SAFETY DATA SHEET

Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

Crude Oil

SECTION 1: IDENTIFICATION

Product identifier

Product name	Dilbit
CAS No.	8002-05-9

Other means of identification — Diluted Bitumen; AWB -Access Western Blend; Pipeline Sales Oil.

Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s)	Base product for Petroleum Refining.
Uses advised against	Anything other than the above.

Details of the supplier of the safety data sheet

Supplier	Vitol Inc. 2925 Richmond Ave, 11th Floor Houston, TX 77098
Telephone	(713) 230-1000
Fax	713-230-1185
E-mail (competent person)	SDSHOU@vitol.com

Emergency telephone number

Emergency Phone No.	Chemtrec: US/Canada: 1-800-424-9300 (24h) Mexico: 800 681 9531 (24h)

SECTION 2: HAZARDS IDENTIFICATION

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200

Physical hazards	Flammable Liquid, Category 1
Health hazards	Aspiration hazard, Category 1 Eye Irritation, Category 2A Specific target organ toxicity — single exposure, Category 3 (Narcotic effects) Carcinogen, Category 1B Specific target organ toxicity — repeated exposure, Category 2
Environmental hazards	Hazardous to the aquatic environment, Chronic, Category 2

Label elements

Hazard Pictogram(s)

Signal Word(s) — DANGER

Hazard Statement(s)

Extremely flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes eye irritation.
May cause drowsiness or dizziness.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.
Toxic to aquatic life with long lasting effects.

Precautionary Statement(s)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Store in a well-ventilated place. Keep cool.

Obtain special instructions before use.
Do not breathe vapour.
Wear protective gloves/eye protection/face protection.
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
Immediately call a POISON CENTER/doctor.
Do NOT induce vomiting.
Avoid release to environment.
Dispose of contents in accordance with local, state or national legislation.

Other hazards

The vapour is heavier than air; beware of pits and confined spaces. May cause irritation to eyes and air passages. Product may release Hydrogen Sulphide: A specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances.

Percent of the mixture consists of ingredient(s) of unknown acute toxicity:

0% of the mixture consists of ingredients of unknown acute inhalated toxicity.
0% of the mixture consists of ingredients of unknown acute oral toxicity.
0% of the mixture consists of ingredients of unknown acute dermal toxicity.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Classification: OSHA HCS (29 CFR 1910.1200)

Chemical identity of the substance	%W/W	CAS No.	EC No.
Petroleum	100	8002-05-9	232-298-5

Hazardous constituents

Chemical identity of the substance	%W/W	CAS No.	EC No.
N-hexane	5 - 10	110-54-3	203-777-6
Benzene	1 - 5	71-43-2	200-753-7
Toluene	1 - 5	108-88-3	203-625-9
Xylene	0.5 – 1.5	1330-20-7	905-215-1
Ethylbenzene	0.5 – 1.5	100-41-4	202-849-4
Hydrogen Sulfide	< 0.1	7783-06-4	231-977-3

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Self-protection of the first aider

Avoid all contact. Do not breathe vapour. Eliminate sources of ignition. If it is suspected that fumes are still present, the responder should wear an appropriate mask or self-contained breathing apparatus. Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity. Do not use mouth-to-mouth resuscitation. No action should be taken involving personal risk. Wear appropriate personal protective equipment, avoid direct contact. Do not ingest. If swallowed then seek immediate medical assistance.

H2S Warning:

Hydrogen sulphide (H2S) can accumulate in the headspace of storage tanks and reach potentially hazardous concentrations.
If there is any suspicion of inhalation: A self contained breathing apparatus should be worn. Remove to fresh air immediately.

Inhalation

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight

	clothing such as a collar, tie, belt or waistband. Apply artificial respiration only if patient is not breathing but do not use mouth to mouth resuscitation. Get medical advice/attention if you feel unwell.
Skin contact	IF ON SKIN (or hair): Remove contaminated clothing immediately and wash affected skin with plenty of water or soap and water. If irritation persists, get medical attention.
Eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
Ingestion	IF SWALLOWED: rinse mouth. Do NOT induce vomiting. If unconscious, place in recovery position and get medical attention immediately. Wash out mouth with water and give small quantities of water to drink. Do not give anything by mouth to an unconscious person. Get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Do not wait for symptoms to appear. Immediately call a POISON CENTER/doctor.
Most important symptoms and effects, both acute and delayed	May be fatal if swallowed and enters airways. Causes serious eye irritation. May cause drowsiness or dizziness. May cause cancer. May cause damage to organs through prolonged or repeated exposure.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically.
Notes to a physician:	IF IN EYES: Treatment by an ophthalmologist due to possible caustic burn of the eyes may be required. IF SWALLOWED: Do not induce vomiting because of risk of aspiration into the lungs. If aspiration is suspected obtain immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media	
Suitable extinguishing media	Extinguish with sand or dry chemical. Foam, Carbon dioxide, Water fog or dry powder
Unsuitable extinguishing media	Do not use water jet. Direct water jet may spread the fire.
Special hazards arising from the substance or mixture	Extremely flammable liquid and vapour. Will float and can be reignited on surface water. A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds. May form explosive mixture with air. Prevent liquid entering sewers, basements and any watercourses. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. If sulphur compounds are present in appreciable amounts, combustion products may include also H2S and SOx (sulfur oxides) or sulfuric acid.
Advice for firefighters	Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid release to the environment. Dike fire control water for later disposal.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Caution - spillages may be slippery. Ensure operatives are trained to minimise exposures. Ensure suitable personal protection during removal of spillages. Eliminate sources of ignition. Shut off leaks if without risk. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid all contact. Do not breathe vapour. Ensure adequate ventilation. Do not ingest. If swallowed then seek immediate medical assistance. Do not use sparking tools. Use non-sparking ventilation systems, approved explosion-proof equipment, and intrinsically safe electrical systems.
Methods and material for containment and cleaning up	Provided it is safe to do so, isolate the source of the leak. Use non-sparking equipment when picking up flammable spill. The vapour is heavier than air; beware of pits and confined spaces. Ensure that the equipment is adequately grounded. Allow small spillages to evaporate provided there is adequate ventilation. Wear flame-resistant antistatic protective clothing. Wear chemical protection suit and breathing apparatus.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Obtain special instructions before use. Keep away from sources of ignition - No smoking. Use only outdoors or in a well-ventilated area. Prevent vapour build up by providing adequate ventilation during and after use. May form explosive mixtures with air. Take action to prevent static discharges. Use non-sparking tools. All parts of the plant and equipment should be electrically bonded together and connected to earth. Electrical continuity should be checked at regular intervals. Antistatic clothing and footwear should be used. The vapour is heavier than air; beware of pits and confined spaces. Avoid all contact with substance. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe vapour. See Section: 8. Keep good industrial hygiene. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned.

H2S Warning:

Product may release Hydrogen Sulphide: A specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances. These controls may include: Segregation of areas, Access only to authorised persons, Permit to work systems, Confined space working procedures, Area H2S alarms, Personal H2S alarms, Personal escape sets, H2S awareness training.

Conditions for safe storage, including any incompatibilities

Light hydrocarbon vapours can build up in the headspace of containers. These can cause flammability / explosion hazards. Bund storage facilities to prevent soil and water pollution in the event of spillage. Keep only in original packaging. Keep containers properly sealed when not in use. Protect from sunlight. Containers of this material may be hazardous when empty since they retain product residue. Empty container may contain product residue which may result in flammable or explosive vapours inside the container.

Storage temperature

Stable at ambient temperatures.

Incompatible materials

Strong oxidising agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Petroleum	8002-05-9	-	350	-	1800	NIOSH
Hydrogen Sulfide	7783-06-4	-	-	10	15	NIOSH
		-	-	20	-	OSHA
		1	-	5	-	ACGIH
Benzene	71-43-2	0.1	0.42	1	3.2	NIOSH
		1	-	5	-	OSHA
		0.5	-	2.5	-	ACGIH
N-hexane	110-54-3	50	180	-	-	NIOSH
		50	1800	-	-	OSHA
		50	-	-	-	ACGIH
Xylene	1330-20-7	100	435	150	655	NIOSH
		100	435	-	-	OSHA
Ethylbenzene	100-41-4	100	435	125	545	NIOSH
		100	435	-	-	OSHA
		20	-	-	-	ACGIH
Toluene	108-88-3	100	375	150	560	NIOSH
		-	-	300	-	OSHA
		20	-	-	-	ACGIH

Note: OSHA PELs 1910.1000 TABLE Z-1/2/3 / NIOSH RELs / ACGIH TLVs

Biological exposure indicies

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Xylene, o-,m-,p- or mixed isomers	1330-20-7	Methylhippuric acids in urine.	1.5 g/g Creatinine	End of shift	-
Ethylbenzene	100-41-4	Sum of mandelic acid and phenylglyoxylic acid in urine	0.15 g/g Creatinine	End of shift	Ns
Toluene	108-88-3	Toluene in blood Toluene in urine o-Cresol in urine with hydrolosis	0.02 mg/l 0.03 mg/l 0.3 mg/g creatinine	Prior to last shift of workweek End of shift End of shift	- - B

Source: ACGIH: American Conference of Governmental Industrial Hygienists - Biological Exposure Index (BEI) 2019

Note:
B: Background
Ns: The determinant is nonspecific, since it is also observed after exposure to other chemicals.

Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Guarantee that the eye flushing systems and safety showers are located close to the working place.

Individual protection measures, such as personal protective equipment

Fuels are typically used, transferred and transported in closed systems. If exposure is likely (i.e. during sampling) the following advice may be appropriate. Keep good industrial hygiene. Always wash hands before smoking, eating and drinking. Do not eat, drink or smoke at the work place. Avoid all contact. Do not breathe vapour.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Eye/ face protection

Use eye protection according to EN 166, designed to protect against liquid splashes.

Skin protection

Hand protection: Wear impervious gloves (recommended: EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Protective index 6, corresponding > 480 minutes of permeation time according to EN 374. Efficiency of at least 80%).

Body protection: Wear anti-static clothing and shoes.
Small scale: Wear suitable coveralls to prevent exposure to the skin.
Large scale: Chemical protection suit.

Respiratory protection

When the product is heated / In case of inadequate ventilation wear respiratory protection. The use of a high efficiency filter (recommended: EN143) is recommended. Filter type A1.

Closed system(s): Not normally required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Light to dark brown Viscous liquid.
Odour	Hydrocarbon.
Odour threshold	0.00047 ppm, (H2S)
pH	Not applicable
Melting point/freezing point	Not available
Initial boiling point and boiling range	34.9 °C to 720°C

Flash point	< 100°F (38°)
Evaporation rate	Not available
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Variable
Vapour pressure	Not available
Vapour density	> 1 (Air = 1)
Relative density	Not available
Solubility(ies)	Insoluble.
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	60.7 cSt @ 40°C

Other information

Specific Gravity	0.9178 (Water =1) @ 15°C
Density	917.0 kg/m3 @ 15°C

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions. Reacts with - Strong oxidising agents
Chemical stability	Stable under normal conditions. Hazardous polymerisation will not occur. Product may release Hydrogen Sulphide.
Possibility of hazardous reactions	Extremely flammable liquid and vapour. May form explosive mixture with air. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. Product may release Hydrogen Sulphide.
Conditions to avoid	Elevated temperature. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight.
Incompatible materials	Keep away from oxidising agents. Strong Acids and Alkalis.
Hazardous decomposition products	A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds. Decomposes in a fire giving off toxic fumes: COx, H2S, SOx,

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity - Ingestion	Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) >2,000 mg/kg.
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) > 5 mg/L (Vapour)
Acute toxicity - Skin contact	Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) >2,000 mg/kg.
Skin corrosion/irritation	Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation	Eye Irritation, Category 2A: Causes serious eye irritation.
Respiratory or skin sensitisation	Based upon the available data, the classification criteria are not met.
Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
Carcinogenicity	Carcinogen, Category 1B: May cause cancer. EU Harmonised Classification
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
STOT - single exposure	Specific target organ toxicity — repeated exposure, Category 3 (Narcotic effects): May cause drowsiness or dizziness.
STOT - repeated exposure	Specific target organ toxicity — repeated exposure, Category 2: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	Aspiration hazard, Category 1: May be fatal if swallowed and enters airways. This product was conservatively classified under the basis of: high percentage inclusion of components with Aspiration hazard

Information on likely routes of exposure

Inhalation	Possible – accidental exposure
Ingestion	Possible – accidental exposure
Skin contact	Possible – accidental exposure
Eye contact	Unlikely – accidental exposure

Early onset symptoms related to exposure	Causes serious eye irritation. May cause drowsiness or dizziness.
Delayed health effects from exposure	May cause cancer. May cause damage to organs through prolonged or repeated exposure.
Exposure levels and health effects	See Section: 8
Interactive effects	None known

Other information

OSHA Designated Carcinogen	Not listed
NIOSH Occupational Carcinogen List	Not listed
NTP Report on Carcinogens	Not listed
IARC Monographs	Listed

SECTION 12: ECOLOGICAL INFORMATION

Toxicity	Hazardous to the aquatic environment, Chronic, Category 2: Toxic to aquatic life with long lasting effects.
Persistence and degradability	Substance is complex UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance
Bioaccumulative potential	Substance is complex UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance
Mobility in soil	Substance is complex UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Dispose of this material and its container as hazardous waste. Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation. Containers of this material may be hazardous when empty since they retain product residue.

SECTION 14: TRANSPORT INFORMATION

	Road/rail (ADR/RID)	Sea transport (IMDG)	Air (ICAO/IATA)
UN number	UN1267	UN1267	UN1267
UN proper shipping name	PETROLEUM CRUDE OIL	PETROLEUM CRUDE OIL	PETROLEUM CRUDE OIL
Transport hazard class(es)	3	3	3
Packing group	I	I	I
Environmental hazards	Environmentally hazardous substance	Classified as a Marine Pollutant.	Environmentally hazardous substance
Special precautions for user	See Section: 2		
Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable		

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

US Federal Regulations

TSCA Chemical Data Reporting (CDR) Rule	Listed
NIOSH Occupational Carcinogen List	Not listed
EPCRA Section 313	Not listed
CWA 307- Toxic	Not listed
CERCLA - Hazardous Substances	Not listed

CWA Section 311 List of Hazardous Substances	Not listed

US State Regulations

Proposition 65 (California)	Not listed
Massachusetts, New Jersey, Pennsylvania, Rhode Island- State Right to Know Lists	Listed
New York -State Right to Know Lists	Listed
Minnesota - State Right to Know Lists	Listed
Massachusetts – Toxic Use reduction act	Listed

Non-Regional

IARC Monographs	Listed

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Updated substance / mixture classification. Updated version and date. New format has been issued, all sections have been updated to include new information. Review SDS with care.

Version	3
Revision Date	14 April 2021
Date of First Issue	Not available. 2ND ISSUE RELEASED JUNE, 15 2015

This Safety Data Sheet was prepared in accordance with US Regulation OSHA HCS (29 CFR 1910.1200).

References:
Existing Safety Data Sheet (SDS),
EU Harmonised Classification and EU classification and labelling inventory for Petroleum (CAS. 8002-05-9).

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200	Classification procedure
Flammable Liquid, Category 1	Flash point
Aspiration hazard, Category 1	High percentage inclusion of components with aspiration hazard
Eye Irritation, Category 2	Threshold calculation
Specific target organ toxicity — repeated exposure, Category 3 (Narcotic effects)	Threshold calculation
Carcinogen, Category 1B	Threshold calculation
Specific target organ toxicity — repeated exposure, Category 2	Threshold calculation
Hazardous to the aquatic environment, Chronic, Category 2	Summation calculation

LEGEND

ADR/RID	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road / RID: Regulations concerning the international railway transport of dangerous goods
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor (BCF)
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CWA	Clean Water Act
EC	European Community
ECHA	European Chemicals Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EN	European Standard
EU	European Union
IARC	International Agency for Research on Cancer
ICAO/IATA	International Civil Aviation Organization / International Air Transport Association
IMDG	IMDG: International Maritime Dangerous Goods
LC50	Lethal concentration at which 50% of the population is killed
LD50	Lethal dose at which 50% of the population is killed
LTEL	Long term exposure limit
OECD	Organisation for Economic Cooperation and Development

OSHA	The Occupational Safety & Health Administration
STEL	Short term exposure limit
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average
UN	United Nations
UVCB	Unknown or Variable Composition

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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