Material Safety Data Sheet
CREOSOTE/COAL TAR SOLUTION
and
CREOSOTE OIL

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

COMPANY: KMG- Bernuth, Inc.
10611 Harwin, Suite 402
Houston, Texas 77036

PHONE NUMBER: 713-988-9252
EMERGENCY PHONE: CHEMTREC: 1-800-424-9300

NAME USED ON LABEL: Creosote/Coal Tar Solution Creosote Oil
PRODUCT USE: Wood Preservative
U. S. EPA REG. NO. 61483-8 61483-9

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>IDENTITY</th>
<th>CAS NUMBER</th>
<th>TYPICAL %</th>
<th>OTHER INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal Tar Creosote (AWPA P2)</td>
<td>8001-58-9</td>
<td>98.0 %</td>
<td>Complex mixture of aromatic and heterocyclic hydrocarbons</td>
</tr>
</tbody>
</table>

Trace impurities and additional material names not listed above appear in Section 8. These materials may be listed for local “Right-To-Know” compliance and for other reasons.

SECTION 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.

HEALTH HAZARDS:

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

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

INHALATION: Overexposure to vapor may result in irritation to respiratory tract. Prolonged exposure 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 case, result in skin cancer. Additionally, inhalation may present a lung cancer hazard.

Creosote is listed as and NTB carcinogen, an IRC probable carcinogen and is not on the OSHA list.
MATERIAL SAFETY DATA SHEET
CREOSOTE/COAL TAR SOLUTION

SECTION 4: FIRST AID MEASURES

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless told to by a poison control center or doctor.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

NOTE TO PHYSICIAN: Contains petroleum distillate – vomiting may cause aspiration pneumonia. Cardiorespiratory equipment should be available.

SECTION 5: FIREFIGHTING MEASURES

FLASH POINT: > 93º C (> 200º F) Closed Cup

AUTOIGNITION TEMPERATURE: 336º C (637º F)

FLAMMABLE LIMITS (STP): Not Determined

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

PROTECTIVE EQUIPMENT: Self-contained breathing apparatus with full facepiece and full protective clothing should be worn when fumes and/or smoke are present.

HMIS RATING: Health 2 Fire 1 Reactivity 1

NFPA RATING: Health 2 Fire 1 Reactivity 1

SPECIAL HAZARDS: Unusual Fire and Explosion Hazards – Water/fog is recommended for control of unconfined oil fires. Water may cause frothing or eruption in closed tank

SECTION 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 product to enter into sewers or waterways.

The CERCLA RQ is 1 pound.
NORMAl HANDLING: Always wear recommended personal protective equipment. Wear clothing closed at the neck, long sleeves and non-porous type gloves such as neoprene, butyl rubber, nitrile, polyvinyl alcohol (PVA) or polyvinyl chloride (PVC).

STORAGE RECOMMENDATIONS: Store in closed containers. Keep away from children and food. Avoid exposure to sources of extreme heat (fire). Closed containers may explode when exposed to extreme heat (fire).

ENGINEERING CONTROLS:

VENTILATION: Use in areas of adequate natural ventilation or provide exhaust ventilation or other engineering controls to keep the airborne concentration of vapors below their respective threshold limit value.

EYE PROTECTION: Use safety glasses, goggles and/or face shield.

BODY PROTECTION: Avoid skin contact whenever possible. 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). Applicators and other handlers must wear long-sleeved shirt and long pants, non-porous gloves such as neoprene, butyl rubber, nitrile, polyvinyl alcohol (PVA) or polyvinyl chloride (PVC), and chemical resistant footwear plus socks. 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 work day.

RESPIRATORY PROTECTION: Use MSHA-NIOSH approved respirator for organic vapors, dusts and mists as necessary to control exposures above the recommended exposure levels.

OTHER PROTECTIVE EQUIPMENT: Eyewash station and safety shower in work area.

HAZARDOUS INGREDIENTS

<table>
<thead>
<tr>
<th></th>
<th>CAS NUMBER</th>
<th>WT %</th>
<th>EXPOSURE LIMIT (PPM;MG/M³)</th>
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<tr>
<td>Creosote</td>
<td>8001-58-9</td>
<td>100</td>
<td>OSHA-TWA 0.2*</td>
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<tr>
<td>Phenanthrene</td>
<td>85-01-8</td>
<td>14.13</td>
<td>OSHA-TWA 0.2*</td>
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<td>Flouranthene</td>
<td>206-44-0</td>
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<td>Pyrene</td>
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<td>Acenaphthene</td>
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<td>218-01-9</td>
<td>1.22</td>
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<td>Biphenyl</td>
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<td>Indeno (1,2,3-c,d) pyrene</td>
<td>193-39-5</td>
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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION - CONTINUED

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<th>Limit</th>
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<td>Benzo (b) fluoranthene</td>
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<td>Benzo (j) fluoranthene</td>
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<tr>
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<tr>
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<tr>
<td>Phenol</td>
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<td>Dibenzofuran (Coumarone)</td>
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<tr>
<td>Ethylbenzene</td>
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<td>o-Xylene</td>
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<td>0.04</td>
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<td>Indene</td>
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<td>1.02</td>
<td>None</td>
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<td>0.28</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

EXPOSURE LIMIT (PRODUCT):
* For coal tar pitch volatiles, OSHA-PEL is 0.2 mg/m³ averaged over an 8 hour work shift, benzene soluble fraction of total particulate including dust, fumes and mists.
** Skin
*** OSHA: Action Level – 0.5 ppm 8 hour TWA
# Suspected Human Carcinogen

NOTE: Percentages by weight are the maximum levels of constituents.

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

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS No.</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creosote</td>
<td></td>
<td>Chrysene</td>
</tr>
<tr>
<td>Benzene</td>
<td></td>
<td>Dibenzoferan</td>
</tr>
<tr>
<td>Tolune</td>
<td></td>
<td>Benzo (a) pyrene</td>
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<tr>
<td>Ethylbenzene</td>
<td></td>
<td>Indol (1,2,3-c,d) pyrene</td>
</tr>
<tr>
<td>Styrene</td>
<td></td>
<td>Dibenzo (a, h) anthracene</td>
</tr>
<tr>
<td>Phenol</td>
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</tr>
<tr>
<td>Fluoranthene</td>
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<tr>
<td>Benzo (a) anthracene</td>
<td>m-, p- &amp; o-Xylene</td>
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</tr>
</tbody>
</table>
MATERIAL SAFETY DATA SHEET
CREOSOTE/COAL TAR SOLUTION

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Dark brown to black oily liquid

**PHYSICAL STATE:** Viscous liquid

**CHEMICAL FORMULA:** Mixture of organic compounds

**MOLECULAR WEIGHT:** 130 - 210

**ODOR:** Penetrating smoky odor

**BOILING POINT:** 194 – 400º C (381 - 752º F)

**MELTING POINT:** Not applicable

**VAPOR PRESSURE:** 80 mm Hg @ 100º C; 225 mm Hg @ 125º C; 370 mm Hg @ 150º C

**VAPOR DENSITY:** >1.0 (air = 1.0)

**EVAPORATION RATE:** < 1.0 (Butyl acetate = 1.0)

**SPECIFIC GRAVITY:** 1.03 – 1.18 (Avg. = 1.09)

**BULK DENSITY:** 8.60 – 9.85 (Avg. = 9.1 lbs/gal)

**SOLUBILITY IN WATER:** Insoluble

**pH VALUE:** Not determined

**% VOLATILES:** 475 g/l (3.96 lbs/gal)

**FLASH POINT:** > 93º C (> 200º F) Both closed cup and open cup

SECTION 10: STABILITY AND REACTIVITY

HAZARDOUS REACTIONS (CONDITIONS TO AVOID):
- Stability: Stable under normal conditions. Overheating will result in some degradation with oxides of carbon and hydrocarbon emissions. Avoid loading or unloading near open flame.
- Incompatibility: Mixing of chlorosulfonic acid and creosote oil in a closed container can cause an increase in temperature and pressure (NFPA 491M, 1991)
- Hazardous polymerization: Material is not known to polymerize.

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

SECTION 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 (skin) and distant (lung) tumor formation after dermal exposure to creosote. [Poel & Kammer, 1957, Roe et al, 1958]

OTHER DATA: Creosote has cause 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 14-26 hours after the ingestion of creosote (about 7g for adults; about 1 – 2g for children). [Clayton & Clayton, 3rd ed., 1981]
SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY ASSESSMENT: Maybe toxic to aquatic wildlife.

OTHER ECOLOGY INFORMATION: All data for a 60:40 mixture of creosote and coal tar.

*Carassius auratus* (goldfish): TL\(_{50} = 3.51\) ppm/24 hours
*Lepomis macrochirus* (bluegill): TL\(_{50} = 4.42\) ppm/24 hours
*Salmo gairdneri* (rainbow trout): TL\(_{50} = 3.72\) ppm/24 hours
*Colinus virginianus* (bobwhite quail): LD\(_{50} = 1.260\) ppm/8 days
*Anas platyrhynchos* (mallard duck): LD\(_{50} = 10,388\) ppm/8 days

SECTION 13: DISPOSAL CONSIDERATIONS

RCRA DISPOSAL: Unused creosote product or product wastes are classified as an RCRA hazardous waste. 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 generate 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 pentachlorophenol. 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.

SECTION 14: TRANSPORT INFORMATION

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

SECTION 15: REGULATORY INFORMATION

UNITED STATES EPA: EPA Reg. No. 61483-8
EPA Signal Word – CAUTION

OTHER: SARA 311 Hazards Classification: Immediate, Delayed, Fire

SARA 313 Inventory Ingredients: See Section 8 for list of chemicals, CAS numbers and % concentration by weight.
MATERIAL SAFETY DATA SHEET
CREOSOTE/COAL TAR SOLUTION

SECTION 15: REGULATORY INFORMATION - CONTINUED

REPORTABLE QUANTITY: SARA/CERCLA: Creosote - 1 Lb
DOT: Creosote - 1 Lb
Benzo (b) fluoranthene – 1 Lb

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.

RCRA HAZARDOUS WASTE: Listed as hazardous waste

TSCA INVENTORY STATUS: Listed on TSCA Inventory. Source of unknown or variable composition.

TOXIC RELEASE INVENTORY: Listed on TRI Inventory

CALIFORNIA PROPOSITION 65 – Contains chemicals known to the state to cause cancer or reproductive toxicity.

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)

SECTION 16: OTHER INFORMATION

REFERENCES:
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
9. NIOSH (1977): “Criteria for a recommended standard...Occupational Exposure to Coal Tar Products”, USDHEW/NIOSH Publication #78-107
13. FEDERAL REGISTER (1978), Vol 43 #200; October 18th, page 48199

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