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ACCORDING TO OSHA HCS (29 CFR 1910.1200)



SECTION 1: IDENTIFICATION

Product identifier Product name CAS No.

Other means of identification

Aromatic Concentrate 71-43-2

Benzene Concentrate. MSAT Product. Reformer Concentrate. Benzene/toluene Concentrate. Heart cut Concentrate.

Relevant identified uses of the substance or mixture and uses advised against Identified Use(s) Uses advised against

Refinery feedstock. Anything other than the above.

Details of the supplier of the safety data sheet Supplier

Telephone Fax E-mail (competent person)

Emergency telephone number Emergency Phone No. Vitol Inc. 2925 Richmond Ave, 11th Floor Houston, TX 77098 (713) 230-1000 713-230-1185 SDSHOU@vitol.com

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 Health hazards Flammable Liquid, Category 2 Aspiration hazard, Category 1 Skin Corrosion/Irritation, Category 2 Eye Irritation, Category 2A Germ cell mutagenicity, Category 1B Carcinogen, Category 1A Specific target organ toxicity — repeated exposure, Category 1 Hazardous to the aquatic environment, Acute, Category 2 Hazardous to the aquatic environment, Chronic, Category 3

Environmental hazards

Label elements

Hazard Pictogram(s)

Signal Word(s)

Hazard Statement(s)



DANGER

Highly flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause genetic defects. May cause cancer. Causes damage to organs through prolonged or repeated exposure. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

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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 exposed or concerned: Call a POISON CENTER/doctor. IF SWALLOWED: Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. 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: OS	HA HCS (29 CFR 1910.1200)			
	Chemical identity of the substance	%W/W	CAS No.	EC No.
	Benzene	15 - 65	71-43-2	200-753-7
Hazardous const	ituents			
	Chemical identity of the substance	%W/W	CAS No.	EC No.
	Toluene	15 - 30	108-88-3	203-625-9
	C5 - C9 Nonaromatic hydrocarbons	0 - 30	-	-
	Ethylbenzene	0 -10	100-41-4	202-849-4
	Xylene	0 -10	1330-20-7	905-215-1
	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.

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

Inhalation

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Skin contact	patient is not breathing but do not use mouth to mouth resuscitation. Get medical advice/attention if you feel unwell. 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: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention. If irritation persists, get medical 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.
Most important symptoms and effects, both acute and delayed Indication of any immediate medical attention and special treatment needed	May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. May cause genetic defects. May cause cancer. Treat symptomatically.

Notes to a physician:

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

Unsuitable extinguishing media Special hazards arising from the substance or mixture Extinguish with sand or dry chemical. Foam, Carbon dioxide, Water fog or dry powder

Do not use water jet. Direct water jet may spread the fire.

Highly 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

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Conditions for safe storage, including any



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.

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.

Stable at ambient temperatures.

Storage temperature Incompatible materials

incompatibilities

Keep away from oxidising agents and strong acids.

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/m ³)	Note
		0.1	0.32	1^	3.2	NIOSH
Benzene	71-43-2	1	-	5	-	OSHA
		0.5	-	2.5	-	ACGIH, A1
		100	375	150	560	NIOSH
Toluene	108-88-3	200	-	300	-	OSHA
		20	-	-	-	ACGIH, A4
		100	435	125*	545*	NIOSH
Ethylbenzene	100-41-4	100	435	-	-	OSHA
		20	-	-	-	ACGIH, A3
		100	435	150*	655	NIOSH
Xylene	1330-20-7	100	435	-	-	OSHA
		100	-	-	-	ACGIH, A4
	e 7783-06-4	-	-	10*	15*	NIOSH
Hydrogen Sulfide		-	-	20	-	OSHA
		1	-	5	-	ACGIH

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

^Ceiling limit value (15 min)

*NIOSH 15 minute average values

Sk - Can be absorbed through skin.

A1: Confirmed Human Carcinogen: The agent is carcinogenic to humans based on the weight of evidence from epidemiological studies.

A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histological type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiological studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

A4: Not Classifiable as a Human Carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of the lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

The other components listed in Section 3 do not have occupational exposure limits.

Biological exposure indicies

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Taluana	100.00.0	Toluene in blood	0.02 mg/l	Prior to last shift of workweek	-
Toluene	108-88-3	Toluene in urine	0.03 mg/l	End of shift	-

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		o-Cresol in urine with hydrolosis	0.3 mg/g creatinine	End of shift	В
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

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

Note:

B: Background

Nq: Nonquantitative

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. Avoid exposure during pregnancy.

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.

splashes.

Eye/ face protection



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%).

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

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 pro	perties
Appearance	Colorless to orange liquid
Odour	Aromatic
Odour threshold	Not available
рН	Not applicable
Melting point/freezing point	-94.7 °F (-70.41 °C)
Initial boiling point and boiling range	Not available.
Flash point	-40.0 °F (-40.0 °C) (closed cup)
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Upper limit: 8 %

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Vapour pressure Vapour density Relative density Solubility(ies) Partition coefficient: n-octanol/water Auto-ignition temperature Decomposition temperature Viscosity

Other information Specific Gravity Percent volatile

Not available. Not available. Very slightly soluble. Not available. Not available. Not available. Not available.

> 0.825 Essentially 100%

Lower limit: 1 %

4 psi at 38 °C (100 °F) (estimated)

SECTION 10: STABILITY AND REACTIVITY

Reactivity Chemical stability Possibility of hazardous reactions

Conditions to avoid

Incompatible materials Hazardous decomposition products Stable under normal conditions. Reacts with - Strong oxidising agents Stable under normal conditions. Hazardous polymerisation will not occur. Highly flammable liquid and vapour. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.

Elevated temperature. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from direct sunlight. Keep away from oxidising agents and strong acids.

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

Acute toxicity - Inhalation

Acute toxicity - Skin contact

Skin corrosion/irritation

Serious eye damage/irritation

Respiratory or skin sensitisation Germ cell mutagenicity

Carcinogenicity

Reproductive toxicity STOT - single exposure STOT - repeated exposure

Aspiration hazard

Information on likely routes of exposure Inhalation Ingestion Skin contact Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) >2,000 mg/kg. Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) > 5 mg/L (Vapour) Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) >2,000 mg/kg. Skin Corrosion/Irritation, Category 2: Causes skin irritation. Irritating to skin. (rabbit) (OECD 404) Eye Irritation, Category 2A: Causes serious eye irritation. EU Harmonised Classification Based upon the available data, the classification criteria are not met. Germ cell mutagenicity, Category 1B: May cause genetic defects. In vitro: negative (Zeiger E and Haworth S., 1985) In vivo: positive (OECD 474) Carcinogen, Category 1A: May cause cancer. EU Harmonised Classification LOAEL: 25 mg/kg/dw/day (rat) (EPA OPP 83-5) Based upon the available data, the classification criteria are not met. Based upon the available data, the classification criteria are not met. Specific target organ toxicity - repeated exposure, Category 1: Causes damage to organs through prolonged or repeated exposure. Oral: Chronic - LOAEL: 25 mg/kg/dw/day (rat) Inhalation: Chronic - NOAEC: 11.2mg/m³ Dermal: No data Aspiration hazard, Category 1: May be fatal if swallowed and enters airways. EU Harmonised Classification.

Possible – accidental exposure Possible – accidental exposure Possible – accidental exposure



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Eye contact	Unlikely – accidental exposure
Early onset symptoms related to exposure	May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation.
Delayed health effects from exposure	May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. Causes 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	Listed
NIOSH Occupational Carcinogen List	Listed
NTP Report on Carcinogens	Listed
IARC Monographs	Listed

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Hazardous to the aquatic environment, Acute, Category 2: Toxic to aquatic life. Hazardous to the aquatic environment, Chronic, Category 3: Harmful to aquatic life with long lasting effects. NOEC: 0.8 mg/L (32 days) (Fish) (ASTM 1984)

Substance is complex UVCB. Standard tests for this endpoint are intended for

Substance is complex UVCB. Standard tests for this endpoint are intended for

Substance is complex UVCB. Standard tests for this endpoint are intended for

single substances and are not appropriate for this complex substance

single substances and are not appropriate for this complex substance

single substances and are not appropriate for this complex substance

Persistence and degradability

Bioaccumulative potential

Mobility in soil

Other adverse effects

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

SECTION 14: TRANSPORT INFORMATION

UN number UN proper shipping name

Transport hazard class(es) Packing group Environmental hazards

Special precautions for user Transport in bulk according to Annex II of Marpol and the IBC Code Road/rail (ADR/RID) UN1268 PETROLEUM DISTILLATES, N.O.S. 3 I Environmentally hazardous substance See Section: 2 Not applicable

since they retain product residue.

None known.

Sea transport (IMDG) UN1268 PETROLEUM DISTILLATES, N.O.S. 3 I Classified as a Marine Pollutant. Air (ICAO/IATA) UN1268 PETROLEUM DISTILLATES, N.O.S. 3 I

Environmentally hazardous substance

SECTION 15: REGULATORY INFORMATION

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

US Federal Regulations

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TSCA Chemical Data Reporting (CDR) Rule NIOSH Occupational Carcinogen List EPCRA Section 313 CWA 307- Toxic CERCLA - Hazardous Substances CWA Section 311 List of Hazardous Substances	Listed Listed Listed (De Minimis limit: 0.1%) Listed Listed (RQ = 10 lbs) Listed
US State Regulations	
Proposition 65 (California)	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	3.0
Revision Date	14 April 2021
Date of First Issue	Not available. 2 ND 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 Existing ECHA registration for Benzene (CAS No. 71-43-2).

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200	Classification procedure
Flammable Liquid, Category 2	Flash point (°C) / Boiling Point (°C)
Aspiration hazard, Category 1	High percentage inclusion of components with Aspiration hazard
Skin Corrosion/Irritation, Category 2	Summation Calculation
Eye Irritation, Category 2	Threshold Calculation
Germ cell mutagenicity, Category 1B	Threshold Calculation
Carcinogen, Category 1A	Threshold Calculation
Specific target organ toxicity — repeated exposure, Category 1	Threshold Calculation
Hazardous to the aquatic environment, Acute, Category 2	Summation Calculation
Hazardous to the aquatic environment, Chronic, Category 3	Summation Calculation

Legend

Legenu	
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	CAS: Chemical Abstracts Service
EC	European Community
EN	European Standard
EU	European Union
IATA	International Air Transport Association
ICAO/IATA	ICAO: International Civil Aviation Organization / IATA: International Air Transport Association
IMDG	International Maritime Dangerous Goods
Koc	Soil Adsorption Coefficient
Kow	Partition coefficient: n-octanol/water

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TO OSHA HCS (20 CEP 1010 1200)



LC50	Lethal concentration 50
LD50	Lethal dose 50
LOAEL	Lowest dose adverse effect level
LTEL	Long Term Exposure Limit
NOAEC	No Observed Averse Effect concentration
NOAEL	No Observed Adverse Effect Level
OECD	Organisation for Economic Cooperation and Development
PBT	PBT: Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
(Q)SAR	Quantitative structure-activity relationship (QSAR)
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
UN	United Nations
vPvB	very Persistent and very Bioaccumulative

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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