

**ATTACHMENT B
72 HOUR FOLLOW-UP NOTIFICATION REPORT FORM
CONTRA COSTA HEALTH SERVICES**

For CCHS Use Only:
Received By: _____
Date Received: _____
Incident Number: _____
Copied To: _____
Event Classification Level: _____

INSTRUCTIONS: This report is to be submitted for all Level 2 and 3 incidents or when requested by CCHS. See Attachment B-1 for suggestions regarding the type of information to be included in the report. Attach additional sheets as necessary. Forward the completed form to:

ATTENTION: Matt Kaufmann
Hazardous Materials Program Director
Contra Costa Hazardous Materials Programs
4585 Pacheco Boulevard, Suite 100
Martinez, CA 94553

INCIDENT DATE: 2/23/2021
INCIDENT TIME: Approximately 7:00 p.m.
FACILITY: Phillips 66 Rodeo Refinery

PERSON TO CONTACT FOR ADDITIONAL INFORMATION

Steve Harms Phone number: (510) 245-4425

I. SUMMARY OF EVENT:

On February 23 at 10:58 a.m. the Rodeo Refinery initiated unit shutdown and refinery-wide stabilization activities as a result of an unplanned, sudden reduction of the primary hydrogen supply. The reduction in hydrogen was due to the third-party hydrogen plant (Air Liquide) shutting down. Refinery unit shutdown and idling activities include adjustments to feed and product storage tank functions. At 4:30 p.m. cracked naphtha tank 271 indicated a pressure increase from 0.15 inches of water (in/wc) to 0.63 in/wc. Operations responded to the tank and opened the bypass on the odor abatement pressure control skid and the tank pressure indication stabilized at 0.5 in/wc. Tank 271 pressure relief valves are set at 1.9 in/wc and 2.2 in/wc.

At approximately 7:00 p.m. the Refinery shift organization was made aware of surrounding area odor notifications. Odor patrols were conducted within the refinery and in the surrounding communities. Reviews of process conditions indicated the release source was from the tank 271 relief valve. Shortly thereafter (at 10:00 p.m.), flow into tank 271 was diverted to alternate storage and the tanks relief valve seated, stopping the release. This event was reported as a CWS Level 1 at 8:54 pm and this report is being submitted in this format solely at the request of County staff.

II. AGENCIES NOTIFIED, INCLUDING TIME OF NOTIFICATION:

Agency	Person Reached	Phone Number	Time
CWS 1 Notification - Contra Costa County Health Services			8:54 PM
CWS 1 Notification - Bay Area Quality Management District			8:54 PM
Con Fire Dispatch (Rodeo-Hercules FD)	Kelly	925-933-1313	8:57 PM
Crockett-Carquinez FD	Columbo	510-787-2717	9:00 PM
Contra Costa Sheriff's Dispatch	#60404	925-228-5000	9:03 PM
Bay Area Air Quality Management District		800-334-6367	9:21 PM
Bay Area Air Quality Management District		800-334-6367	10:51 PM
Bay Area Air Quality Management District	T. O'Halleran	Unknown	11:00 PM ¹

¹ BAAQMD on-call inspector, Thomas O'Halleran, returns hotline call from 10:51 p.m. to Phillips 66.

III. AGENCIES RESPONDING, INCLUDING CONTACT NAMES AND PHONE NUMBERS:

Agency	Contact	Phone Number	Time
Contra Costa County – Hazardous Materials	Devra Lewis	925-655-3222	8:55 PM ²
Bay Area Air Quality Management District	Sang Thao, Inspector	415-749-4757	9:25 PM ²

² Initial contact time is recorded. Both agencies made repeat contacts with Phillips 66.

IV. EMERGENCY RESPONSE ACTIONS:

4:45 PM - Odor Complaint call received from Rodeo Resident in the View Point area East of I-80 (up wind of the Refinery). Shift Safety Supervisor performs an Odor Patrol of that area within 5-10 minutes and does not detect any odors. Air monitoring was conducted and measurements were non-detectable with portable gas detection equipment.

7:09 PM - Odor Complaint call received from Crockett Resident and a call from NuStar terminal to report a “mercaptan like” odor.

7:17 PM - Shift Safety Supervisor confirms odors in the Selby area; air monitoring was conducted and measurements were non-detectable with portable gas detection equipment.

7:25 PM - Bulk Shift Supervisor detects an odor on in-plant Road 8 near Tanks 204 and 205.

7:27 PM - Process B Shift Supervisor is searching the U-200 Odor Abatement Area for odors but does not detect any.

7:34 - PM Bulk Shift Supervisor detects odors near Tanks 202 and 203 and air monitoring results of 1ppm VOC and 0.6 ppm H₂S with portable gas detection equipment.

7:36 - PM Shift Safety Supervisor detects odors near Tank 271 and air monitoring results of 2ppm H₂S with portable gas detection equipment.

7:40 PM - Process B Shift Supervisor detects odors near the U-250 Cooling Tower and the Shift Superintendent directs the Shift Organization to search for possible leaks/releases from the Odor Abatement Tanks along in-plant Road 8.

7:56 PM - Shift Safety Supervisor closes in-plant Road 8 between “J” and “M” Streets as a precautionary measure while the investigation continued.

8:20 PM - Tank 271 is determined to be a possible source of the odors and further investigation of the tank is started. Efforts begin to gather the SCBAs and other safety equipment to climb the tank, to check the relief valves.

8:42 PM - Refinery personnel reconcile number of odor complaints from several call locations such as Shift Superintendent, Security, etc. and determines that 9 odor complaints have been received.

8:47 PM – Operations and Planning departments started identifying alternative ways to divert or transfer the material from Tank 271 to alternative tankage. Bulk Department identified alternative tankage for intermediate product streams and started verified pipe routing and valve line ups to ensure safe and leak-free transition to alternative tankage.

8:54 PM - CWS Level-1 notification sequence is issued by Refinery personnel, based on the number of community complaints received by the facility.

9:58 PM - Affected Unit rates are minimized to reduce flow rate to Tank 271. Rate gauged all active storage tanks to ensure proper line ups.

10:15 PM - Operations stops material flow to Tank 271 to stop the emissions from suspected leaking relief valve.

10:45 PM - Shift Safety and the Emergency Response Team Lead perform air monitoring odor patrols in Crockett and along I-80 from Cummings Skyway to Willow Ave and confirm no odors and air monitoring measurements were non-detectable with portable gas detection equipment.

V. IDENTITY OF MATERIAL RELEASED AND ESTIMATED OR KNOWN QUANTITIES:

Currently the maximum estimate of hydrogen sulfide released during the event was approximately 0.5 pounds. Release calculations are preliminary and subject to change based on the incident investigation.

VI. METEOROLOGICAL CONDITIONS AT TIME OF EVENT including wind speed, direction, and temperature:

Average of 3 MET stations 2/23/21 6:40 pm through 10:40 pm	
Wind speed (mph)	3.9
Wind direction (degree)	202.5
Precipitation (inches)	0
Temperature (deg F)	60.3

VII. DESCRIPTION OF INJURIES:

There were no injuries or alarms of facility personal H₂S meters.

VIII. COMMUNITY IMPACT including number of off-site complaints, air sampling data during event, etc.:

Community Odor Complaints

Phillips 66 received several odor complaints from within the refinery and community neighbors. These odor complaints are listed below.

Time Called	Location
4:47 PM	Rodeo
8:16 PM	Crockett
8:20 PM	Crockett
8:25 PM	Crockett
8:35 PM	Crockett
8:35 PM	Crockett
8:46 PM	Crockett
10:32 PM	Crockett

Ground Level Monitor Data:

Averaging Period	Ground Level Monitor H ₂ S Concentration Parts per Billion - 2/23/2021		
	Tormey	Crockett	BAAQMD Limit
Maximum: 1-min avg	17.0 ppb	6.53 ppb	n/a
Maximum: 3-min avg	16.42 ppb	5.87 ppb	60 ppb
Maximum: 60-min avg	9.77 ppb	3.13 ppb	30 ppb

No detection of H₂S above normal baseline on Hillcrest or East Refinery GLMs.

Note: The Cal-OSHA Permissible Exposure Limit (PEL) for H₂S is 10,000 PPB averaged over an 8-hour period.

Fenceline Monitoring System:

	Fenceline Total Hydrocarbon Concentration Parts per Billion - 2/23/2021	
	North FTIR	CWS2 Alarm Limit
Instantaneous Maximum	238 ppb	50,000 ppb

Other parameters monitored by fenceline system were within normal baseline values.

Phillips 66 Odor Patrols & Air Monitoring:

Refer to the timeline in Section IV for Phillips 66 Odor Patrols and Air Monitoring.

IX. INCIDENT INVESTIGATION RESULTS

Is the investigation of the incident complete at this time? _____ Yes X No
If the answer is no, submit a 30 day final or interim report.

If the answer is yes, complete the following:

X. SUMMARIZE INVESTIGATION RESULTS BELOW OR ATTACH COPY OF REPORT:

Investigation is ongoing.

XI. SUMMARIZE PREVENTATIVE MEASURES TO BE TAKEN TO PREVENT RECURRENCE INCLUDING MILESTONE AND COMPLETION DATES FOR IMPLEMENTATION:

Investigation is ongoing.

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200), Health Canada HPR (SOR/2015-17), and Mexico NOM-018-STPS-2015



SECTION 1: Identification

Product Identifier Natural Gas
Other means of identification Code 724330
Relevant identified uses Fuel
Uses advised against All others
24 Hour Emergency Phone Number CHEMTREC 1-800-424-9300
CHEMTREC México 01-800-681-9531

Manufacturer/Supplier Phillips 66 Company
P.O. Box 4428
Houston, Texas 77210
SDS Information
URL: www.Phillips66.com
Phone: 800-762-0942
Email: SDS@P66.com

SECTION 2: Hazard identification

Classified Hazards
H220 - Flammable gases -- Category 1
H280 -- Gases under pressure -- Compressed gas
Simple asphyxiant

Hazards Not Otherwise Classified (HNOC)
PHNOC: None known
HHNOC: None known

Label Elements



DANGER

Extremely flammable gas
Contains gas under pressure. May explode if heated.
May displace oxygen and cause rapid suffocation



Keep away from heat/sparks/open flames/hot surfaces. - No smoking; Take precautionary measures against static discharge;
Leaking gas fire: Do not extinguish, unless leak can be stopped safely; Eliminate all ignition sources if safe to do so; Protect from sunlight. Store in a well-ventilated place

SECTION 3: Composition/information on ingredients

Chemical Name	CASRN	Concentration ¹
Natural gas, dried	68410-63-9	100

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

SECTION 4: First aid measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical

attention.

Skin Contact: First aid is not normally required. However, it is good practice to wash any chemical from the skin.

Inhalation: If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If breathing is difficult, oxygen or artificial respiration should be administered by qualified personnel. If symptoms persist, seek medical attention.

Ingestion: This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Most important symptoms and effects, both acute and delayed: Contains gas(es) which can cause asphyxiation at high concentrations by displacing oxygen. Symptoms of overexposure may include headache, fatigue, weakness, mental confusion, mood disturbances, and decreased coordination and judgment. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, impaired vision, ringing in the ears, cyanosis (bluish discoloration of skin), numbness of the extremities, unconsciousness and death.

Notes to Physician: Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

SECTION 5: Firefighting measures

NFPA 704 Hazard Class

Health: 1 Flammability: 4 Instability: 0



0 (Minimal)
1 (Slight)
2 (Moderate)
3 (Serious)
4 (Severe)

Extinguishing Media: Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: Extremely flammable Contents under pressure This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe) Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire.

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

Special protective actions for fire-fighters: 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 the hazard area and deny entry to unnecessary and unprotected personnel. Stop spill/release if it can be done safely. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done safely. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

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

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures: Extremely flammable Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Beware of accumulation of gas in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any place where accumulation may occur. Ventilate area and allow to evaporate. 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 and contain spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

Methods and material for containment and cleaning up: Notify relevant authorities in accordance with all applicable 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.

SECTION 7: Handling and storage

Precautions for safe handling: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Contents under pressure Gas can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn hazard.

The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"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. Avoid exposing any part of a compressed-gas cylinder to temperatures above 125F(51.6C). Gas cylinders should be stored outdoors or in well ventilated storerooms at no lower than ground level and should be quickly removable in an emergency.

SECTION 8: Exposure controls/personal protection

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: General ventilation should be adequate for normal conditions of intended use. Additional engineering controls may be necessary if working with the product in enclosed areas and/or at elevated temperatures.

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: The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals. Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

Respiratory Protection: A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH).

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.

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.

SECTION 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: Colorless	Flash Point: -299 °F / -184 °C
Physical Form: Compressed Gas	Test Method: (estimate)
Odor: Slight hydrocarbon	Initial Boiling Point/Range: No data
Odor Threshold: No data	Vapor Pressure: No data
pH: Not applicable	Partition Coefficient (n-octanol/water) (Kow): No data
Vapor Density (air=1): 0.5	Melting/Freezing Point: No data
Upper Explosive Limits (vol % in air): 10.0	Auto-ignition Temperature: 999 °F / 537 °C
Lower Explosive Limits (vol % in air): 2.0	Decomposition Temperature: No data
Evaporation Rate (nBuAc=1): No data	Specific Gravity (water=1): No data
Particle Size: Not applicable	Bulk Density: No data
Percent Volatile: 100%	Viscosity: No data
Flammability (solid, gas): Extremely Flammable	Solubility in Water: Slight

SECTION 10: Stability and reactivity

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

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Avoid all possible sources of ignition. Heat will increase pressure in the storage tank.

Incompatible materials: Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, halogens and oxidizing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

SECTION 11: Toxicological information

Information on Toxicological Effects

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Unlikely to be harmful	Simple Asphyxiant. May displace oxygen and cause rapid suffocation. See section 4 for more information.	>20,000 ppm (gas)
Dermal	Skin absorption is not anticipated		Not Applicable
Oral	Ingestion is not anticipated		Not Applicable

Aspiration Hazard: Not applicable

Skin Corrosion/Irritation: Skin exposure is not anticipated.

Serious Eye Damage/Irritation: Not expected to be irritating.

Skin Sensitization: Skin contact is not anticipated.

Respiratory Sensitization: Not expected to be a respiratory sensitizer.

Specific Target Organ Toxicity (Single Exposure): Not expected to cause organ effects from single exposure.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure.

Carcinogenicity: Not expected to cause cancer.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity.

Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus.

SECTION 12: Ecological information

GHS Classification: No classified hazards

Toxicity: Petroleum gases will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment.

Persistence and Degradability: The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process. Hydrogen sulfide, if present in refinery gas streams, will be rapidly oxidized in water and insoluble sulfides precipitated from water when metallic radicals are present.

Bioaccumulative Potential: Since the log Kow values measured for refinery gas constituents are below 3, they are not regarded as having the potential to bioaccumulate.

Mobility in Soil: Due to the extreme volatility of petroleum gases, air is the only environmental compartment in which they will be found. In air, these hydrocarbons undergo photodegradation by reaction with hydroxyl radicals with half-lives ranging from 3.2 days for n-butane to 7 days for propane.

Other adverse effects: None anticipated.

SECTION 13: Disposal considerations

This material is a gas and would not typically be managed as a waste.

SECTION 14: Transport information

U.S. Department of Transportation (DOT)

UN Number: UN1971

UN proper shipping name: Natural gas, compressed

Transport hazard class(es): 2.1

Packing Group: None

Environmental Hazards: This product does not meet the DOT/UN/IMDG/IMO criteria of a marine pollutant

Special precautions for user: None

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

SECTION 15: Regulatory information

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

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

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

US EPA has published a final rule aligning hazardous chemical reporting under sections 311 and 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA) with OSHA HCS. See Section 2 for hazard classifications under EPCRA.

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

This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

International 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.

SECTION 16: Other information

Issue Date:	Previous Issue Date:	SDS Number	Status:
10-Mar-2017	11-Sep-2015	724330	FINAL

Revised Sections or Basis for Revision:

First Aid (Section 4); Regulatory information (Section 15)

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; GHS = Globally Harmonized System; HPR = Hazardous Products Regulations; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; 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 Safety Data Sheet is based on data believed to be accurate as of the date this 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.

Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200), Health Canada HPR (SOR/2015-17), and Mexico NOM-018-STPS-2015



SECTION 1: Identification

Product Identifier

Naphtha (Petroleum), Unsweetened

Other means of identification

Light Feedstock-SM; Naphtha, Sour ..C5-12; Alliance - Naphtha-1276; Alliance - Naphtha, Sour ..C5-12-1276; Alliance - 294-V-6 Liquid to Stabilizer - Unit 294 - Stream 156; Alliance - Stabilizer Hot Feed-Unit-29-Stream 161; Alliance - Stabilizer Cold Feed-Unit 294-Stream 162; Alliance - CDHDS; Reflux-Unit 294-Stream 146; Alliance - Stabilizer Reflux-Unit 294-Stream 166; Bayway - Naphtha, Sour ..C5-12; Bayway - PF Feed; Bayway - Sour Naphtha; Borger - Sour Naphtha; Ferndale - Crude Unit Straight Run Naphtha, Sour Untreated ISC-70097; Ferndale - Naphtha, Sour ..C5-12; Ferndale - DHT Wild Naphtha; LAR - Untreated Light Naphtha; SFR - Naphtha, Sour ..C5-12; Sweeny - Sour Naphtha; Sweeny - Unit 11/14 HDS Charge; Santa Maria - F1 Naphtha; Santa Maria - D-1 Naphtha; Santa Maria Naphtha; Wood River - Naphtha, Full Range Straight Run-R6400, Raffinate

Code

727990

Issue date

14-May-2019

Relevant identified uses

Refinery Stream

Uses advised against

All others

24 Hour Emergency Phone Number

CHEMTREC: 1-800-424-9300
CHEMTREC Mexico 01-800-681-9531
CHEMTREC Global +1 703 527 3887

Manufacturer/Supplier

Phillips 66 Company
P.O. Box 421959
Houston, Texas 77242-1959

SDS Information

URL: www.phillips66.com/SDS
Phone: 800-762-0942
Email: SDS@P66.com

SECTION 2: Hazard identification

Classified Hazards

H224 -- Flammable liquids -- Category 1
H304 -- Aspiration Hazard -- Category 1
H315 -- Skin corrosion/irritation -- Category 2
H336 -- Specific target organ toxicity (single exposure) -- Category 3
H350 -- Carcinogenicity -- Category 1B
H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2

Hazards Not Otherwise Classified (HNOC)

PHNOC: Electrostatic charge may be generated during pumping and other operations

HHNOC: May contain or release poisonous hydrogen sulfide gas.

Label elements



DANGER



Extremely flammable liquid and vapor
May be fatal if swallowed and enters airways
Causes skin irritation
May cause drowsiness or dizziness
May cause cancer
May contain or release poisonous hydrogen sulfide gas.
Toxic to aquatic life with long lasting effects

Obtain special instructions before use; Do not handle until all safety precautions have been read and understood; Keep away from heat/sparks/open flames/hot surfaces. - No smoking; Keep container tightly closed; Ground/bond container and receiving equipment; Use explosion-proof electrical (ventilation and lighting) equipment; Use only non-sparking tools; Take precautionary measures against static discharge; Wash skin thoroughly after handling; Use only outdoors or in a well-ventilated area; Avoid release to the environment; Avoid breathing dust/fume/gas/mist/vapours/spray; Wear protective gloves/protective clothing and eye/face protection; In case of inadequate ventilation wear respiratory protection; IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician; Do NOT induce vomiting; IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower; IF INHALED: Remove person to fresh air and keep comfortable for breathing; Call a POISON CENTER or doctor/physician if you feel unwell; Take off contaminated clothing and wash before reuse; In case of fire: Use CO2, dry chemical, or foam for extinction; Collect spillage; Store in a well-ventilated place. Keep cool; Dispose of contents/container to an approved waste disposal plant

SECTION 3: Composition/information on ingredients

Chemical Name	CASRN	Concentration
Naphtha, petroleum, unsweetened	68783-12-0	100

Hazardous Constituent(s) Contained Within Above Complex Substance(s)

Chemical Name	CASRN	Concentration
n-Hexane	110-54-3	<10
Xylenes (o-, m-, p- isomers)	1330-20-7	<5
Toluene	108-88-3	<5
Ethylbenzene	100-41-4	<1
Benzene	71-43-2	<2
Hydrogen sulfide	7783-06-4	Variable (<1)
Cumene	98-82-8	<0.2

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

SECTION 4: First aid measures

Eye Contact: If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

Skin Contact: Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse.

Inhalation: 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: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

Most important symptoms and effects, both acute and delayed: Effects of overexposure can include slight irritation of the

respiratory tract, nausea, vomiting, and signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue). Continued exposure to high concentrations can result in vomiting, cardiac irregularities and sudden loss of consciousness. Prolonged or repeated contact may dry skin and cause irritation

Notes to Physician: 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. Amyl nitrite inhalers (found in the cyanide antidote kit) can be used for 30 seconds every minute until an I.V. line is established. 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. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias. Federal regulations (29 CFR 1910.1028) specify medical surveillance programs for certain exposures to benzene above the action level or PEL (specified in Section (i)(1)(i) of the Standard). In addition, employees exposed in an emergency situation shall, as described in Section (i)(4)(i), provide a urine sample at the end of the shift for measurement of urine phenol.

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). Remove casualty to fresh air as quickly as possible. Immediately begin artificial respiration if breathing has ceased. Consider whether oxygen administration is needed. Obtain medical advice for further treatment.

SECTION 5: Firefighting measures

NFPA 704: National Fire Protection Association

Health: 1 Flammability: 4 Instability: 0



0 = minimal hazard
1 = slight hazard
2 = moderate hazard
3 = severe hazard
4 = extreme hazard

Extinguishing Media: Dry chemical, carbon dioxide, or 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. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Specific hazards arising from the chemical

Unusual Fire & Explosion Hazards: Extremely flammable This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe) Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. 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. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

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.

Special protective actions for fire-fighters: 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 the hazard area and deny entry to unnecessary and unprotected personnel. 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. Avoid spreading burning liquid with water used for cooling purposes. Cool equipment exposed to fire with water, if it can be done safely.

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

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures: Extremely flammable Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. 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 and contain spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use foam on spills to minimize vapors 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 and material for containment and cleaning 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. See Section 13 for information on appropriate disposal.

SECTION 7: Handling and storage

Precautions for safe handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. May contain or release dangerous levels of hydrogen sulfide. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Extremely Flammable. May vaporize easily at ambient temperatures. The vapor is heavier than air and may create an explosive mixture of vapor and air. Beware of accumulation in confined spaces and low lying areas. Open container slowly to relieve any pressure. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. 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. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

Static Accumulation Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding of tanks, transfer piping, and storage tank level floats are necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. Special care should be given to ensure that special slow load procedures for "switch loading" are followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil or diesel) is loaded into tanks previously containing low flash point products (such as gasoline or naphtha). For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

Conditions for safe storage: Keep container(s) tightly closed and properly labeled. 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. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of

ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"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.

SECTION 8: Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Chemical Name	ACGIH	OSHA	Mexico	Phillips 66
Naphtha, petroleum, unsweetened	---	---	---	TWA-8hr: 0.5 ppm (as benzene) STEL: 2.5 ppm (as benzene) Skin
n-Hexane	TWA-8hr: 50 ppm Skin	TWA-8hr: 500 ppm TWA-8hr: 1800 mg/m ³	TWA-8hr: 50 ppm (VLE-PPT) Skin	TWA-8hr: 50 ppm Skin
Xylenes (o-, m-, p- isomers)	TWA-8hr: 100 ppm STEL: 150 ppm	TWA-8hr: 100 ppm TWA-8hr: 435 mg/m ³	TWA-8hr: 100 ppm (VLE-PPT) STEL: 150 ppm (PPT-CT) Carcinogen	TWA-8hr: 100 ppm STEL: 150 ppm Skin
Toluene	TWA-8hr: 20 ppm	TWA-8hr: 200 ppm Ceiling: 300 ppm	TWA-8hr: 20 ppm (VLE-PPT) Carcinogen Skin	TWA-8hr: 20 ppm
Benzene	TWA-8hr: 0.5 ppm STEL: 2.5 ppm Skin	TWA-8hr: 10 ppm applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028 TWA-8hr: 1 ppm STEL: 5 ppm Ceiling: 25 ppm Carcinogen	TWA-8hr: 0.5 ppm (VLE-PPT) STEL: 2.5 ppm (PPT-CT) Carcinogen Skin	TWA-8hr: 0.5 ppm STEL: 2.5 ppm Skin Carcinogen
Hydrogen sulfide	TWA-8hr: 1 ppm STEL: 5 ppm	Ceiling: 20 ppm	TWA-8hr: 1 ppm (VLE-PPT) STEL: 5 ppm (PPT-CT)	TWA-8hr: 5 ppm STEL: 15 ppm
Ethylbenzene	TWA-8hr: 20 ppm	TWA-8hr: 100 ppm TWA-8hr: 435 mg/m ³ Carcinogen	TWA-8hr: 20 ppm (VLE-PPT) Carcinogen	TWA-8hr: 20 ppm Skin
Cumene	TWA-8hr: 50 ppm	TWA-8hr: 50 ppm TWA-8hr: 245 mg/m ³ Carcinogen Skin	TWA-8hr: 50 ppm (VLE-PPT) Skin	---

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.

Biological occupational exposure limits

Chemical Name	ACGIH	Mexican NOM-047-SSA1-2011
n-Hexane	2,5-Hexanedione without hydrolysis in urine: 0.5 mg/L (end of shift)	2,5-Hexanedione without hydrolysis in urine: 0.4 mg/L (end of shift at end of work week)
Xylenes (o-, m-, p- isomers)	Methylhippuric acids in urine: 1.5 g/g creatinine (end of shift)	Methylhippuric acids in urine: 1.5 g/g creatinine (end of work shift)
Toluene	Toluene in blood: 0.02 mg/L (prior to last shift of workweek) Toluene in urine: 0.03 mg/L (end of shift)	o-Cresol in urine: 0.5 mg/L (end of work shift) Hippuric acid in urine: 1.6 g/g creatinine (end of work shift) Toluene in blood: 0.05 mg/L (before last shift at end of

	o-Cresol with hydrolysis in urine: 0.3 mg/g creatinine (end of shift)	work week)
Benzene	S-Phenylmercapturic acid in urine: 25 µg/g creatinine (end of shift) t,t-Muconic acid in urine: 500 µg/g creatinine (end of shift)	S-Phenylmercapturic acid in urine: 25 µg/g creatinine (end of work shift) t,t-Muconic acid in urine: 500 µg/g creatinine (end of work shift)
Ethylbenzene	Sum of mandelic acid and phenylglyoxylic acid in urine: 0.15 g/g creatinine (end of shift)	Sum of mandelic acid and phenylglyoxylic acid in urine: 0.7 g/g creatinine (end of shift at end of work week) Ethylbenzene in exhaled air: (not critical)

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 --- = None

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 protection that meets or exceeds ANSI Z.87.1 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, a face shield may be necessary.

Skin/Hand Protection: The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. Suggested protective materials: Nitrile rubber

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 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).

If benzene concentrations equal or exceed applicable exposure limits, OSHA requirements for personal protective equipment, exposure monitoring, and training may apply (29CFR1910.1028 - Benzene).

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

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.

SECTION 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: Colorless

Physical Form: Liquid

Odor: Gasoline; Rotten egg / sulfurous

Odor Threshold: No data

pH: Not applicable

Vapor Density (air=1): > 3

Upper Explosive Limits (vol % in air): 7.6

Lower Explosive Limits (vol % in air): 1.1

Evaporation Rate (nBuAc=1): No data

Particle Size: Not applicable

Percent Volatile: 100% @ 415°F (213°C)

Flammability (solid, gas): Not applicable

Solubility in Water: Negligible

Flash Point: < -40 °F / < -40 °C

Test Method: (estimate)

Initial Boiling Point/Range: 50 - 450 °F / 10 - 232 °C

Vapor Pressure: 100-775 mm Hg / 2-15 psia (Reid VP) @ 100°F / 37.8°C

Partition Coefficient (n-octanol/water) (Kow): No data

Melting/Freezing Point: No data

Auto-ignition Temperature: No data

Decomposition Temperature: No data

Specific Gravity (water=1): 0.70-0.76 @ 60°F (15.6°C)

Bulk Density: 6.08 lbs/gal

Viscosity: No data

Pour Point: No data

SECTION 10: Stability and reactivity

Reactivity: Not chemically reactive.

Chemical stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions: Hazardous reactions not anticipated.

Conditions to avoid: Avoid high temperatures and all sources of ignition. Prevent vapor accumulation.

Incompatible materials: Avoid contact with strong oxidizing agents and strong reducing agents.

Hazardous decomposition products: Not anticipated under normal conditions of use.

SECTION 11: Toxicological information

Information on Toxicological Effects

Substance / Mixture

Acute Toxicity	Hazard	Additional Information	LC50/LD50 Data
Inhalation	Expected to have a low degree of toxicity by inhalation	May contain or release poisonous hydrogen sulfide gas - see Other Comments.	> 5.2 mg/L (vapor)
Dermal	Unlikely to be harmful		> 2 g/kg
Oral	Unlikely to be harmful		> 5 g/kg

Likely Routes of Exposure: Inhalation, eye contact, skin contact

Aspiration Hazard: May be fatal if swallowed and enters airways

Skin Corrosion/Irritation: Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

Serious Eye Damage/Irritation: Causes mild eye irritation.

Skin Sensitization: Not expected to be a skin sensitizer.

Respiratory Sensitization: Not expected to be a respiratory sensitizer.

Specific Target Organ Toxicity (Single Exposure): May cause drowsiness and dizziness.

Specific Target Organ Toxicity (Repeated Exposure): Not expected to cause organ effects from repeated exposure. Two year inhalation studies of wholly vaporized unleaded gasoline, and 90 days studies of various petroleum naphthas, did not produce significant target organ toxicity in laboratory animals. Nephropathy in male rats, characterized by the accumulation of alpha-2-u- globulin in epithelial cells of the proximal tubules was observed, however follow-up studies suggest that these changes are unique to the male rat.

Carcinogenicity: May cause cancer. Based on component information. Two year inhalation studies of vaporized unleaded gasoline produced an increased incidence of kidney tumors in male rats and liver tumors in female mice. Repeated skin application of various petroleum naphthas in mice for two years resulted in an increased incidence of skin tumors but only in the presence of severe skin irritation. Follow-up mechanistic studies suggest that the occurrence of these tumors may be the consequence of promotional processes and not relevant to human risk assessment. Epidemiology data collected from a study of more than 18,000 petroleum marketing and distribution workers showed no increased risk of leukemia, multiple myeloma, or kidney cancer from gasoline exposure. Unleaded gasoline has been identified as a possible carcinogen by the International Agency for Research on Cancer.

Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.

Reproductive Toxicity: Not expected to cause reproductive toxicity. No evidence of developmental toxicity was found in pregnant laboratory animals (rats and mice) exposed to high vapor concentrations of unleaded gasoline and petroleum naphthas via inhalation. A two-generation reproductive toxicity study of vapor recovery gasoline did not adversely affect

reproductive function or offspring survival and development.

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.

Information on Toxicological Effects of Components

Naphtha, petroleum, unsweetened

Carcinogenicity: Two year inhalation studies of vaporized unleaded gasoline produced an increased incidence of kidney tumors in male rats and liver tumors in female mice. Repeated skin application of various petroleum naphthas in mice for two years resulted in an increased incidence of skin tumors but only in the presence of severe skin irritation. Follow-up mechanistic studies suggest that the occurrence of these tumors may be the consequence of promotional processes and not relevant to human risk assessment. Epidemiology data collected from a study of more than 18,000 petroleum marketing and distribution workers showed no increased risk of leukemia, multiple myeloma, or kidney cancer from gasoline exposure. Unleaded gasoline has been identified as a possible carcinogen by the International Agency for Research on Cancer.

Reproductive Toxicity: No evidence of developmental toxicity was found in pregnant laboratory animals (rats and mice) exposed to high vapor concentrations of unleaded gasoline and petroleum naphthas via inhalation. A two-generation reproductive toxicity study of vapor recovery gasoline did not adversely affect reproductive function or offspring survival and development.

Target Organ(s): Two year inhalation studies of wholly vaporized unleaded gasoline, and 90 days studies of various petroleum naphthas, did not produce significant target organ toxicity in laboratory animals. Nephropathy in male rats, characterized by the accumulation of alpha-2-u- globulin in epithelial cells of the proximal tubules was observed, however follow-up studies suggest that these changes are unique to the male rat.

n-Hexane

Reproductive Toxicity: Prolonged exposure to high concentrations of n-hexane (>1,000 ppm) resulted in decreased sperm count and degenerative changes in the testes of rats but not those of mice.

Target Organ(s): Excessive exposure to n-hexane can result in peripheral neuropathies. The initial symptoms are symmetrical sensory numbness and paresthesias of distal portions of the extremities. Motor weakness is typically observed in muscles of the toes and fingers but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. The neurotoxic properties of n-hexane are potentiated by exposure to methyl ethyl ketone and methyl isobutyl ketone.

Xylenes (o-, m-, p- isomers)

Reproductive Toxicity: Both mixed xylenes and the individual isomers produced limited evidence of developmental toxicity in laboratory animals. Inhalation and oral administration of xylene resulted in decreased fetal weight, increased incidences of delayed ossification, skeletal variations and resorptions, but no evidence of teratogenicity.

Target Organ(s): Rats exposed to xylenes at 800, 1000 or 1200 ppm 14 hours daily for 6 weeks demonstrated high frequency hearing loss. Another study in rats exposed to 1800 ppm 8 hours daily for 5 days demonstrated middle frequency hearing loss.

Toluene

Carcinogenicity: Exposure of rats and mice to toluene at concentrations ranging from 120-1200 ppm for two years did not demonstrate evidence of carcinogenicity. Toluene has not been listed as a carcinogen by IARC.

Reproductive Toxicity: Exposure to toluene during pregnancy has demonstrated limited evidence of developmental toxicity in laboratory animals. Decreased fetal body weight and increased skeletal variations in both inhalation and oral studies, but only at doses that were maternally toxic. No fetal toxicity was seen at doses that were not maternally toxic. Decreased sperm counts have been observed in male rats in the absence of a reduction in fertility. Toluene has been reported to cause mental or growth retardation in the children of solvent abusers who directly inhale toluene during pregnancy.

Target Organ(s): Epidemiology studies suggest that chronic occupational overexposure to toluene may damage color vision. Subchronic and chronic inhalation studies with toluene produced kidney and liver damage, hearing loss and central nervous system (brain) damage in laboratory animals. Intentional misuse by deliberate inhalation of high concentrations of toluene has been shown to cause liver, kidney, and central nervous system damage, including hearing loss and visual disturbances.

Benzene

Carcinogenicity: Benzene is an animal carcinogen and is known to produce acute myelogenous leukemia (a form of cancer) in humans. Benzene has been identified as a human carcinogen by IARC, the US National Toxicology Program and the US-Occupational Safety and Health Administration.

Reproductive Toxicity: Some studies in occupationally exposed women have suggested benzene exposure increased risk of miscarriage and stillbirth and decreased birth weight and gestational age. The size of the effects detected in these studies was small, and ascertainment of exposure and outcome in some cases relied on self-reports, which may limit the reliability of these results.

Target Organ(s): Prolonged or repeated exposures to benzene vapors can cause damage to the blood and blood forming organs, including disorders like leukopenia, thrombocytopenia, and aplastic anemia.

Germ Cell Mutagenicity: Benzene exposure has resulted in chromosomal aberrations in human lymphocytes and animal

bone marrow cells. Exposure has also been associated with chromosomal aberrations in sperm cells in human and animal studies.

Ethylbenzene

Carcinogenicity: Rats and mice exposed to 0, 75, 250, or 750 ppm ethyl benzene in a two year inhalation study demonstrated limited evidence of kidney, liver, and lung cancer. Ethyl benzene has been listed as a possible human carcinogen by IARC.

Target Organ(s): In rats and mice exposed to 0, 75, 250, or 750 ppm ethyl benzene in a two year inhalation study there was mild damage to the kidney (tubular hyperplasia), liver (eosinophilic foci, hypertrophy, necrosis), lung (alveolar epithelium metaplasia), thyroid (hyperplasia), and pituitary (hyperplasia). In animal models (particularly rats), ethyl benzene affects the auditory function mainly in the cochlear mid-frequency range and ototoxicity was observed after combined exposure to noise and ethyl benzene. There is no evidence of either ethyl benzene-induced hearing losses or ototoxicity with combined exposure to ethyl benzene and noise in workers.

SECTION 12: Ecological information



GHS Classification:

H411 -- Hazardous to the aquatic environment, chronic toxicity -- Category 2

Toxic to aquatic life with long lasting effects.

Toxicity: Acute aquatic toxicity studies on samples of gasoline and naphtha streams show acute toxicity values greater than 1 mg/L and mostly in the range 1-100 mg/L. These tests were carried out on water accommodated fractions, in closed systems to prevent evaporative loss. Results are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon composition. These substances should be regarded as toxic to aquatic organisms, with the potential to cause long term adverse effects in the aquatic environment.

Persistence and Degradability: The hydrocarbons in this material are not readily biodegradable but are regarded as inherently biodegradable since their hydrocarbon components can be degraded by microorganisms.

Bioaccumulative Potential: Log Kow values measured for the hydrocarbon components of this material range from 3 to greater than 6 and therefore are regarded as having the potential to bioaccumulate. In practice, metabolic processes or physical properties may prevent this effect or limit bioavailability.

Mobility in Soil: On release to water, hydrocarbons will float on the surface and since they are sparingly soluble, the only significant loss is volatilization to air. In air, these hydrocarbons are photodegraded by reaction with hydroxyl radicals with half lives varying from 6.5 days for benzene to 0.5 days for n-dodecane.

Other adverse effects: None anticipated.

SECTION 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. However, it would likely be identified as a federally regulated RCRA hazardous waste for the following characteristic(s) shown below. 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 SDS 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. Container residues and rinseates could be considered to be hazardous wastes.

EPA Waste Number(s)

- D001 - Ignitability characteristic
- D018 - Benzene

SECTION 14: Transport information

UN Number: UN1268

UN proper shipping name: Petroleum distillates, n.o.s

Transport hazard class(es): 3

Packing Group: I or II

Environmental Hazards: Marine pollutant - Environmentally Hazardous

Special precautions for user: *Packing group is dependent on boiling point (BP) of the material:*

I if BP ≤35° C (95° F); II if BP > 35° C (95° F)

Container(s) greater than 5 liters (liquids) or 5 kilograms (solids), shipped by water mode and ALL bulk shipments may require the shipping description to contain the "Marine Pollutant" notation [49 CFR 172.203(l)] and the container(s) to display the [Marine Pollutant Mark] [49 CFR 172.322].

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

SECTION 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:

Chemical Name	TPQ	EPCRA RQ
Hydrogen sulfide	500 lb	100 lb

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

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CERCLA/SARA - Section 313 and 40 CFR 372

This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:


Chemical Name	Concentration	de minimis
Xylenes (o-, m-, p- isomers)	<10	1.0%
Benzene	<5	0.1%
Toluene	<5	1.0%
n-Hexane	<3	1.0%
Cyclohexane	<3	1.0%
Benzene, 1,2,4-trimethyl-	<3	1.0%
Ethylbenzene	<1	0.1%

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

EPA (CERCLA) Reportable Quantity (in pounds)

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

California Proposition 65

 **WARNING.** This product can expose you to chemicals including Benzene (CASRN 71-43-2), Cumene (CASRN 98-82-8), Isoprene (CASRN 78-79-5), Naphthalene (CASRN 91-20-3) and Ethylbenzene (CASRN 100-41-4) which are known to the State of California to cause cancer, and Toluene (CASRN 108-88-3), n-Hexane (CASRN 110-54-3) and Benzene (CASRN 71-43-2) which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

International 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.

SECTION 16: Other information

Issue date	Previous Issue Date:	SDS Number	Status:
14-May-2019	15-Jan-2019	727990	FINAL

Revised Sections or Basis for Revision:

Exposure limits (Section 8)

Mexican NOM-018-STPS-2015:

The information within is considered correct but is not exhaustive and will be used for guidance only, which is based on the current knowledge of the substance or mixture and is applicable to the appropriate safety precautions for the product.

Precautionary Statements:

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical/ ventilating/ lighting/ equipment
P242 - Use only non-sparking tools
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P285 - In case of inadequate ventilation wear respiratory protection
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P331 - Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 - Call a POISON CENTER or doctor if you feel unwell
P362 - Take off contaminated clothing and wash before reuse
P370 + P378 - In case of fire: Use dry chemical, carbon dioxide, or foam to extinguish
P391 - Collect spillage
P403 + P235 - Store in a well-ventilated place. Keep cool
P501 - Dispose of contents/ container to an approved waste disposal plant

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; GHS = Globally Harmonized System; HPR = Hazardous Products Regulations; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; 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:

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