MATERIAL SAFETY DATA SHEET

SECTION 1: General Product and Company Information

CONTINENTAL MATERIALS, INC.
1614 OLD YORK ROAD
ABINGTON, PA 19001

PHONE: 215-884-4930
FAX: 215-887-4485

CREATION DATE OF DATA SHEET: 8-14-02
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PRODUCT NUMBER: 0510810

TRADE NAME: ROOFING ASPHALT TYPE I, II, III or IV / "NO SMELL"

CHEMICAL FAMILY: ASPHALT, OXIDIZED – CAS# - 64742-93-4

SECTION 2: Information on Ingredients

ASPHALT, OXIDIZED CAS #: 8052-42-4 99-100% by weight

Asphalt - TLV 8HR .5mg/m3 Hydrogen Sulfide – TLV 10ppm STEL 15ppm

SECTION 3: Health Hazard Data

OVERVIEW – Upon heating, hydrogen sulfide (H2S) gas may be released from the material. Vapor spaces in tanks and shipping tankers containing hot asphalt products may accumulate hydrogen sulfide vapors at concentration levels that may be harmful. At high concentration levels (above 10ppm) H2S can cause rapid unconsciousness and death.

EXPOSURE TYPES – eye and skin contact, inhalation and ingestion.

POTENTIAL HEALTH EFFECTS:

Eyes: Hot Material – Contact with hot material may result in pain, tears, swelling, redness, blurred vision and thermal burns.

Cold Material – Ambient or cool material may cause irritation to the eye.

Skin: Hot Material – Contact with hot material may cause thermal burns.

Cold Material – Ambient or cool material may cause minor skin irritation. Prolonged or repeated contact may cause dryness and skin irritation. Long term exposures to asphalt can increase sensitivity to the sun.

Inhalation: Hot Material – fumes from heated material may produce nausea, headaches, and irritation of the upper respiratory tract. Material may give off hydrogen sulfide (H2S) when heated which may collect in spaces. Exposure to H2S may result in respiratory tract irritation, headache, dizziness, nausea, coughing, sensation of dryness and pain in the nasal passages, throat and chest as well as unconsciousness. H2S is a colorless gas with an odor similar to rotten eggs. Odor cannot be relied upon as a means of detection because the sense of smell rapidly becomes insensitive to the odor. Additionally, the odor of H2S may be masked by the general odor of the asphalt. At relatively low concentrations, H2S can irritate the eyes and respiratory tract, and may cause nervousness, coughing, nausea, and headache. Prolonged exposures to concentrations between 250-600 ppm may cause fluid in the lungs and bronchial pneumonia. Brief exposure to concentration above 500 ppm can cause unconsciousness and may be fatal.

Ingestion: May be harmful or fatal if ingested. If ingested, may cause mouth, throat and gastrointestinal irritation with possible nausea, vomiting and diarrhea. Aspiration of any petroleum distillate products into the lungs can cause severe chemical pneumonitis that can be fatal.

Chronic Health Affects: The International Agency for Research on Cancer (IARC) has concluded that. "Occupational exposures to oxidized bitumen and the emissions during roofing are probably carcinogenic to humans." IARC explained its finding stating that, "The body of the available data from cancer studies in

humans points to an association between exposures to oxidized bitumens (asphalts) during roofing and lung cancer and tumors in the upper respiratory and digestive tract (head, neck and upper respiratory system). " IARC PRESS RELEASE, October 18, 2011. This petroleum based product contains a variable amount of polycyclic aromatic compounds (PACs) including polynuclear aromatic hydrocarbons (PAHs) which have been shown to cause cancer and respiratory damage in humans and laboratory animals. Refer to Section 11.

Carcinogenicity: This product contains a component which is listed by IARC, OSHA or ATP.

OSHA Regulatory Status: This product is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

SECTION 4: First Aid Measures

FIRST AID MEASURES:

Eye Contact: Immediately flush eyes with plenty of water for at least 20 minutes. Ensure adequate flushing of eyes by separating the eyelids with fingers. Get medical attention, if irritation or symptoms of overexposure continues.

Skin Contact:

Hot Material – Immediately drench or immerse the affected area in water to assist in cooling. Apply ice cold water or ice packs to burned area. **Do Not** use iced water or ice packs if the area of burn covers more than 10% of the body as it may contribute to shock. **Do Not** try to remove the asphalt from the affected area after it has cooled. Get immediate medical attention. Medical personnel will be able to soften and remove the cooled asphalt with petroleum jelly or mineral oil. If skin irritation continues, call a medical doctor.

Cold Material – Clean exposed skin with mild soap and water. If skin irritation continues, call a medical doctor.

Inhalation: – If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist seek medical attention. If breathing is difficult, trained personnel should administer oxygen. If breathing has stopped, give artificial respiration and seek immediate medical attention.

Ingestion: Due to possible aspiration into lungs, **Do Not** induce vomiting if ingested. Provide a glass of water to dilute the material in the stomach. If vomiting occurs naturally, have the person lean forward to reduce the risk of aspiration. Seek immediate medical attention.

SECTION 5: Fire and Explosion Hazard Info and Data

FLASH POINT: > 500˚F Cleveland Open Cup Method (C.O.C.)
EXTINGUISHING MEDIA: Use CO2, dry chemical or foam. Treat as a fuel or hydrocarbon fire.
UNSUITABLE MEDIA: Do Not use water directly on asphalt fires as it may cause violent eruptions and the spread of hot asphalt.
SPECIAL FIRE FIGHTING PROCEDURES: Fire fighters should wear self contained breathing apparatus in confined or closed spaces.
UNUSUAL FIRE AND EXPLOSION HAZARDS: When the material is heated above the flash point, flammable explosive vapors may evolve.
HAZARDOUS COMBUSTION BYPRODUCTS: Primary combustion byproducts are carbon monoxide, carbon dioxide and water. Combustion products may include sulfur oxides and hydrogen sulfide.

SECTION 6: Accidental Release Measures

PERSONAL PROTECTION: Avoid contact with skin and eyes. Avoid breathing vapors or fumes from material. Isolate are and keep unnecessary personnel away.
ENVIRONMENTAL PRECAUTIONS: Avoid runoff into sewers, ditches and waterways.
CONTAINMENT METHODS: Spills may be contained with inert absorbent materials such as sand, soil or oil dry. Prevent from spreading by building dikes or other means.
CLEANUP METHODS: Solidify asphalt with additional inert material as necessary such as sand or oil dry. Pick up cool material and put in suitable container for disposal. Dispose of in accordance with Local, State, and Federal regulations.

SECTION 7: Handling and Storage

HANDLING: Do not get this material in your eyes or on skin and avoid inhaling vapors and fumes. Use this product with adequate ventilation.
STORAGE: Store packaged asphalt in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep away from heat, sparks or open flame. Assure proper ventilation of storage or shipping containers to prevent accumulation of hazardous concentrations of hydrocarbon gases or hydrogen sulfide (H2S).
WORK PRACTICES: Handle only in accordance with good industrial hygiene and safety procedures, including avoiding any unnecessary exposure and removal of the material from shin and eyes.
SPECIAL HANDLING: Hydrogen sulfide, an extremely flammable, colorless, highly toxic gas is emitted from heated asphalt and may accumulate in storage tanks and in bulk transport trailers.
HEATING: Correct application temperature, Equiviscous Temperature (EVT) is the temperature that the asphalt in a mop bucket or a mechanical spreader must be at to achieve the proper viscosity or consistency to ensure the correct amount of asphalt is applied to the roof. Minimizing temperature to which the asphalt is heated to obtain the appropriate EVT helps maintain the quality of the installed roofing system and reduces the hazard from fumes, hydrogen sulfide, coking in the kettle and flashes at the kettle. Maximum kettle temperature should be maintained at 50˚ F lower than the flash point of the asphalt to control the generation of fumes and to avoid possible explosive hazard. The product should never be heated over 550˚F regardless of the flashpoint of the asphalt.

SECTION 8: Exposure Controls / Personal Protection

ENGINEERING CONTROLS: Follow NIOSH guidelines for controlling exposure to fumes that are found I Asphalt Fume Exposure During the Application of Hot Asphalt to Roofs DHHS (NIOSH) Publication No. 2003-112 (6/2003). These include: the use of kettles with afterburner or kettle loading systems when feasible, 2. Use of appropriate sized kettles for the project, 3. Ensure covers fit tightly, closing the lid when asphalt s not being added and also minimize the number of times the lid is opened, 4. Chop kegs of asphalt into small size pieces prior to opening lid of asphalt to reduce lid open time, 5. Placing the kettle downwind from workers and with the lid facing away from the building, 6. Place the kettle away from air intakes, doors and windows, 7. Restrict the access to the area around the kettle, 8. Calibrate the thermometers at the kettle routinely (at least monthly), 9. Adhere to the EVTs at point of application and use insulated kettles and piping to minimize the kettle temperature needed to achieve the appropriate application EVT.
PERSONAL PROTECTION:

Eyes/Face: Wear safety glasses or goggles. If a splash hazard exists also wear a face shield.

Skin: Protective gloves are recommended when working with hot asphalt. Long sleeve shirt and long pants (of cotton or other thermal protective material) are recommended.

Respiratory: When workers are facing concentrations above the exposure limit they must use the appropriate certified respirators in accordance with their company's respiratory protection program, the local regulations or 29CFR 1910.134. If irritation occurs an air purifying respirator with particulate and organic vapor cartridges. Supplied air respirators or self contained breathing apparatus should be used when concentrations of hydrogen sulfide exceed the occupational exposure limit.

SECTION 9: Physical Data

BOILING POINT: > 600 degrees F
FALSH POINT: > 500 degrees F
VAPOR PRESSURE: N/A
VAPOR DENSITY: HEAVIER THAN AIR
SPECIFIC GRAVITY: N/A
PERCENT VOLITILE: N/A
EVAPORATION RATE: N/A
SOLUBILIY IN WATER: INSOLUBLE
APPEARANCE AND ODOR: BLACK, SOFT SOLID or VISCOUS LIQUID WITH ASPHALTIC ODOR

SECTION 10: Reactivity Data

STABILITY: Stable under normal conditions
CONDITIONS TO AVOID: Water near equipment and molten asphalt, will evolve steam, resulting in frothing or spattering of molten materials. Violent eruptions and spreading of asphalt may occur.
INCOMPATIBILITY: May react with strong acids, oxidizers and water.
HAZARDOUS POLYMERIZATION: Does not occur.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, carbon monoxide. Combustion products may include sulfur oxides and hydrogen sulfide.

SECTION 11: Toxicological Information

ACCUTE AFFECTS: Inhalation of vapors and fumes may cause nose, throat and mucous membrane irritation, nausea, headaches or dizziness, central nervous system depression, including drowsiness and unconsciousness. Eye contact may cause severe irritation, redness, tears and blurred vision. If ingested, may cause mouth, throat and gastrointestinal tract irritation with possible nausea, vomiting and diarrhea. Aspiration of petroleum distillate products into the lungs can cause severe chemical pneumonitis that can be fatal. Refer to Section 8 for more info on exposure controls.
CHRONIC AFFECTS: Prolonged and or repeated skin contact may result in dryness and irritation of the skin. Long term skin exposure to asphalt can increase sensitivity to the sun.
CARCINOGENICITY: In October 2011, the International Agency for Research on Cancer (IARC) classified occupational exposures to oxidized bitumens (asphalt) and their emissions during roofing as being probably carcinogenic to humans (Group 2A). "The Working Group concluded that there was 'limited evidence' in humans for the carcinogenicity of occupational exposures to bitumens and bitumen emissions during roofing. In experimental animals there was 'limited evidence' of carcinogenicity for oxidized bitumens (Class 2), which are mainly used in roofing, and 'sufficient evidence' of carcinogenicity for fume condensates of these oxidized bitumens". Lancet Oncology, Vol 12, December 2011 – Based on a 2000 review of health effects literature, NIOSH concluded that roofing asphalt fumes are a potential carcinogen.
OTHER: IARC Announcement will soon be followed by the release of the monograph.

SECTION 12: Ecological Information

ENVIRONMENTAL: No data available for this material.

SECTION 13: Disposal Considerations

GENERAL PRODUCT INFORMATION: This material is not expected to be a characteristic hazardous waste under RCRA.
WASTE DISPOSAL: Dispose of in accordance with all Local, State and Federal regulations.
COMPONENT WASTE NUMBRERS: No EPA Waste Numbers are applicable for this product's components.

SECTION 14: Transport Information

DOT SHIPPING: Not regulated as a hazardous material for transportation.
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SECTION 15: Regulatory Information

CALIFORNIA PROP 65: The following statement is based on the requirement of California's Proposition 65 (1986): This product contains chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.
SARA: This material contains Polycyclic Aromatic Compounds (PACs) listed under SARA Title III Section 313.
PENNSYLVANIA: Ingredients listed in Pennsylvania on the Hazardous Substance List.
INGREDIENTS – asphalt, oxidized CAS NUMBER – 64742-93-4

TSCA: The ingredients in this product are listed in the TSCA Inventory as required by law.

SECTION 16: Other Information

MSDS REVISION DATE: January 2012
DISCLAIMER: Reasonable care has been used in the preparation of this MSDS information, but the manufacturer and supplier make no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. Final determination of suitability of any material is the sole responsibility of the user. The manufacturer and supplier make no representations and assume no liability for any direct, incidental or consequential damages resulting from its use.
HMIS HEALTH HAZARD: 1 (IARC = 2A)
HMIS FIRE HAZARD: 1
HMIS REACTIVITY: 0
HMIS PERSONAL PROTECTION: