Material Safety Data Sheet

CREOSOTE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	CREOSOTE
OTHER/GENERIC NAMES:	Coal Tar Creosote, KMG-B Coal Tar Creosote Creosote Oil
PRODUCT USE:	Wood preservative
COMPANY:	KMG-Bernuth, Inc. 10611 Harwin, Suite 402 Houston, Texas 77036 Telephone: 713-988-9252
U. S. EPA Registration Nos.	61470-1 61483-7, 61483-8 61483-9, 61483-10

IN CASE OF EMERGENCY CALL:
(24 Hours/Day, 7 Days/Week)

CHEMTREC: 1 800 424 9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	WEIGHT %
Creosote *	8001-58-9	100

* Mixture of 2, 3, & 4-ringed polynuclear aromatic hydrocarbons, including some substituted compounds

Trace impurities and additional material names not fisted above may also appear in Section 15. These materials may be listed for local “Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Creosote is a brown to black oily liquid with a penetrating smoky odor. Vapor causes moderate to severe irritation of eyes, nose, throat and respiratory tract. Liquid can cause burning and itching with reddening of the skin, which is accentuated by sunlight.

POTENTIAL-HEALTH HAZARDS

SKIN: Contact with skin can result in irritation, which when not washed off or when accentuated by sunlight, can result in minor burns.

EYES: Overexposure to product vapors can result in irritation. Eye contact with product will result in irritation, which in the absence of recommended first aid can result in effects ranging from minor burns to severe corneal injury, including keratitis, conjunctivitis and corneal abrasion.

INHALATION: Overexposure to vapor may result in irritation to respiratory tract. Prolonged exposure in significant excess of permissible air concentrations can result in acute toxic effects, such as dizziness, respiratory difficulty, convulsions and possible cardiovascular collapse.

INGESTION: Irritation of the gastrointestinal tract followed by nausea and vomiting, abdominal discomfort. rapid pulse etc. Cardiovascular collapse may occur.

DELAYED EFFECTS: Prolonged and repeated skin exposure over many years in the absence of recommended hygiene practices may lead to changes in skin pigmentation, benign skin growths and may, in some cases, result in skin cancer. Additionally, inhalation may present a lung cancer hazard.

Ingredients found on one of the OSHA designated carcinogen lists me listed below.

INGREDIENT NAME	NTB STATUS	JARC STATUS	OSHA LIST
Creosote	Carcinogen	2A - Probable	–

4. FIRST AID MEASURES

SKIN: Wash thoroughly with waterless hand cleaners, olive oil or soap and water. Avoid solvents.

EYES: Flush eyes immediately with large amounts of water or olive oil for at least 15 minutes. Call a physician

INHALATION: Remove to fresh air. If not breathing, give artificial respiration; preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

INGESTION: If conscious. first induce vomiting, then take 2 tablespoons of activated charcoal (USP-drug grade) in water. Get immediate medical attention. Do not induce vomiting, or give anything by mouth to an unconscious person.

ADVICE TO PHYSICIAN: No additional instructions.

5. FIREFIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINTS:	> 93º C (> 200º F) / > 93º C (> 200º F)
FLASH POINT METHOD:	Closed Cup / Open Cup
AUTOIGNITION TEMPERATURE:	336º C (637º F)
UPPER FLAME LIMIT (volume 0/6 in air):	Not Determined
LOWER FLAME LIMIT (volume % In air):	Not Determined
FLAME PROPAGATION RATE (solids):	Not Applicable
OSHA FLAMMABILITY CLASS:	Not Determined

EXTINGUISHING MEDIA: Water/fog, carbon dioxide, foam, dry chemicals, sand or steam.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Water/fog is recommended for the control of unconfined oil fires, but water may cause frothing or eruption in closed tank.

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS: Self-contained breathing apparatus (SCBA) and full protective clothing should be worn when fumes and/or smoke are present.

6. ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always wear recommended personal protective equipment)

Avoid breathing vapors and contact with skin and eyes. Avoid sources of ignition (sparks or open flame). Contain the spill or leak with solids, such as sand, earth, etc. Contaminated materials must be handled and managed as RCRA Hazardous Waste and treated before disposal in approved facilities. Do not allow to enter into sewers or waterways.

Spills and releases may have to be reported to Federal and/or local authorities. See Section 15.

7. HANDLING AND STORAGE

NORMAL HANDLING: (Always wear recommended personal protective equipment)

Wear clothing closed at the neck, long sleeves and non-porous type gloves, eg. neoprene, butyl rubber, nitrile, poly-vinyl alcohol (PVA), polyvinyl chloride (PVC).

STORAGE RECOMMENDATIONS: Recommended temperature for storage is about 140º F.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use in areas with adequate natural or local exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION:	Avoid skin contact whenever possible by using non-porous type gloves. For outdoor work use a waterproof sunscreen (SPF 25 or greater); reapply every 90 minutes while in direct sun. For exposed skin, use protective creams (for example: MSA's Fend AE-2, Kerodex 51, Jergens SBS-46).
EYE PROTECTION:	Safety glasses, goggles and/or face shield.
RESPIRATORY PROTECTION:	Not required for properly ventilated areas. Use a NIOSH approved respirator with suitable organic vapor cartridge as necessary to control exposures above the TLV of PEL.
ADDITIONAL RECOMMENDATIONS:	Do not take contaminated work clothing home. It is recommended that a complete soap and water shower and/or steam bath be taken at the end of each working day.

EXPOSURE GUIDELINES

INGREDIENT NAME	ACGIH TLV	OSHA PEL	OTHER LIMIT
Creosote (measured as Coal Tar Pitch Volatiles, CTPV	0.2 mg/m^3	0.2 mg/ m^3	–

HAZARDOUS INGREDIENTS	CAS NUMBER	% BY WT.	EXPOSURE LIMIT	(PPM; MG/M3)
Coal Tar Distillate	65996-92-1		OSHA-TWA -	*
Indene	95-13-6	<10	ACGIH-TWA 10	48
			OSHA-TWA 10	45
Naphthalene	91-20-3	<15	ACGIH-TWA 10	52
			ACGIH-STEL 15	79
			OSHA-TWA 10	50
			OSHA-STEL 15	75
			NIOSH-TWA 10	50
			NIOSH-STEL 15	75
Biphenyl	92-52-4	<5	ACGIH-TWA 0.2	1.3
			OSHA-TWA 0.2	1
Benzene	71-43-2	<1	ACGIH-TWA 10	32**, #
			OSHA-TWA 1	***
			OSHA-STEL 5	-
			NIOSH-TWA 0.1	-
			NIOSH-STEL 1	-
Alkylnaphthalene		<10	none	
Phenanthrene	85-01-8	9-13	NONE	
Benz (a) anthracene	56-55-3	1.6	NONE	
Benzo (a) phenanthrene	218-01-9	1.7	NONE	
Benzo (b) fluoranthene+	205-99-2		NONE	
Benzo (k) fluoranthene+	207-08-9		NONE	
Benzo (j) fluoranthene+	205-82-3		NONE	
7, 12-Dimethylbenz (a) anthracene	57-97-6	2.43	NONE	
Indeno (1,2,3-cd) pyrene	193-39-5	0.25	NONE	
Benzo (a) pyrene	50-32-8	0.92	NONE	
Dibenzo (a,h) anthracene	53-70-3	0.09	NONE	
Benzo (g,h,i) perylene+	191-24-2		NONE	
7-H Dibenzo (c,g) carbazole	194-59-2	0.18	NONE	
Dibenzo (a,l) pyrene	191-30-0	0.02	NONE	
1-Nitropyrene	5522-43-0	0.24	NONE	
Dibenz (a,j) acridine	224-42-0	0.06	NONE	
Dibenz (a,h) acridine	226-36-8	0.04	NONE	

------SARA TITLE III SECTION 313 CHEMICALS------
(SEE SECTION V11 FOR CAS NUMBERS AND PERCENTAGES)

Naphthalene
Biphenyl
Benzene
Phenanthrene / Benz (a) anthracene
Benzo (a) phenanthrene
Benzo (b) fluoranthrene / Benzo (k) fluoranthrene
Benzo (j) fluoranthrene
Benzo (a) pyrene
Dibenzo (a,h) anthracene
Indeno)1,2,3-cd) pyrene
1-Nitropyrene
7,12-Dimethylbenz (a) anthracene
7-H Dibenzo (c,g) carbazole / Benzo (g,h,i) perylene
Dibenzo (a,l) pyrene
Dibenz (a,j) acridine
Dibenz (a,h) acridine

OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS: None

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Dark brown to black oily liquid
PHYSICAL STATE:	Liquid
MOLECULAR WEIGHT:	130-210
CHEMICAL FORMULA:	Mixture of organic compounds
ODOR:	Penetrating smoky odor
SPECIFIC GRAVITY (water=1.0):	1.03-1.18 (Avg.: 9.1 lbs/ gal)
SOLUBILITY IN WATER (weight %):	Insoluble
pH:	Not Determined
BOILING POINT:	194 - 400º C
MELTING POINT:	Not Determined
VAPOR PRESSURE (in mm Hg):	at 100º C - 80 mm; at 125º C - 225 mm; at 150º C - 370 mm
VAPOR DENSITY (air = 1.0):	< 1
EVAPORATION RATE:	< 1 COMPARED TO: Butyl Acetate –1
% VOLATILES:	Not Determined
FLASH POINT:	Closed cup: > 93º C (>200º F)
	Open cup: > 93º C (>200º F)

(Flash point method and additional flammability data are found in Section 5.)

10. STABILITY AND REACTIVITY

STABILITY (CONDITIONS TO AVOID): Product stable under normal conditions.
Due to its low vapor pressure and extremely low evaporation rate, the volatility rate at 20º C is almost zero. Upon heating, at extremely high temperatures, hydrocarbons will be emitted and some degradation will take place. Avoid loading or unloading near open flame.

INCOMPATIBILITIES: Mixing chlorosulfonic acid and creosote oil in a closed container can cause an increase in temperature and pressure (NFPA 491M, 1991)

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose under normal conditions of use. When heated to extreme temperatures creosote emits acrid smoke.

HAZARDOUS POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS: Oral LD_{50}; 725 mg/kg (rat); 433 mg/kg (mouse)

DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS: Several studies in mice have shown the formation of both local (i.e. skin) and distant (i.e. lung) tumor formation after dermal exposure to creosote. [Poel & Kammer. 1957; Roe et al, 1958]

OTHER DATA: Has caused mutations in *S. typhimurium* strains TA98. TA100, TA1537, TA1538 and mouse lymphoma cell L5178y. [Fed Reg., 1978; Bos et al, 1983] Death from large doses of creosote appears due primarily to cardiovascular collapse. Fatalities have occurred 14-36 hours after the ingestion of creosote (about 7g for adults; about 1 or 2g for children). [Clayton & Clayton, 3rd ed., 1981]

12. ECOLOCICAL INFORMATION

TL_{50}, *Carassius auratus* (goldfish); 3.51 ppm/24 hours [60:40 mixture of creosote & coal tar]
TL_{50}, *Lepomis macrochirus* (bluegill); 4.42 ppm/24 hours [60:40 mixture of creosote & coal tar]
TL_{50}, *Salnio gairdner* (rainbow trout); 3.72 ppm/24 hours [60:40 mixture of creosote & coal tar]
LD_{50}, *Colinus virginianus* (bobwhite quail); 1260 ppm/8 days [60:40 mixture of creosote & coal tar]
LD_{50}, *Anas platyrhynchos* (mallard duck); 10,388 ppm/8 days [60:40 mixture of creosote & coal tar]

13. DISPOSAL CONSIDERATIONS

RCRA

Is the unused product a RCRA hazardous waste if discarded? YES
If yes, the RCRA ID number is: U051

OTHER DISPOSAL CONSIDERATIONS:

Other waste code designations for creosote containing wastes appear in the December 6, 1990 *Federal Register* as F034; Wastewater's, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachloraphenol. Please consult with the appropriate state regulatory authorities to determine when the F034 designation is effective in the given state.

Creosote-containing waste may also be characteristic hazardous wastes, even if not meeting the U051, K001, or F034 waste code designation.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

US DOT HAZARD CLASS: Environmentally Hazardous Substance, Liquid, N.O.S. (Creosote). 9
US DOT ID NUMBER: UN 3082
US DOT SHIPPING NAME: RQ, Environmentally Hazardous Substance, Liquid, N.O.S. (Creosote), 9, UN3082, III

For additional information on shipping regulations affecting this material, contact the number found in Section 1.

I5. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Listed on EPA's TSCA Inventory
OTHER TSCA ISSUES: Substance of unknown or variable composition

SARA TITLE III/CERCLA

"Reportable Quantities" (RQs) and/or "Threshold Planning Quantities" (TPQs) exist for the following ingredients.

INGREDIENT NAME	WEIGHT %	SARA/CERCLA RQ (LB)	SARA EHS TPQ (LB)
Creosote	100 %	1	None

Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802], State Emergency Response Commission and to your Local Emergency Planning Committee.

SECTION 311 HAZARD CLASS: Immediate, Delayed, Fire

SARA 313 TOXIC CHEMICALS:
The following ingredients are SARA 313 "Toxic Chemicals". CAS numbers and weight percents an found in Section 2.

INGREDIENT NAME	WEIGHT	COMMENT
Creosote	100%	de minimus concentration is 0.1%

STATE-RIGHT-TO-KNOW

In addition to the ingredients found In Section 2, the following are listed for state right-to-know purposes.

INGREDIENT NAME	WEIGHT	COMMENT
None		

ADDITIONAL REGULATORY INFORMATION: For some applications, Creosote is also regulated as a "Restricted Use" pesticide under the Federal Insecticide, Fungicide. and Rodenticide Act (FIFRA).

WHMIS CLASSIFICATION (CANADA): Class D, Division 2, Subdivision A, very toxic material

FOREIGN INVENTORY STATUS: Listed on the EINECS Inventory - ID# 2322875
Listed on Canadian Inventory Domestic Substance List (DSL)

16. OTHER INFORMATION

CURRENT ISSUE DATE: March 2003
PREVIOUS ISSUE DATE: January 2002

CHANGES TO MSDS FROM PREVIOUS ISSUE DATE ARE DUE TO THE FOLLOWING:

Updated DOT transportation information
Updated to include 16-section ANSI format for Material Safety Data Sheets

OTHER INFORMATION: NFPA Hazard Ratings:
Health (Blue): 2
Flammability (Red): 2
Reactivity (Yellow): 0

REFERENCES:

1. ACGIH (1995): *"1995-1996 Threshold Limit Values...."*
2. USDOL/OSHA General Industry 29 CFR 1910.1000 Coal Tar Pitch Volatile (CTPV) Permissible Exposure Limit
3. USEPA 40 CFR Parts 112; 261; 268; 300
4. USDOT 49 CFR Part 172
5. USEPA(1986) *"Evaluation of the Potential Carcinogenicity of Creosote (8001-58-9)"*, Prepared by the Carcinogen Assessment Group, Office of Health and Environmental Assessment, Washington, DC for the Office of Emergency and Remedial Response and the Office of Solid Waste and Emergency Response, Washington, DC
6. National Fire Prevention Association (1991): *"Fire Protection Guide on Hazardous Materials"*, 10th ed. NFPA:Quincy, MA, pg 325M-29, 491M.
7 USEPA (1980) *"Health and Environmental Effects of Creosote"*, EPA # 53, pg 53-12
8. Clayton & Clayton, eds (1981): *"Patty's Industrial Hygiene & Toxicology, Volume 2A, 2B, 2C Toxicology"*, 3rd ed. John Wiley & Sons, New York, NY
9. NIOSH (1977): *"Criteria for a recommended standard...Occupational Exposure to Coal Tar Products"*, USDHEW/NIOSH Publication # 78-107
10. Poel, W.E. and Kammer, A.G. (1957): *"Experimental carcinogenicity of coal-tar fractions: The carcinogenicity of creosote oils"* J NATL CANCER INST 18(1):41-55
11. Roe, F.J.C., Bosch, D., Boutwell, R.K. (1958): *The carcinogenicity of creosote oil: The induction of lung tumors in mice"* CANCER RES 18:1176-1178
12. Bos, R.P., Hulshof, C.T.J., Theuws, J.L.G., Hendershon, P.Th. (1983): *"Mutagenicity of creosote in the Salmonella/microsome assay"* MUT RES 119:21-25
13. FEDERAL REGISTER (1978), Vol 43 #200; October 18th, page 48199
14. IARC (1987): *Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man"*, World Health Organization (WHO): Geneva p S7 177
15. NTP (1994): *"National Toxicology Program's 7th Annual Report on Carcinogens 1994 - Summary"*