

Material Safety Data Sheet**1. Product and Company Identification**

Product Name: ConocoPhillips Superpave PG
MSDS Number: 724540
Synonyms/Other Means of Identification: ConocoPhillips Superpave PG 46-28
ConocoPhillips Superpave PG 46-34
ConocoPhillips Superpave PG 52-28
ConocoPhillips Superpave PG 58-22
ConocoPhillips Superpave PG 58-28
ConocoPhillips Superpave PG 64-28
ConocoPhillips Superpave PG 64-28
ConocoPhillips Superpave PG 67-22
ConocoPhillips Superpave PG 70-22
ConocoPhillips Emulsion Base 120-150
ConocoPhillips Emulsion Base 150-200

MARPOL Annex I Category: Asphalt Solutions
Intended Use: Asphalt

Manufacturer: ConocoPhillips
600 N. Dairy Ashford
Houston, Texas 77079-1175

Emergency Health and Safety Number: Chemtrec: 800-424-9300 (24 Hours)

MSDS Information: Phone: 800-762-0942
Email: MSDS@conocophillips.com
www.conocophillips.com

2. Hazards IdentificationEmergency OverviewNFPA**WARNING**

Contact With Hot Product Will Cause Thermal Burns
May contain or release poisonous hydrogen sulfide gas



Appearance: Black, viscous
Physical Form: Semi-Solid
Odor: Asphalt

Potential Health Effects

Eye: Not expected to be an eye irritant. Contact with the heated material may cause thermal burns. Vapors or fumes may cause watering of the eyes.

Skin: Contact with the heated material may cause thermal burns. Fumes from the heated material can cause irritation and dermatitis after prolonged or repeated exposure. Long term skin exposure can increase sensitivity to the sun and cause discoloration of the skin. No harmful effects from skin absorption have been reported.

Inhalation (Breathing): No information available on acute toxicity. May contain or release poisonous hydrogen sulfide gas - see Other Comments.

Ingestion (Swallowing): No harmful effects reported from ingestion.

Signs and Symptoms: Ingestion may cause irritation of the digestive tract, nausea, vomiting, and diarrhea. Breathing vapors or fumes from the heated material may cause headaches, dizziness, and lung irritation. Repeated exposure to high concentrations of fumes may cause chronic bronchitis and pneumonitis (inflammation of the lungs).

Other Comments: This material may contain or liberate hydrogen sulfide, a poisonous gas with the smell of rotten eggs. The smell disappears rapidly because of olfactory fatigue so odor may not be a reliable indicator of exposure. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract, blurred vision, photophobia (sensitivity to light), and pulmonary edema (fluid accumulation in the lungs). Severe exposures can result in nausea, vomiting, muscle weakness or cramps, headache, disorientation and other signs of nervous system depression, irregular heartbeats, convulsions, respiratory failure, and death.

This material may contain varying concentrations of polycyclic aromatic hydrocarbons (PAHs) which have been known to produce a phototoxic reaction when contaminated skin is exposed to sunlight. The effect is similar in appearance to an exaggerated sunburn, and is temporary in duration if exposure is discontinued. Continued exposure to sunlight can result in more serious skin problems including pigmentation (discoloration), skin eruptions (pimples), and possible skin cancers.

See Section 11 for additional Toxicity Information.

3. Composition / Information on Ingredients

Component	CASRN	Concentration ¹
Bitumen	8052-42-4	100
Hydrogen Sulfide	7783-06-4	Variable (<1)

¹ All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

Eye Contact: If irritation or redness develops from exposure to fumes generated from molten material, move victim away from exposure and into fresh air. Remove contact lenses if present and easy to do. Flush eyes with clean water. If irritation or redness persists, seek medical attention. For contact with the molten material, gently open eyelids and flush affected eye(s) with cold, not icy, water. Seek immediate medical attention.

Skin Contact: For contact with hot asphalt, leave material on skin and immediately flush or immerse affected area(s) using cold, not icy, water for up to 10 minutes. No attempt should be made to remove the asphalt from the skin. Contaminated clothing may be removed provided it is not adhering to the skin. Seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): First aid is not normally required for the solid material; however, if molten material is swallowed, seek immediate medical attention.

Notes to Physician: Once cooled, adhered asphalt is not harmful to the skin, and in fact, provides a sterile cover over the affected area. The asphalt will detach itself within a few days as healing occurs. If it is necessary to remove the asphalt, only medically approved solvents or warm paraffin should be used to prevent further skin damage. If hot material has caused burns to the eye, early ophthalmologic evaluation is recommended. Small amounts of ingested asphalt usually require no treatment.

At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Animal studies suggest that nitrites are a useful antidote, however, documentation of the efficacy of nitrites in humans is lacking. If the diagnosis of hydrogen sulfide poisoning is confirmed and if the patient does not respond rapidly to supportive care, the use of nitrites may be an effective antidote if delivered within the first few minutes of exposure. For adults the dose is 10 mL of a 3% NaNO₂ solution (0.5 gm NaNO₂ in 15 mL water) I.V. over 2-4 minutes. The dosage should be adjusted in children or in the presence of anemia, and methemoglobin levels, arterial blood gases, and electrolytes should be monitored closely.

Other Comments: Before attempting rescue, first responders should be alert to the possible presence of hydrogen sulfide, a poisonous gas with the smell of rotten eggs, and should consider the need for respiratory protection (see Section 8).

5. Fire-Fighting Measures

NFPA 704 Hazard Class

Health: 0 **Flammability:** 1 **Instability:** 0 (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

Unusual Fire & Explosion Hazards: This material may burn, but will not ignite readily. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. When heated above its flash point, this material may release flammable vapors, which, if exposed to a source of ignition, can burn in the open or be explosive in confined spaces. Vapors released to atmosphere at these temperatures can cause flash fire. Hot asphalt may ignite flammable mixtures on contact. If water is applied to heated material, it can cause violent foaming and boil over. If container is not properly cooled, it can rupture in the heat of a fire. Hazardous combustion/decomposition products, including hydrogen sulfide, may be released by this material when exposed to heat or fire. Use caution and wear protective clothing, including respiratory protection.

Extinguishing Media: Dry chemical, carbon dioxide, or alcohol-resistant foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters. Water fog may be used on flat surfaces such as roads. Do not use water on asphalt fire in tank or other containers since it may cause violent eruption and spreading of burning asphalt.

Fire Fighting Instructions: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Water or foam can cause frothing. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

Hazardous Combustion Products: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Hydrogen sulfide and oxides of nitrogen and sulfur may also be formed.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

6. Accidental Release Measures

Personal Precautions: This material may burn, but will not ignite readily. Keep all sources of ignition away from spill/release. May contain or release poisonous hydrogen sulfide gas. If the presence of dangerous amounts of H₂S around the spilled product is suspected, additional or special actions may be warranted, including access restrictions and use of protective equipment. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental Precautions: Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

Methods for Containment and Clean-Up: Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

7. Handling and Storage

Precautions for safe handling: Keep away from flames and hot surfaces. Avoid contact with the heated material. May contain or release dangerous levels of hydrogen sulfide. Avoid breathing vapors or mists. Use only outdoors or in well-ventilated area. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment.

This material may be heated to high temperatures during use. Use caution when handling heated material, to avoid causing thermal burns. Vapors or fumes may cause watering or irritation of the eyes. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes.

Conditions for safe storage: This material may contain or release poisonous hydrogen sulfide gas. In a tank, barge, or other closed container, the vapor space above this material may accumulate hazardous concentrations of hydrogen sulfide. Check atmosphere for oxygen content, H₂S, and flammability prior to entry.

Hot asphalt must never be added to a tank or other container that is not completely dry. Contact with water results in violent expansion as the water turns to steam. This can lead to dangerous boil over and may cause damage or rupture of the tank or container. Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated area away from heat and all sources of ignition. Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

8. Exposure Controls / Personal Protection

Component	US-ACGIH	OSHA	Other
Bitumen	TWA: 0.5 mg/m ³ as benzene soluble inhalable aerosol	---	---
Hydrogen Sulfide	STEL: 5 ppm TWA: 1 ppm	Ceiling: 20 ppm	TWA: 5 ppm 8hr TWA: 2.5 ppm 12hr STEL: 15 ppm (ConocoPhillips Guidelines)

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Eye/Face Protection: The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.

Skin/Hand Protection: Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

Respiratory Protection: Where there is potential for airborne exposure to hydrogen sulfide (H₂S) above exposure limits, a NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used. Under conditions where hydrogen sulfide (H₂S) is NOT detected, a NIOSH certified air purifying respirator equipped with organic vapor cartridges/canisters with R or P95 filters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

9. Physical and Chemical Properties

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

Appearance:	Black, viscous
Physical Form:	Semi-Solid
Odor:	Asphalt
Odor Threshold:	No data
pH:	Not applicable
Vapor Pressure:	<1 mm Hg
Vapor Density (air=1):	>1
Initial Boiling Point/Range:	>900°F / >482°C
Melting/Freezing Point:	No data
Solubility in Water:	Negligible
Partition Coefficient (n-octanol/water) (Kow):	No data
Specific Gravity (water=1):	0.99 @ 68°F / 20°C
Bulk Density:	8.22 lbs/gal
Evaporation Rate (nBuAc=1):	<1
Flash Point:	>450°F / >232°C
Test Method:	Cleveland Open Cup (COC), ASTM D92
Lower Explosive Limits (vol % in air):	No data
Upper Explosive Limits (vol % in air):	No data
Auto-ignition Temperature:	No data

10. Stability and Reactivity

Stability: Stable under normal ambient and anticipated conditions of use.

Conditions to Avoid: Avoid all possible sources of ignition. Flammable and poisonous hydrogen sulfide gas can be released upon heating. Do not allow contact of molten product with water or liquids as violent eruptions, splatter of hot material or ignition of flammable materials may result.

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous Decomposition Products: Thermal decomposition can produce oxides of carbon, nitrogen and sulfur.

Hazardous Polymerization: Not known to occur.

11. Toxicological Information

Chronic Toxicity:

Bitumen

Carcinogenicity: The International Agency for Research on Cancer (IARC) concluded in its 1987 review that there was inadequate evidence that bitumens (asphalt) are carcinogenic in humans. A more recent epidemiology study reported an increased incidence of lung cancers in European asphalt workers, but a follow-up case control study concluded there was no evidence that asphalt exposure was linked to lung cancer. In mouse skin carcinogenicity studies, asphalt fume condensates applied repeatedly to the skin have produced both positive and negative results, believed to be related to the concentration of polynuclear aromatic hydrocarbons. No significant adverse effects were observed in a two year rat inhalation study of asphalt fume condensates, collected under controlled field conditions.

Target Organs: Some human studies have reported small increases in non-malignant respiratory symptoms, mostly evaluated by tests of lung function, the majority of which suffer from potential confounding co-exposures, recall bias or other shortcomings in design. A two year rat inhalation study of asphalt fume condensates, collected under controlled field conditions, did not produce significant adverse effects.

Acute Toxicity:

Component	Oral LD50	Dermal LD50	Inhalation LC50
Bitumen	>5 g/kg	>2 g/kg	> 0.1 mg/L (fume)
Hydrogen Sulfide	Not applicable	Not applicable	444 ppm

12. Ecological Information

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Ecological Information: Asphalt (bitumen) is a dark brown to black solid or semi solid obtained from the high temperature distillation of crude oil. It is a complex combination of very high molecular weight hydrocarbons with carbon numbers predominantly greater than C25, and it can contain trace amounts of metals. It is essentially non-volatile at ambient temperatures. It is unlikely that significant migration of the material into water will occur due to its low water solubility. Asphalt is not likely to concentrate or accumulate in the food chain or cause environmental toxicity due to its high molecular weight and low water solubility. It is expected to persist in the environment and not undergo significant biodegradation. If spilled in the environment, molten asphalt could harm plant life due to the coating action of oil components.

Ecotoxicity: No ecotoxicity studies are available for this material. However, the predicted water solubilities of these substances are so low that no adverse acute or chronic effects on aquatic organisms is expected.

Mobility: Volatility is not a significant loss under ambient temperatures. During use, bitumens are heated causing fume to enter the atmosphere. Most of this fume rapidly condenses and the components fall out onto surfaces or soil where they are adsorbed. The more volatile hydrocarbon components will react with hydroxyl radicals in the atmosphere. On release to water, bitumens tend to float or sink; they show little tendency to disperse and are persistent in this medium with the main physical effect being adsorption to sediment. In soil, bitumens are both immobile and inert, adsorption again being the main physical process.

Persistence and degradability: Because of the absence of biodegradation, bitumens are regarded as persistent.

Bioaccumulation Potential: Although all the constituents of bitumen have log Kow values in excess of 6, and potentially able to bioaccumulate, their low water solubility and high molecular weight is such that bioavailability to aquatic organisms is very limited. Accordingly, the bioaccumulation of bitumen components is very unlikely.

13. Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste and is not believed to exhibit characteristics of hazardous waste. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard.

14. Transportation Information

U.S. Department of Transportation (DOT)

Shipping Description: *Shipping description is for bulk shipments that meet the Elevated temperature criteria, non-bulk is unregulated. (see Note below)*
UN3257, Elevated temperature liquid, n.o.s., 9, III

Non-Bulk Package Marking: None

Non-Bulk Package Labeling: None

Bulk Package/Placard Marking: None / 3257 & [HOT mark] *or* Class 9 / 3257 & [HOT mark] [49 CFR 172.325]

Packaging - References: None; None; 49 CFR 173.247
(Exceptions; Non-bulk; Bulk)

Hazardous Substance: See Section 15 for RQ`s

Emergency Response Guide: 128

Note: *This product is regulated by DOT when shipped in bulk packages at temperatures >100° C (212° F). The word HOT must be marked on the bulk package on two opposing sides. [49 CFR 172.325]*

International Maritime Dangerous Goods (IMDG)

Shipping Description: UN3257, Elevated temperature liquid, n.o.s., 9, III

Non-Bulk Package Marking: Elevated temperature liquid, n.o.s., UN3257

Labels: Class 9

Placards/Marking (Bulk): Class 9/3257 and [Elevated Temperature Mark] [IMDG 5.3.2.2]

Packaging - Non-Bulk: P099

EMS: F-A, S-P

Note: *Not regulated at temperatures below 100° C.*

14. Transportation Information

International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)

Note: *Elevated temperature liquid, n.o.s. - is a forbidden shipment.
 Not regulated at temperatures below 100° C.*

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	---	---	---
Max. Net Qty. Per Package:	---	---	---
Packaging Instruction # after 12/31/2010:	---	---	---

15. Regulatory Information

CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):

This material contains the following chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372:

Component	TPQ	EPCRA RQ
Hydrogen Sulfide	500 lb	100 lb

CERCLA/SARA - Section 311/312 (Title III Hazard Categories)

Acute Health: No
 Chronic Health: No
 Fire Hazard: No
 Pressure Hazard: No
 Reactive Hazard: No

CERCLA/SARA - Section 313 and 40 CFR 372:

This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds):

EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

California Proposition 65:

Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Type of Toxicity
Various Polycyclic Aromatic Hydrocarbons	Skin Cancer

Canadian Regulations:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the Regulations.

WHMIS Hazard Class
 None

National Chemical Inventories:

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA.

All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

16. Other Information

Date of Issue: 16-Aug-2010
 Status: FINAL
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Revised Sections or Basis for Revision:
MSDS Number:

Exposure limits (Section 8)
724540

Guide to Abbreviations:

ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; IARC = International Agency for Research on Cancer; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

Disclaimer of Expressed and implied Warranties:

The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.