGT%
None

None

MASSACHUSETTS Right to Know Law

CASRN DESCRIPTION

1333-86-4 CARBON BLACK % 7-13

50-00-0 FORMALDEHYDE 0.1-1

108-95-2 PHENOL 1-5

126-73-8 TRIBUTYL PHOSPHATE 40-60

NEW JERSEY Right to Know Law

CASRN DESCRIPTION

1333-86-4 CARBON BLACK % 7-13

50-00-0 FORMALDEHYDE 0.1-1

108-95-2 PHENOL 1-5

126-73-8 TRIBUTYL PHOSPHATE 40-60

PENNSYLVANIA Right to Know Law

CASRN DESCRIPTION

1333-86-4 CARBON BLACK % 7-13

50-00-0 FORMALDEHYDE 0.1-1

108-95-2 PHENOL 1-5

126-73-8 TRIBUTYL PHOSPHATE 40-60

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.