

MSDS ID: 8055421 / EUENG

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

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PRODUCT PART NUMBER: 8055421  
TRADE NAME: 7224 X-50 RED 456-C  
MANUFACTURER/SUPPLIER: MARKEM Systems Ltd.  
Astor Road, Eccles New Road  
Salford, Lancashire, M5 2DA  
England  
Telephone: 0161-789-5500  
Telefax: 0161-707-5566

EMERGENCY RESPONSE NUMBERS:  
Transportation emergency:  
USA: 800-424-9300  
International: 703-527-3887(collect)  
Product safety and environmental information:  
USA: 603-352-1130  
Emergency information: UK 0161-333-8400

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2. COMPOSITION/INFORMATION ON INGREDIENTS

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INGREDIENT	CAS NO.	WEIGHT RANGE %
Castor oil, hydrogenated	8001-78-3	1-5
Formaldehyde	50-00-0	0.1-1
Trade secret	TS0000-11-6	0.5-1.5
Cyclohexane- 1,2-dicarboxylic anhydride	85-42-7	1-5
N-butyl alcohol	71-36-3	0.5-1.5
Tributyl phosphate	126-73-8	20-40

INGREDIENT	CAS NO.	EINECS NO.	CLASSIFICATION
	8001-78-3	232-292-2	Not classified
	50-00-0	200-001-8	Xi;R43
	TS0000-11-6	219-784-2	Xi;R43
	85-42-7	201-604-9	Xi;R41 R42/43
	71-36-3	200-751-6	R10; Xn;R22; Xi;R37/38, R41; R67
	126-73-8	204-800-2	Xn;R22

If the total percentage is less than 100, the balance of this product is not considered dangerous according to Directives 1999/45/EC and 67/548/EEC.

\*\*\*\*\* CLASSIFICATION OF THE PRODUCT\*\*\*\*\*

Xn:R22,42/43 R67

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3. HAZARDS IDENTIFICATION

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POTENTIAL HEALTH CONSIDERATIONS

LIKELY ROUTES OF ENTRY:

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### 3. HAZARDS IDENTIFICATION (Cont.)

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Absorption; Inhalation; Contact; Ingestion

#### TARGET ORGANS:

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

#### POTENTIAL IMMEDIATE EFFECTS FROM OVEREXPOSURE

##### EYE CONTACT

Can cause severe 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 irritation, defatting, and dermatitis. Not likely to cause permanent damage.

Sensitizer! Avoid exposure. If sensitized, repeated exposures will result in irritation, reddening, and rashes potentially at very low concentrations.

##### SKIN ABSORPTION

Harmful or toxic if absorbed through the skin causing systemic damage.

##### INHALATION

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

Sensitizer! Avoid exposure. If sensitized, exposure below the TLV or PEL can result in respiratory irritation and shortness of breath. These asthma-type symptoms may develop immediately or be delayed up to several hours.

##### INGESTION

Harmful or toxic. If swallowed, may cause abdominal discomfort, nausea, vomiting, diarrhea and systemic poisoning.

Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal.

Upon ingestion of a large quantity of this material, visual disturbances may occur. Onset of the response may be delayed.

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

##### CANCER INFORMATION

Contains a substance that is a possible cancer hazard based on animal and/or human studies.

No IARC cancer hazard information available.

Classified by ACGIH as A2: Suspected human carcinogen.

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.

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### 3. HAZARDS IDENTIFICATION (Cont.)

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#### 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. 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.

#### MEDICAL CONDITIONS POTENTIALLY AGGRAVATED BY OVEREXPOSURE

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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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#### GENERAL HAZARDS

Vapors may be ignited by sparks, flames or other sources of ignition if material is above the flash point 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

Use alcohol resistant foam, carbon dioxide, dry chemical or vaporizing liquid extinguishing agents. Water may be ineffective but water spray can be used to absorb heat and keep exposed material from being

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## 5. FIRE-FIGHTING MEASURES (Cont.)

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damaged by fire.

### 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 due to the possible presence of hazardous vapors and decomposition products. Heat may build pressure and rupture closed containers, spreading fire and increasing risk of burns or injuries. Use water spray/fog for cooling. Notify proper authorities if material enters sewers or other public waters.

### HAZARDOUS COMBUSTION PRODUCTS

Carbon dioxide; Carbon monoxide; Silicon dioxide; Phosphorus compounds

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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 SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, quantity, the area in which the spill 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.

### STORAGE

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

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## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

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### EXPOSURE LIMIT VALUES

Workplace exposure limits for ingredients:

CAS No.	Exposure limit value
126-73-8	(8-hour exposure) 5 mg/m <sup>3</sup> TWA

71-36-3	(short-term exposure) 50 ppm STEL; 154 mg/m <sup>3</sup> STEL
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## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION (Cont.)

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126-73-8 (short-term exposure) 5 mg/m<sup>3</sup> STEL

### 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 exposure limit and/or maintain operator comfort.

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

### RESPIRATORY PROTECTION

A component of this material has an extremely low exposure limit. If air monitoring indicates airborne concentrations at or above the PEL or TLV, use local exhaust ventilation or a respiratory protection program to reduce the exposure.

### EYE PROTECTION

Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact from splashing or spraying liquid or airborne particles.

Do not wear contact lenses. Have an eye wash station available.

### SKIN PROTECTION

Prevent skin contact by wearing gloves and an apron. Wear boots, goggles and/or a face shield depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment thoroughly after each use. Have a safety shower available. 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,

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## 9. PHYSICAL AND CHEMICAL PROPERTIES for the PREPARATION

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APPEARANCE:	Liquid
COLOUR:	Red
ODOUR:	Mild solvent
DENSITY (g/ml):	1.11
SOLUBILITY IN WATER:	Negligible
SOLUBILITY IN OIL:	ND
PARTITION COEFFICIENT (n-octanol/water):	ND
VISCOSITY:	ND
VAPOR DENSITY:	Heavier than air
EVAPORATION RATE:	<0.01 (n-Butyl acetate = 1)
VOLATILE ORGANIC CONTENT (g/l):	ND
VAPOR PRESSURE (Pa):	Not determined
BOILING POINT (C):	ND
pH:	NA
MELTING POINT (C):	ND
FREEZING POINT (C):	ND
FLASH POINT (C):	116

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 9. PHYSICAL AND CHEMICAL PROPERTIES for the PREPARATION (Cont.)
 

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AUTOFLAMMABILITY(C): 354  
 EXPLOSIVE/FLAMMABLE LIMITS:  
   LOWER LIMIT: 1.4 %  
   UPPER LIMIT: 11.2 %

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 10. STABILITY AND REACTIVITY
 

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## STABILITY

Stable under normal conditions.

## CONDITIONS TO AVOID

Temperatures above the flash point in combination with sparks, open flames or other sources of ignition.

## INCOMPATIBILITY

Acids; Caustics (bases); Strong oxidizing agents.

## HAZARDOUS DECOMPOSITION PRODUCTS

Carbon dioxide; Carbon monoxide; Silicon dioxide; Phosphorus compounds

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 11. TOXICOLOGICAL INFORMATION
 

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## Acute effects

## Formaldehyde:

LC50 (rat): 1000 mg/m<sup>3</sup> (30-minute exposure).

LC50 (mouse): 400 mg/m<sup>3</sup> (2-hour exposure).

LD50 (oral, mouse): 42 mg/kg.

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

## n-Butyl alcohol:

LC50 (rat): Greater than 8000 ppm (4-hr exposure).

LD50 (oral, rat): 800-4400 mg/kg.

LD50 (oral, rabbit): 1600-3500 mg/kg.

LD50 (dermal, rabbit): 4200-5300 mg/kg.

## Tributyl phosphate:

LD50 (dermal, rabbit): 500 mg

LD50 (oral, rat): 1390 mg/kg

LC50 (inhalation, rat): 28 gm/m<sup>3</sup>/1H

## Subchronic effects

No known subchronic toxicity effects result from exposure to this product.

## Chronic effects

## Formaldehyde:

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.

## n-Butyl Alcohol:

Systemic effects from exposure to n-butyl alcohol in the form of auditory nerve and vestibular injury have been reported. Sietz reported severe vertigo, vertiges gravis, in five workers exposed to butyl alcohol. Velasquez reported audiologic impairment in workers when exposed to 80 ppm of

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11. TOXICOLOGICAL INFORMATION (Cont.)

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n-butyl alcohol in combination with unprotected noise.

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 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.; Beyrouty, P.C.; and Broxup, B.R., Am. Ind. Hyg. Assoc J. 56:349-355 (1995).

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12. ECOLOGICAL INFORMATION

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N-butyl alcohol: LC50 Pimephales promelas (fathead minnow) 1730 mg/l/96 hr.

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13. DISPOSAL CONSIDERATIONS

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DISPOSAL

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

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14. TRANSPORT INFORMATION

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DOT: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(CONTAINS MODIFIED BENZOGUANAMINE RESIN AND FORMALDEHYDE),  
9, UN3082, III, LABEL REQUIRED: MARINE POLLUTANT

IATA: NOT RESTRICTED

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15. REGULATORY INFORMATION

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Labeling information according to Directives 67/548/EEC and 1999/45/EC:  

Indication of Danger	Symbol/Letter
Harmful	Xn

RISK PHRASE(S):

R22 - Harmful if swallowed.

R42/43 - May cause sensitisation by inhalation and skin contact.

R67 - Vapours may cause drowsiness and dizziness.

SAFETY PHRASE(S):

S7/9 - Keep container tightly closed and in a well ventilated place.

S13 - Keep away from food, drink and animal feedingstuffs

S23 - Do not breathe vapour.

S24/25 - Avoid contact with skin and eyes

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15. REGULATORY INFORMATION (Cont.)

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S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37/39 - Wear suitable gloves and eye/face protection.

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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

NE: NOT ESTABLISHED

ND: NOT DETERMINED

Prepared by: Richard C. Berry