# Weird Oils!

## Oil vs Petroleum vs Neither

*(specifically, in re SPCC and APSA)*

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**27th California Unified Program Annual Training Conference**
**March 24-27, 2025**

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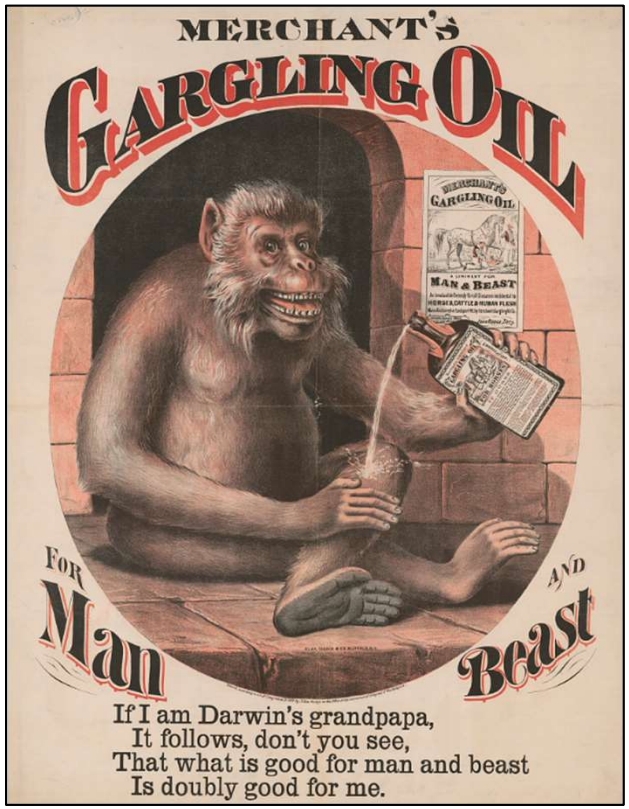
# Topics

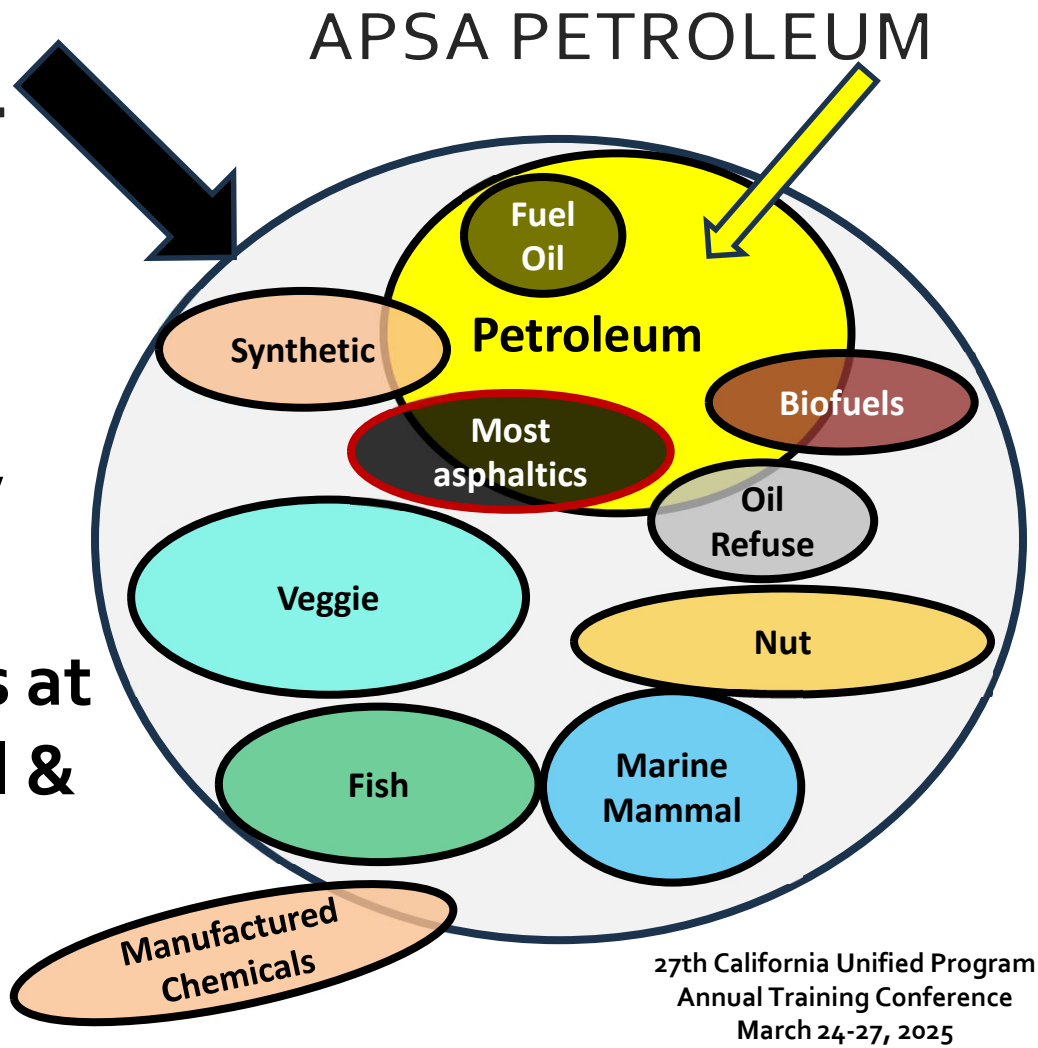
- Importance of the difference
- Federal definition of OIL
  - Definition and examples
  - Sheen rule
- APSA definition of PETROLEUM
  - Crude
  - Fractions
- Various examples… Petroleum or not??



# 'Weird' Oils?


- **Maybe not…weird; maybe just misunderstood**
  - **'Oil' vs 'Petroleum' vs neither**
  - **Statutory and regulatory definitions**
- **Not always an easy determination**
  - **May take some research and <u>still</u> be unclear**

- **Federal SPCC:**
  - Captures 'oil'
- **APSA**
  - Captures 'petroleum'
    - Unless specifically exempted (such as at upstream crude oil & gas production facilities)

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# Common Misunderstanding

- APSA and the SPCC rule agree on the definition of 'petroleum oil'. **Not true!**
- Under the SPCC rule, an oil that is a petroleum oil is not limited to the APSA definition (liquid at 60°F and 14.7 psi)


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# Why the Distinction Matters

- **Federal SPCC Plan applicability**
  - And US EPA SPCC inspector jurisdiction
- **APSA applicability**
  - And CUPA APSA inspector jurisdiction
- **Qualified Facility applicability**
- **Some spill reporting nuances**


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# OIL

- **Federal SPCC Rule & CWA**
  - 40 CFR 112.2 & CWA (33 USC § 1321) definitions
  - Per EPA: Intent is to define oils as broadly and comprehensively as possible
    - Consistent with intent to prevent, control and clean-up oil spilled into the aquatic environment
- **Regulates oil**
  - Of any kind or in any form: Animal, vegetable, fish, petroleum, etc.….liquid or sludge
  - Definition is a combo of common terms but tied to a performance standard

# OIL

- **CWA (aka FWPCA) Section 311(a)(1):**
  - **"oil"** means oil of *any kind* or in *any form*, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. (Emphasis added)
- **FWPCA statutory objective (§ 101(a)):**
  - To restore and maintain the chemical, physical and biological integrity of the Nation's water

# Definition vs the Sheen Rule

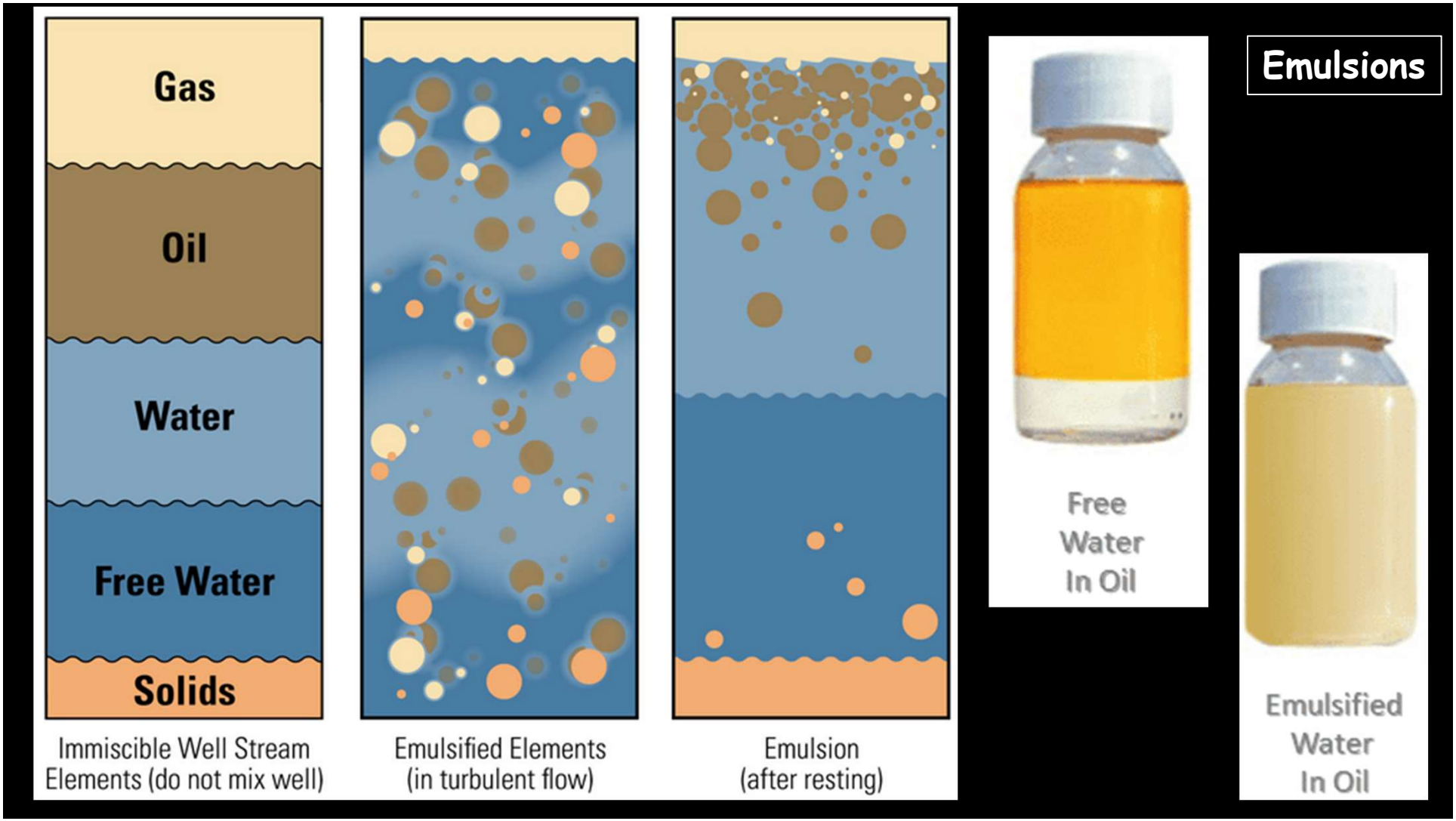
- **We'll discuss 'oil' next, but 'sheen'?**
- **CWA statutory objective (§ 101(a)):**
  - To restore and maintain the chemical, physical and biological integrity of the Nation's water.
- **CWA §311(b)(3) prohibits (unpermitted):**
  - The discharge of oil…(i) into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, or (ii) in connection with activities under the Outer Continental Shelf Lands Act…. *in such quantities as may be harmful*

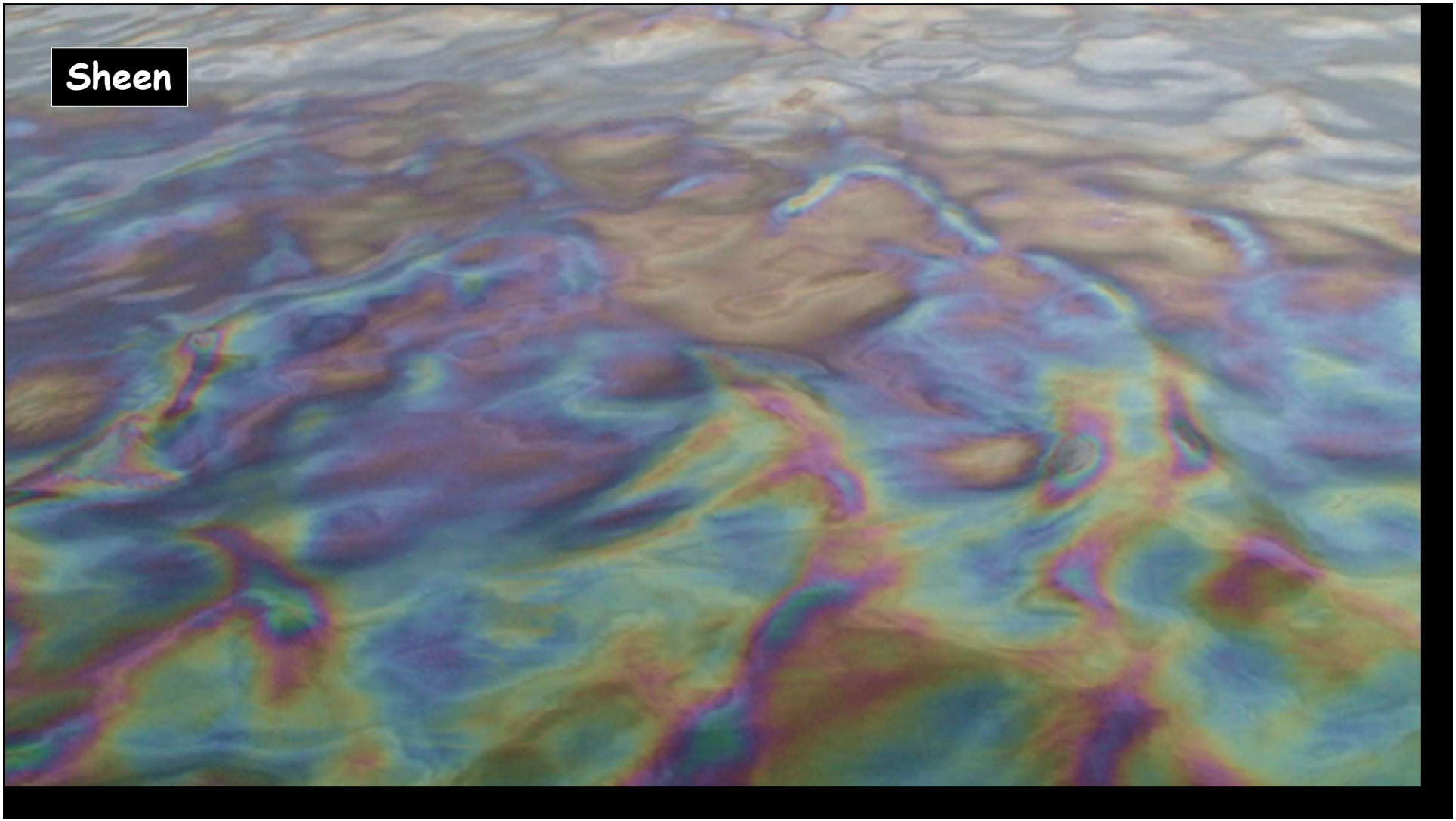
# What "May be Harmful" per §311(b)?

- **40 CFR 110.3**
  - ….discharges of oil in such quantities that the Administrator has determined may be harmful to the public health or welfare or the environment of the United States include discharges of oil that:

**(a) Violate applicable water quality standards; or**

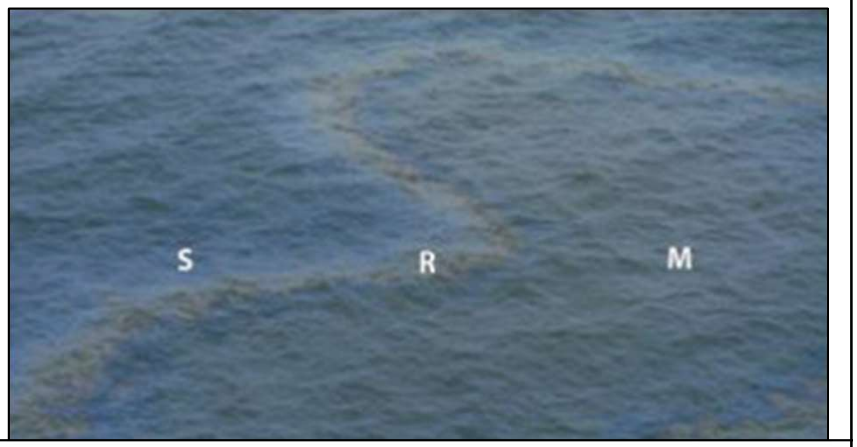
**(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.**





# But What IS a Sheen?

- Sheens are very thin layers (usually < 1 µ) of floating oil that may appear silver/grey (S; 0.07 µ ), rainbow (R; 0.15 µ ), or metallic (M; 1.0 µm) colored, depending on their thickness
- Sheens are formed by oil spreading and thinning after it's released at the water's surface
- Also can be from natural (e.g. fish, amphibians, etc.)




## Oil Sheen

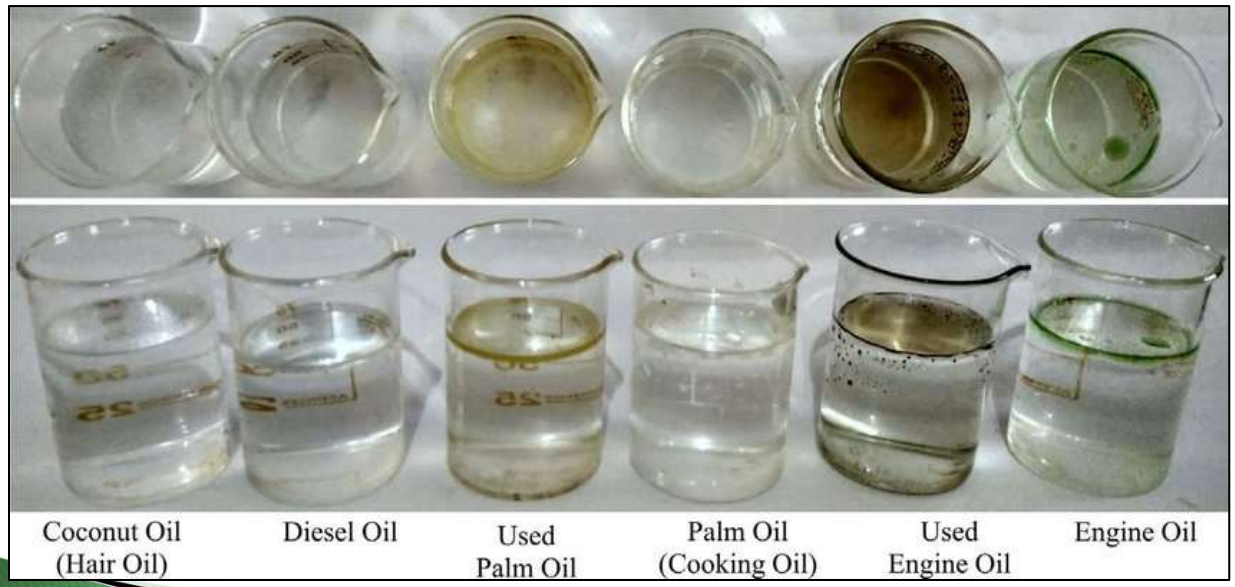
Oil sheen will break apart, but join back together quickly.

## Natural Sheen

Natural sheen will break apart and will stay separate.

# How Much Oil Can Make a Sheen?

- **Research has shown a sheen typically becomes visible at around 100 ppm of oil concentration in whatever is discharged**




- **Consider that when reviewing a SDS for 'oil' (<0.1%?) or when considering some wastewaters**

- **Recall: CWA Section 311(a)(1):**
  - "**oil**" means oil of ***any kind*** or in ***any form***, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil
- **40 CFR 112.2 Definition:**
  - "oil of any kind or in any form, including, but not limited to: fats, oils, or greases of animal, fish, or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and, other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil

OIL

# 'Oil' vs 'Hazardous Substance'?

- **Clean Water Act and other federal environmental Acts regulate differing lists, types or categories of materials (chemicals, substances, compounds, molecules, stuff, etc.)**
  - **Some are the same…some are different**
  - **Some are exclusive to a particular statute/reg… most are not (same chemical on multiple lists)**
    - **Many of these 'lists' were divvied up based on a number of factors including agency department workload**
- **'Hazardous Substances' are NOT 'Oils'**
  - **Regardless of the source**

# 'Hazardous Substance'?

- **The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) defines "hazardous substance" by reference to the following authorities:**
  - Clean Water Act (CWA) section 311 ("CWA Hazardous Substances"),
  - CWA section 307(a) ("CWA Toxic Pollutants"),
  - Clean Air Act (CAA) section 112 ("CAA Hazardous Air Pollutants (HAPs)"),
  - Resource Conservation and Recovery Act (RCRA) section 3001 ("RCRA Hazardous Wastes"), and
  - Emergency Planning & Community Right to Know (EPCRA) section 302.4 EPCRA "Hazardous Substances"

# 'Hazardous Substance' List o' Lists

## TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[ALL COMMENTS/NOTES ARE LOCATED AT THE END OF THE TABLE.]

| Hazardous substance | CASRN[I] | Statutory code[II] | RCRA waste No. | Final RQ [pounds (kg)] |
|---|---|---|---|---|
| A2213 | 30558-43-1 | 4 | U394 | 5000 (2270) |
| Acenaphthene | 83-32-9 | 2 | | 100 (45.4) |
| Acenaphthylene | 208-96-8 | 2 | | 5000 (2270) |
| Acetaldehyde | 75-07-0 | 1,3,4 | U001 | 1000 (454) |

# Lists of 'Hazardous Substances'

CERCLA

§ 302.4 Hazardous substances and reportabl

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

| | | | | | Final RQ [pounds (kg)] |
|---|---|---|---|---|---|
| F038—Petroleum re<br>(emulsified) oil/wat<br>sludge-Any sludge a<br>from the physical ar<br>separation of oil/wa<br>wastewaters and oil<br>from petroleum refi<br>include, but are not l | | | 4 | F038 | 1<br>(0.454) |
| K142—Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal | | | | | 5000<br>(2270) |
| K143—Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and | | | | | 100<br>(45.4) |
| Benzene[a] | 71-43-2 | 1,2,3,4 | U019 | | 10<br>(4.54) |
| impoundments, and | | | | | 5000<br>(454) |
| K144—Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal | 75-87-6 | 4 | U034 | | 5000<br>(2270) |
| | 60-35-5 | 3 | | | 100<br>(45.4) |
| | 591-08-2 | 4 | P002 | | 1000<br>(454) |

# Lists of 'Hazardous Substances'

**§ 116.1 Applicability.**

This regulation designates hazardous substances under section 311(b)(2)(A) of the Federal Water Pollution Control Act (the Act). The regulation applies to discharges of substances designated in Table 116.4.

**FWPCA**

| Common name | CAS No. | Synonyms | Isomers | CA |
|---|---|---|---|---|
| Benzene | 71432 | Cyclohexatriene, benzol | | |
| Acetaldehyde | 75070 | Ethanal, ethyl aldehyde, acetic aldehyde | | |
| Toluene | 108883 | Toluol, methylbenzene, phenylmethane, Methacide | | |
| Acetic anhydride | 108247 | Acetic oxide, acetyl oxide | | |
| Xylene (mixed) | 1330207 | Dimethylbenzene | m- | 108383 |
| | | Xylol | o- | 95476 |
| | | | p- | 106423 |
| | | aldehyde, acrylaldehyde, acraldehyde | | |

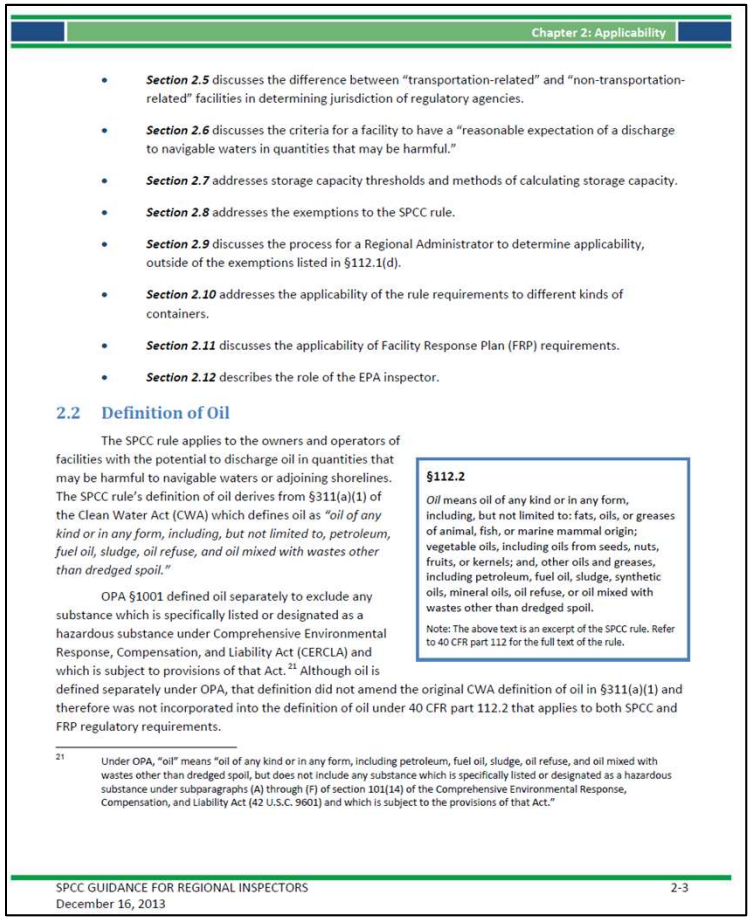
**These three are generated as part of the crude refining process, but are listed as hazardous substances...therefore are NOT 'oil'**

# Mixtures of Oil and Hazardous Substances?

- **Per the USEPA SPCC Inspector Guidance** (emphasis added and slightly edited):
  - Hazardous substances or hazardous wastes that are **neither** oils **nor mixed** with oils are not subject to SPCC rule requirements
  - For purposes of 40 CFR 112, the CWA §311(b)(2) hazardous substances as identified under 40 CFR 116 are not considered oils
    - However, **an oil mixture** that includes a CWA hazardous substance is subject to 40 CFR 112 when it meets the definition of oil in the regulation.
      - For example, benzene is a CWA hazardous substance and therefore does not meet the definition of oil in §112.2; however, benzene is a constituent of gasoline which is a mixture that includes other oils. Gasoline is an oil as defined under 40 CFR 112.2.

# US EPA Guidance for Regional Inspectors

- Chapter 2 SPCC Rule Applicability
  - Section 2.2
- Discussion and examples
  - Petroleum Oils and Non-Petroleum Oils
  - Synthetic Oils
  - Animal Fats and Vegetable Oils (AFVO)
  - Asphalt
  - Natural Gas and Condensate
  - Oil and Water Mixtures
  - Produced Water
  - Hazardous Substances and Hazardous Waste
  - Denatured Ethanol used in Renewable Fuels
  - Biodiesel and Biodiesel Blends



Chapter 2: Applicability

- ***Section 2.5*** discusses the difference between "transportation-related" and "non-transportation-related" facilities in determining jurisdiction of regulatory agencies.
- ***Section 2.6*** discusses the criteria for a facility to have a "reasonable expectation of a discharge to navigable waters in quantities that may be harmful."
- ***Section 2.7*** addresses storage capacity thresholds and methods of calculating storage capacity.
- ***Section 2.8*** addresses the exemptions to the SPCC rule.
- ***Section 2.9*** discusses the process for a Regional Administrator to determine applicability, outside of the exemptions listed in §112.1(d).
- ***Section 2.10*** addresses the applicability of the rule requirements to different kinds of containers.
- ***Section 2.11*** discusses the applicability of Facility Response Plan (FRP) requirements.
- ***Section 2.12*** describes the role of the EPA inspector.

## 2.2 Definition of Oil

The SPCC rule applies to the owners and operators of facilities with the potential to discharge oil in quantities that may be harmful to navigable waters or adjoining shorelines. The SPCC rule's definition of oil derives from §311(a)(1) of the Clean Water Act (CWA) which defines oil as *"oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil."*

**§112.2**

*Oil* means oil of any kind or in any form, including, but not limited to: fats, oils, or greases of animal, fish, or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and, other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil.

Note: The above text is an excerpt of the SPCC rule. Refer to 40 CFR part 112 for the full text of the rule.

OPA §1001 defined oil separately to exclude any substance which is specifically listed or designated as a hazardous substance under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and which is subject to provisions of that Act.[21] Although oil is defined separately under OPA, that definition did not amend the original CWA definition of oil in §311(a)(1) and therefore was not incorporated into the definition of oil under 40 CFR part 112.2 that applies to both SPCC and FRP regulatory requirements.

[21] Under OPA, "oil" means "oil of any kind or in any form, including petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil, but does not include any substance which is specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601) and which is subject to the provisions of that Act."

SPCC GUIDANCE FOR REGIONAL INSPECTORS 2-3
December 16, 2013

# US EPA Guidance for Regional Inspectors

### 2.2.1 Petroleum Oils and Non-Petroleum Oils

The SPCC rule applies to both petroleum oils and non-petroleum oils. Petroleum oils include, but are not limited to, crude and refined petroleum products, asphalt, gasoline, fuel oils, mineral oils, naphtha, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Nonpetroleum oils and greases include coal tar, creosote, silicon fluids, pine oil, turpentine, and tall oils. (67 FR 47075, July 17, 2002).

Subpart B of 40 CFR part 112 covers both "petroleum oils and non-petroleum oils…" Petroleum oils and non-petroleum oils, including synthetic oils, share common physical properties and produce similar environmental effects. Petroleum and non-petroleum oils can enter all parts of an aquatic system and adjacent shoreline, and similar methods of containment, removal and cleanup are used to reduce the harm created by spills of both types of oils.

### 2.2.2 Synthetic Oils

Synthetic oils are used in a wide range of applications, including as heat transfer fluids, engine fluids, hydraulic and transmission fluids, metalworking fluids, dielectric fluids, compressor lubricants, and turbine lubricants. Synthetic oils are created by chemical synthesis rather than by refining petroleum crude or extracting oil from plant seeds. Oils that are derived from plant material may be considered animal fats and vegetable oils under subpart C of 40 CFR part 112.

# US EPA Guidance for Regional Inspectors

and kernels.

Note: The above text is an excerpt of the SPCC rule. Refer to 40 CFR part 112 for the full text of the rule.

### 2.2.4 Asphalt

Asphalt is a thermoplastic material, composed of unsaturated aliphatic and aromatic compounds, that softens when heated and hardens upon cooling. Within a certain temperature range, it exhibits viscoelastic properties with viscous flow behavior and elastic deformation. All types of asphalt are petroleum oil products, and its composition depends on the source of the crude oil and the process used to manufacture it.

The SPCC rule applies to asphalt cement (AC), as well as to asphalt derivatives such as cutbacks and emulsions. Because of the operational conditions under which AC, cutbacks and emulsions are used and stored, they do pose a risk of being discharged into navigable waters or adjoining shorelines. Although AC) is semi-solid or solid at ambient temperature and pressure, it is generally stored at elevated temperatures. Hot AC is liquid—similar to other semi-solid oils, such as paraffin wax and heavy bunker fuels—and therefore is capable of flowing. Cutbacks and emulsions are liquid at ambient temperature, and because of their low viscosity, they may flow when discharged onto the ground. All of these oils are regulated under the SPCC rule to prevent discharges to navigable waters or adjoining shorelines.

However, hot-mix asphalt (HMA) and HMA containers are exempt from the SPCC rule. HMA is a blend of AC and aggregate material, such as stone, ground tires, sand, or gravel, which is formed into final paving products for use on roads and parking lots. HMA is unlikely to flow as a result of the entrained aggregate, such that there would be very few circumstances, if any, in which a discharge of HMA would have the potential to reach navigable waters or adjoining shorelines.

### 2.2.5 Natural Gas and Condensate

The SPCC rule does not apply to natural gas (including liquid natural gas and liquid petroleum gas). EPA does not consider highly volatile liquids that volatilize on contact with air or water, such as liquid natural gas or liquid petroleum gas, to be oil (67 FR 47076, July 17, 2002). Furthermore, EPA has stated that hydrocarbons in a

# US EPA Guidance for Regional Inspectors

gaseous phase under ambient pressure and temperature, such as natural gas, present at SPCC regulated facilities are not regulated under the SPCC rule (73 FR 74271, December 5, 2008).

However, natural gas liquid condensate (often referred to as "natural gasoline" or "drip gas") is an oil subject to the SPCC rule. Condensate can accumulate in tanks, containers, or other equipment. For the purposes of determining SPCC applicability, containers with 55 gallons or more in capacity storing condensate must be included in a natural gas facility's total oil storage capacity calculation.

More information on specific types of facilities handling both natural gas and oil and how they are regulated under the SPCC rule can be found in *Section 2.4.7*.

### 2.2.6 Oil and Water Mixtures

Oil and water mixture containers are subject to the SPCC rule. A mixture of wastewater and oil is "oil" under the statutory and regulatory definition of the term (33 U.S.C. 1321(a)(1) and 40 CFR 110.2 and 112.2). A discharge of wastewater containing oil to navigable waters or adjoining shorelines in a "harmful quantity" (40 CFR part 110) is prohibited (see July 17, 2002, 67 FR 47069). One example of an oil and water mixture is produced water.

### 2.2.7 Produced Water

The SPCC rule applies to produced water from an oil well. Produced water is the oil and water mixture resulting from the separation of crude oil or gas from the fluids or gases extracted from the oil/gas reservoir, prior to disposal, subsequent use (e.g., re-injection or beneficial reuse), or further treatment. Produced water's chemical and physical characteristics vary considerably depending on the geologic formation, usually being commingled with oil and gas at the wellhead, and changing in composition as the oil or natural gas fraction is separated and sent to market.

**§112.2**

*Produced water container* means a storage container at an oil production facility used to store the produced water after initial oil/water separation, and prior to reinjection, beneficial reuse, discharge, or transfer for disposal.

Note: The above text is an excerpt of the SPCC rule. Refer to 40 CFR part 112 for the full text of the rule.

# U.S. Coast Guard

- USCG maintains a separate list of substances it considers oil for its regulatory purposes
- List available on USCG web site
- May be used <u>as a guide</u> when determining if a particular substance is an oil
  - For purposes of EPA's regulations, the USCG list is not comprehensive and does not include all oils that are subject to 40 CFR part 112

## List of Petroleum and Non-petroleum Oils

This list of oils is organized alphabetically into several subgroups. Crude oil and refined petroleum products are among the most familiar types of oils. Petroleum and fuel oil are specifically named in the Clean Water Act (CWA) definition of oil. Edible animal and vegetable oils and other oils of animal or vegetable origin have historically been considered CWA oils. Other non-petroleum oils are substances that have the properties and behavior of traditional oils and have historically been considered to be oils. Lube-oil additives are included in the list of oils because they may be shipped or stored in an oil medium. Some substances that have not been considered oils historically may be added to this list in the future if they are determined to have oil-like characteristics. If you have a question about whether a commodity that does not appear on this list is regulated as an oil, please call **Mr. Patrick Keffler, CG-ENG-5, at (202) 372-1424**.

Crude Oil and Refined Petroleum Products

- Alkanes (C6-C9)
- n-Alkanes (C10+)
- iso- & cyclo-Alkanes (C10-C11)
- Alkylbenzenes (C9+)

Crude Oil and Refined Petroleum Products

- Alkanes (C6-C9)
- n-Alkanes (C10+)
- iso- & cyclo-Alkanes (C10-C11)
- Alkylbenzenes (C9+)
- Alkylbenzene, Alkylindane, Alkylindene mixture (each C12-C17)
- Asphalt
- Asphalt: cutback
- Asphalt: emulsion
- Asphalt blending stocks: Roofers flux
- Asphalt blending stocks: Straight run residue
- Aviation alkylates
- Cobalt naphthenate in Solvent naphtha
- p-Cymene
- Diisopropyl naphthalene
- Distillates: Flashed feed stocks
- Distillates: Straight run
- Ethyl cyclohexane
- Gas oil: Cracked
- Gasoline: Automotive (not over 4.23g Pb/gal)
- Gasoline: Aviation (not over 4.86g Pb/gal)
- Gasoline: Casinghead (natural)
- Gasoline: Polymer
- Gasoline: Straight run
- Gasoline blending stocks: Alkylates
- Gasoline blending stocks: Reformates
- Heptane (all isomers)
- Heptene (all isomers)
- Hexane (all isomers)
- Hexene (all isomers)
- Jet fuel: Jet A-1
- Jet fuel: Jet A
- Jet fuel: Jet B
- Jet fuel: JP-4
- Jet fuel: JP-5 (Kerosene, heavy)
- Jet fuel: JP-8
- Kerosene
- Methylcyclohexane
- Mineral spirits
- Naphtha: Heavy
- Naphtha: Paraffinic
- Naphtha: Petroleum
- Naphtha: Solvent
- Naphtha: Stoddard solvent
- Naphtha: VM & P (75% Naphtha)
- Nonane (all isomers)
- Nonylbenzene
- Octane (all isomers)
- Oil, fuel: No. 1
- Oil, fuel: No. 1-D
- Oil, fuel: No. 2
- Oil, fuel: No. 2-D
- Oil, fuel: No. 4
- Oil, fuel: No. 5
- Oil, fuel: No. 6
- Oil, misc: Aliphatic
- Oil, misc: Aromatic
- Oil, misc: Clarified
- Oil, misc: Coal
- Oil, misc: Crude
- Oil, misc: Diesel
- Oil, misc: Gas, low pour
- Oil, misc: Gas, low sulfur
- Oil, misc: Heartcut distillate
- Oil, misc: Lubricating
- Oil, misc: Mineral
- Oil, misc: Mineral seal
- Oil, misc: Motor
- Oil, misc: Penetrating
- Oil, misc: Residual
- Oil, misc: Road
- Oil, misc: Seal
- Oil, misc: Spindle
- Oil, misc: Transformer
- Oil, misc: Turbine
- Olefin mixtures (C5-C7)
- alpha-Olefins (C6-C18) mixtures
- Olefins (C13+)
- Pentene (all isomers)
- 1-Phenyl-1-xylyl ethane
- iso-Propylcyclohexane
- Tetrahydronaphthalene
- White spirit (low (15-20%) aromatic)

Edible Animal and Vegetable Oils

- Oil, edible: Beechnut
- Oil, edible: Castor
- Oil, edible: Cocoa butter
- Oil, edible: Coconut
- Oil, edible: Cod liver
- Oil, edible: Corn (maize)
- Oil, edible: Cottonseed
- Oil, edible: Fish
- Oil, edible: Groundnut
- Oil, edible: Hazelnut
- Oil, edible: Lard
- Oil, edible: Nutmeg butter
- Oil, edible: Olive
- Oil, edible: Palm
- Oil, edible: Palm kernel
- Oil, edible: Peanut
- Oil, edible: Peel
- Oil, edible: Poppy
- Oil, edible: Poppy seed
- Oil, edible: Raisin seed
- Oil, edible: Rapeseed
- Oil, edible: Rice bran
- Oil, edible: Safflower
- Oil, edible: Salad
- Oil, edible: Sesame
- Oil, edible: Soya bean
- Oil, edible: Sunflower seed
- Oil, edible: Tucum
- Oil, edible: Vegetable
- Oil, edible: Walnut

Other Oils of Animal or Vegetable Origin

- Animal and Fish oils, n. o. s.
- Animal and fish acids oils and distillates, n. o. s.
- Camphor oil
- Cashew nut shell oil (untreated)
- Creosote (wood)

- Fatty acid (saturated, C13+)
- Fatty acid amides
- Oil, misc: Animal
- Oil, misc: Coconut, fatty acid methyl ester
- Oil, misc: Coconut oil, fatty acid
- Oil, misc: Cottonseed oil, fatty acid
- Oil, misc: Lanolin
- Oil, misc: Linseed
- Oil, misc: Neatsfoot
- Oil, misc: Oiticica
- Oil, misc: Palm oil, fatty acid methyl ester
- Oil, misc: Perilla
- Oil, misc: Pilchard
- Oil, misc: Pine
- Oil, misc: Rosin
- Oil, misc: Soapstock
- Oil, misc: Soybean (epoxidized)
- Oil, misc: Sperm
- Oil, misc: Tall
- Oil, misc: Tall, fatty acid
- Oil, misc: Tallow
- Oil, misc: Tung
- Oil, misc: Whale
- Palm kernel acid oil
- Palm kernel acid oil, methyl ester
- Palm Olein
- Palm Stearin
- Palm Fatty Acid Distillate
- Tallow fatty acid
- Tallow nitrile
- Turpentine
- Vegetable acid oils and distillates, n. o. s.
- Vegetable oils, n. o. s.

Other Non-Petroleum Oils

- Anthracene oil (Coal tar fraction)
- Coal tar
- Coal tar pitch (molten)
- Creosote (Coal tar)
- Naphtha: Coal tar solvent
- Polydimethylsiloxane

Lube-Oil Additives

- Alkaryl polyether (C9-C20)
- Alkenyl (C11+) amide
- Alkyl (C8+) amine, alkenyl (C12+) acid ester mixture
- Alkyl (C11-C17) benzene sulfonic acid
- Alkylbenzene sulfonic acid, sodium salt solution
- Alkyl dithiothiadiazole (C6-C24)
- Alkyl (C8-C40) phenol sulfide
- Alkyl (C8-C9) phenylamine in aromatic solvents
- Alkyl (C10-C20), saturated and unsaturated) phosphite
- Aryl polyolefin (C11-C50)
- Calcium alkyl (C9) phenol sulfide, polyolefin phosphorosulfide mixture
- Calcium long chain alkaryl sulfonate (C11-C50)
- Calcium long chain alkyl (C5-C10) phenate
- Calcium long chain alkyl (C11-C40) phenate
- Calcium long chain alkyl phenate sulfide (C8-C40)
- Calcium long chain alkyl salicylate (C13+)
- Calcium long chain alkyl phenolic amine (C8-C40)
- Chlorinated paraffins (C18+) with any level of chlorine
- Dialkyl (C8-C9) diphenylamines
- Dibutyl hydrogen phosphonate
- Diphenylamine, reaction product with 2, 2, 4-Trimethylpentene
- Diphenylamines, alkylated
- Dodecyl hydroxypropyl sulfide
- Glycerol monooleate
- Long chain alkaryl polyether (C11-C20)
- Long chain alkaryl sulfonic acid (C16-C60)
- Long chain alkylphenate/Phenol sulfide mixture
- Magnesium long chain alkaryl sulfonate (C11-C50)
- Magnesium long chain alkyl salicylate (C11+)
- Olefin/Alkyl ester copolymer (molecular weight 2000+)
- Oleylamine
- Phosphate esters, alkyl (C12-C14) amine
- Polyalkyl (C10-C20) methacrylate
- Polyether (molecular weight 2000+)
- Polyether, borated
- Polyisobutenyl anhydride adduct
- Polyolefin (molecular weight 300+)
- Polyolefin amide alkeneamine (C28+)
- Polyolefin amide alkeneamine borate (C28-C250)
- Polyolefin amide alkeneamine molybdenum oxysulfide mixture
- Polyolefin amide alkeneamine polyol
- Polyolefinamine (C28-C250)
- Polyolefinamine in alkyl (C2-C4) benzenes
- Polyolefin aminoester salt
- Polyolefin anydride
- Polyolefin ester (C28-C250)
- Polyolefin phenolic amine (C28-C250)
- Polyolefin phosphorosulfide – Barium derivative (C28-C250)
- Sodium petroleum sulfonate
- Sulfohydrocarbon (C3-C88)
- Sulfohydrocarbon, long chain (C18+_ alkylamine mixture
- Sulfurized fat (C14-C20)
- Sulfurized polyolefinamide alkene (C28-C250) amine
- Tall oil fatty acid, barium salts
- Zinc alkaryl dithiophosphate (C7-C16)
- Zinc alkyl dithiophosphate (C3-C14)

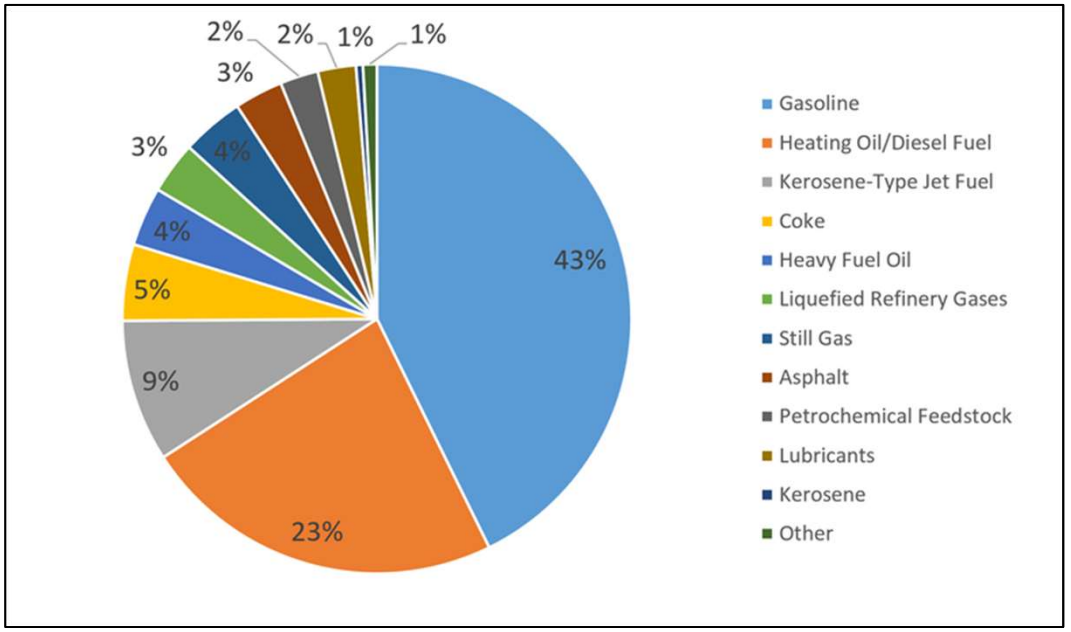
# APSA-Regulated Tank Facilities

PETROLEUM

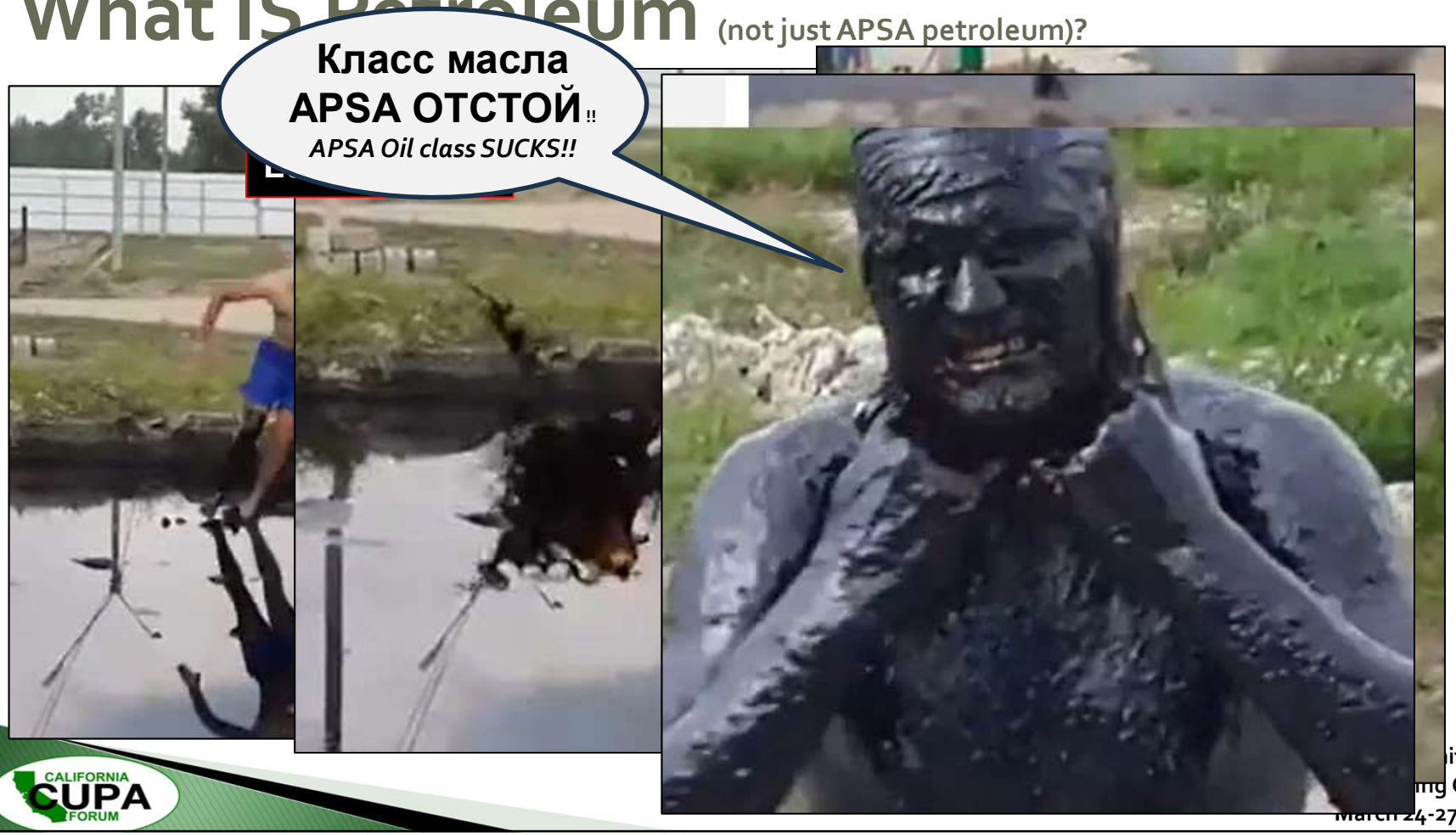
- HSC 25270.3 establishes tank facility applicability based on total **petroleum** storage capacity in aboveground storage tank (AST) or containers with 55 gallons or more capacity:
  - For ASTs or tank facilities not excluded per HSC 25270.2 (a) (1)-(8)
  - The tank facility is APSA regulated if:
    - Tank facility is subject to the Federal SPCC rule, OR
    - Total **petroleum** capacity is 1,320 gallons or more, OR
    - Less than 1,320 gallons total **petroleum** capacity, but has one or more tanks in an underground area (TIUGA) meeting HSC 25270.2 (o) (1) conditions, excluding TIUGAs per HSC 25270.3 (c)(3)

# What is APSA Petroleum?

- **HSC 25270.2 (h) Petroleum means:**
  - Physical state is liquid at normal sea level atmospheric pressure (14.7 pounds per square inch absolute, psi) and 60 degrees Fahrenheit (60°F) temperature
  - Derived from crude oil or fraction of crude oil
- Fraction refers to other petroleum products refined (converted) from crude oil utilizing chemical processes such as fractional distillation, catalytic cracking, alkylation, reforming, etc.



# What IS Petroleum (not just APSA petroleum)?

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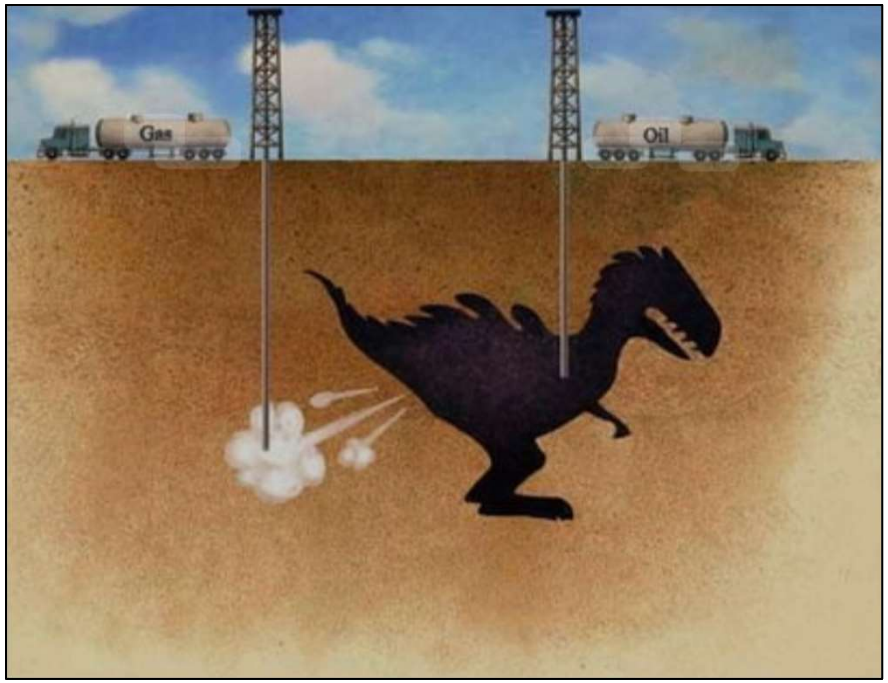
# What IS Petroleum?

- **Common definition vs APSA definition**
  - **APSA is narrower**
- **From Latin: 'petra' (rock or stone) + 'oleum' (oil)**
- Fossil fuel?
  - Term first used in 1859 by German chemist Caspar Neumann
  - Term includes crude oils, natural gas, coal

# Crude Oil

- Coal and gas can't be an APSA petroleum…
  Right?
- Crude Source?
  - **Dinosaurs…?**
  - **Plants…?**
  - **Algae, plankton, diatoms…?**



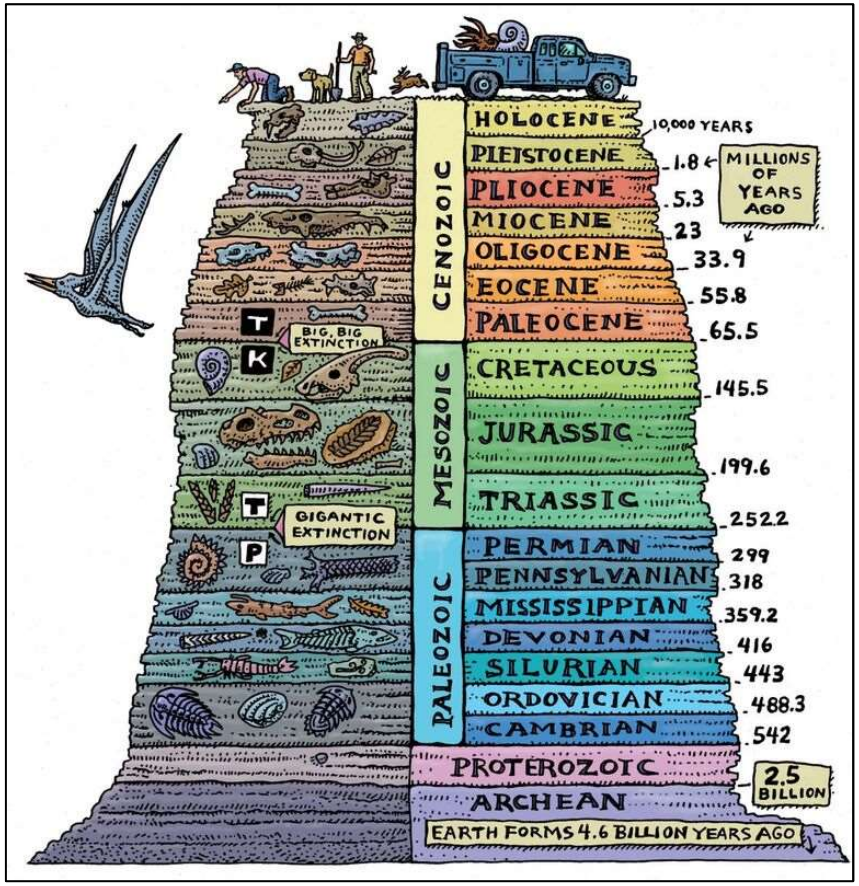

- Mostly marine…includes marine aquatic plants and marine animals

# Dinos➡Fossils➡Fossil Fuel?

- Started after discovery of lots Mesozoic Era fossils in the same areas that crude deposits were discovered
- Use of dinosaurs as Sinclair Oil's marketing
  - And 1933 Chicago and 1964-1965 NY Worlds Fair exhibits

# Crude?

- **Needs a looooooong time with heat, compression, rock trap, and a lack of oxygen**
- **Hydrocarbons of various chain lengths and structures**
  - **Paraffins, naphthene, aromatics**
    - **May be 'light' or 'heavy'**
    - **May be 'sweet' or 'sour'**

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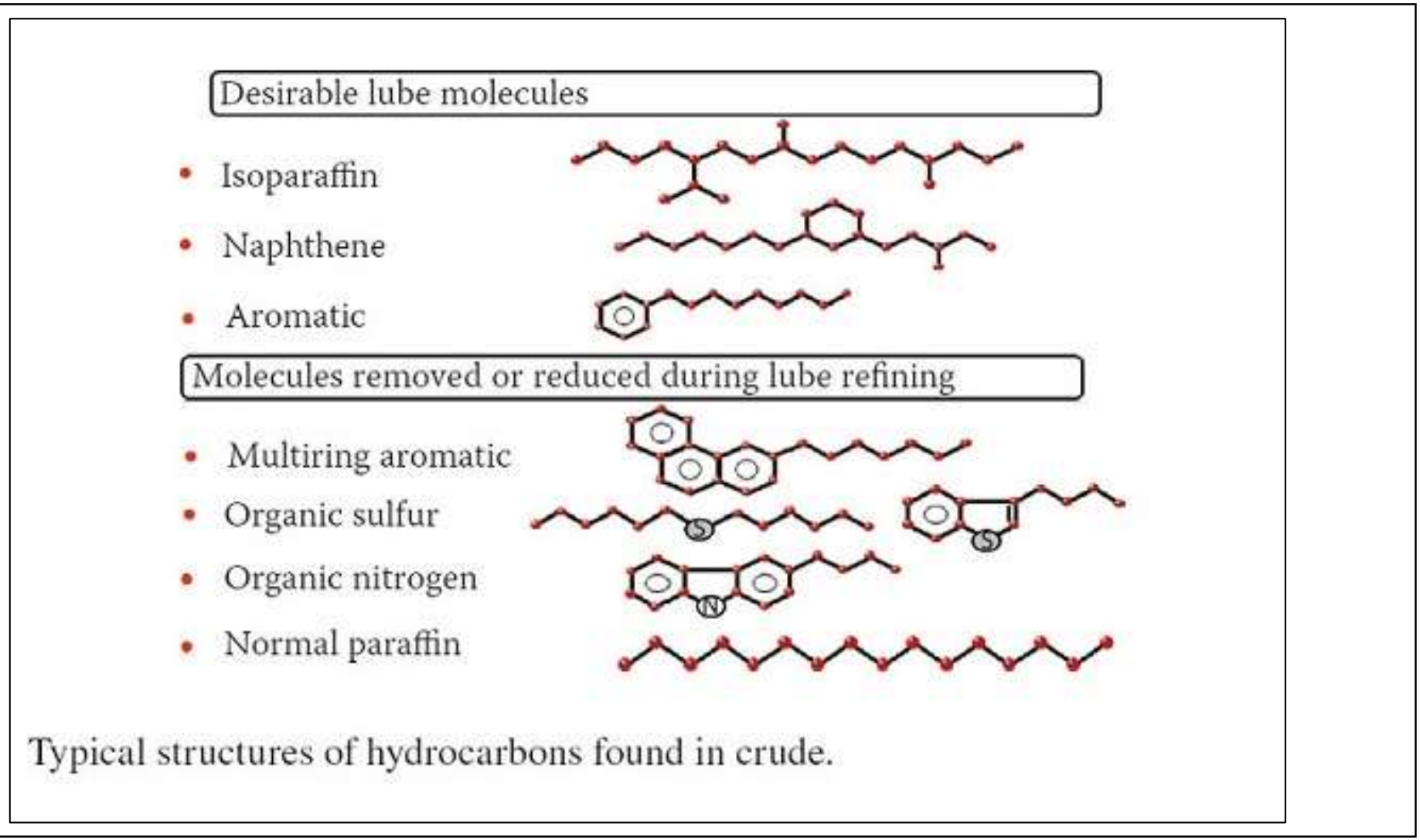
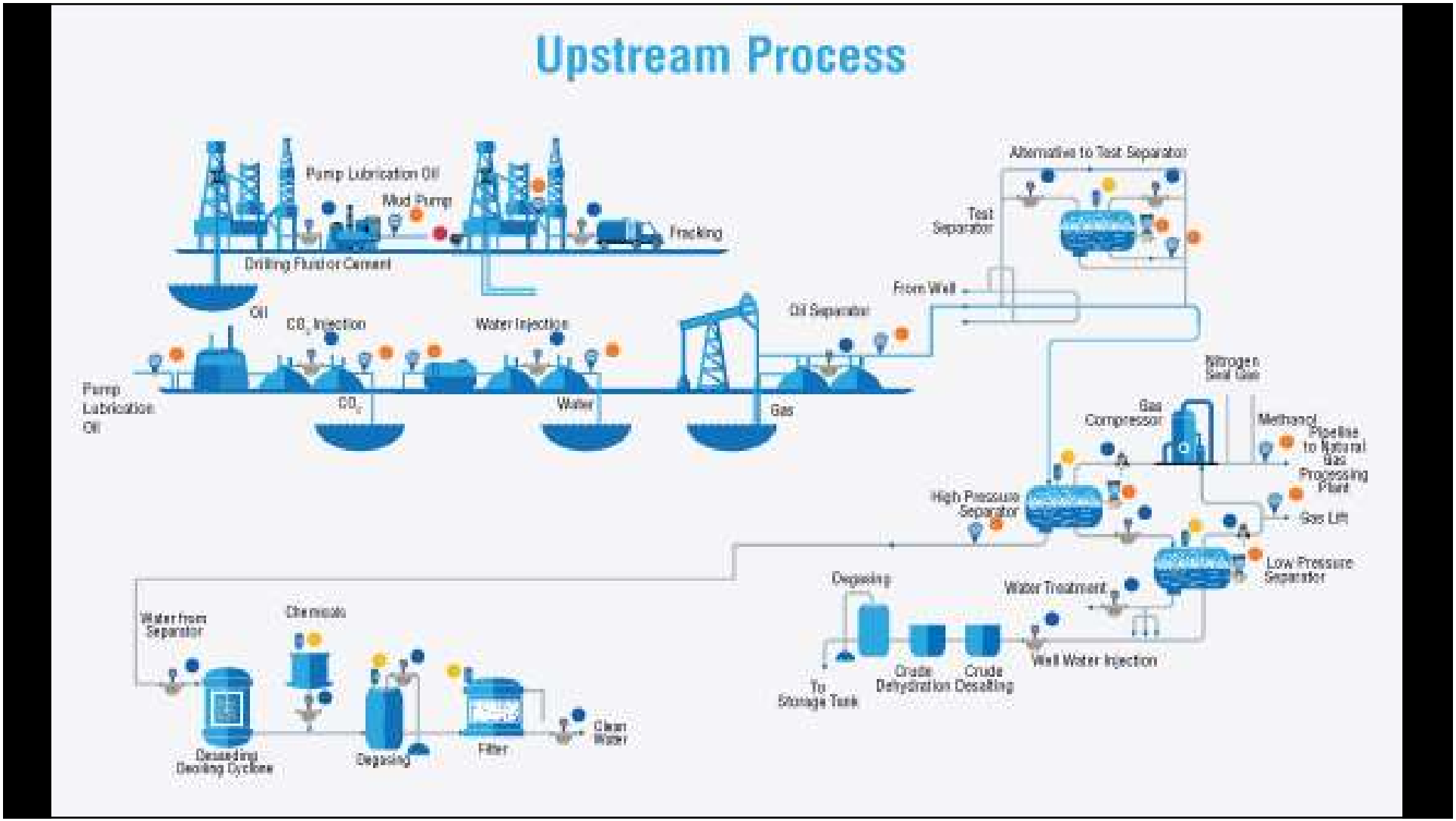
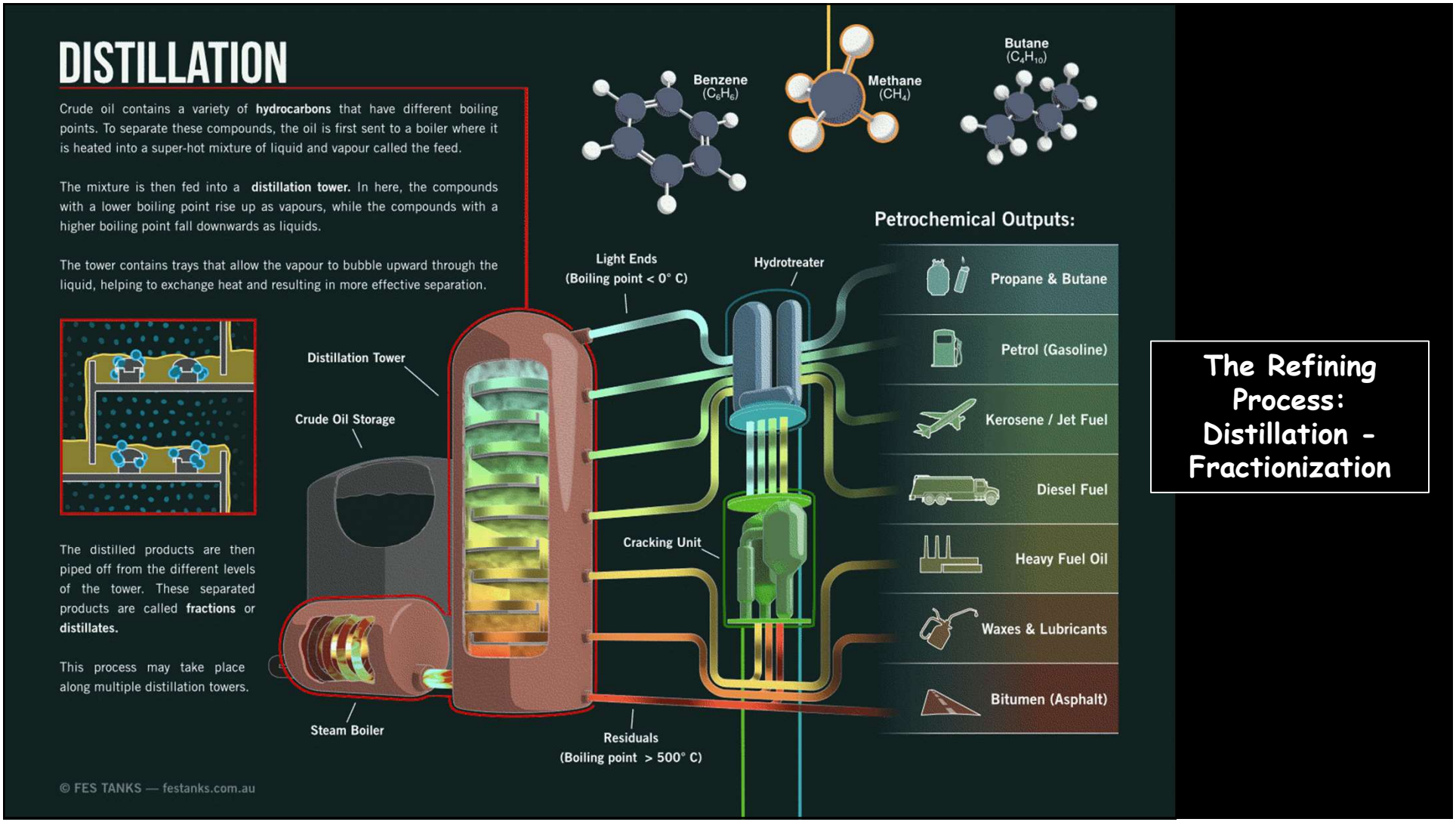



Typical structures of hydrocarbons found in crude.






**The Refining Process: Distillation - Fractionization**

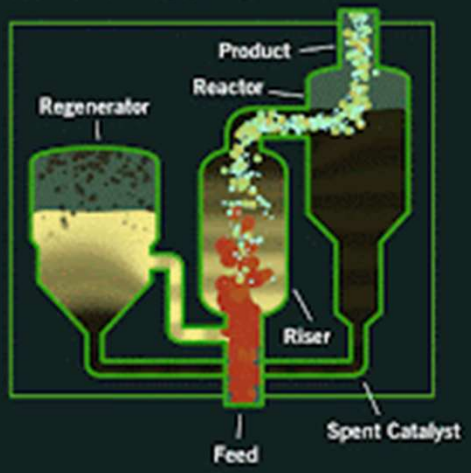
**Associated processes include:**

# CRACKING

Heavy, high-boiling fractions, composed of larger hydrocarbon molecules, are often less desirable than the lighter fractions composed of smaller molecules. For this reason, some of the heavier fractions are sent to **cracking units** that break down the hydrocarbons into smaller components.

One widely-used method, known as **Fluidized Catalytic Cracking** (FCC), works by exposing the oil to extreme heat and a finely powdered catalyst, which breaks apart the molecules.

The heated feed and catalyst are combined in the riser. The reactor then separates the catalyst from the newly cracked product, which may be sent back for re-distillation. Meanwhile, the catalyst is cleaned and recycled in the regenerator.




# HYDROTREATING


The distilled product may still contain undesirable elements, the most important of which is **sulfur.** Fuels containing sulfur, when burned, produce pungent sulfur dioxide.

**Hydrotreating** removes sulfur by exposing the product to hydrogen gas as well as extreme heat and a catalyst. The hydrogen atoms bond with the sulfur, converting it into **hydrogen sulfide**. This hydrogen sulphide gas can then be removed via re-distillation.

In this example, the organosulfur compound **propanethiol** ($C_3H_8S$) is being converted into cleaner-burning **propane** ($C_3H_8$).

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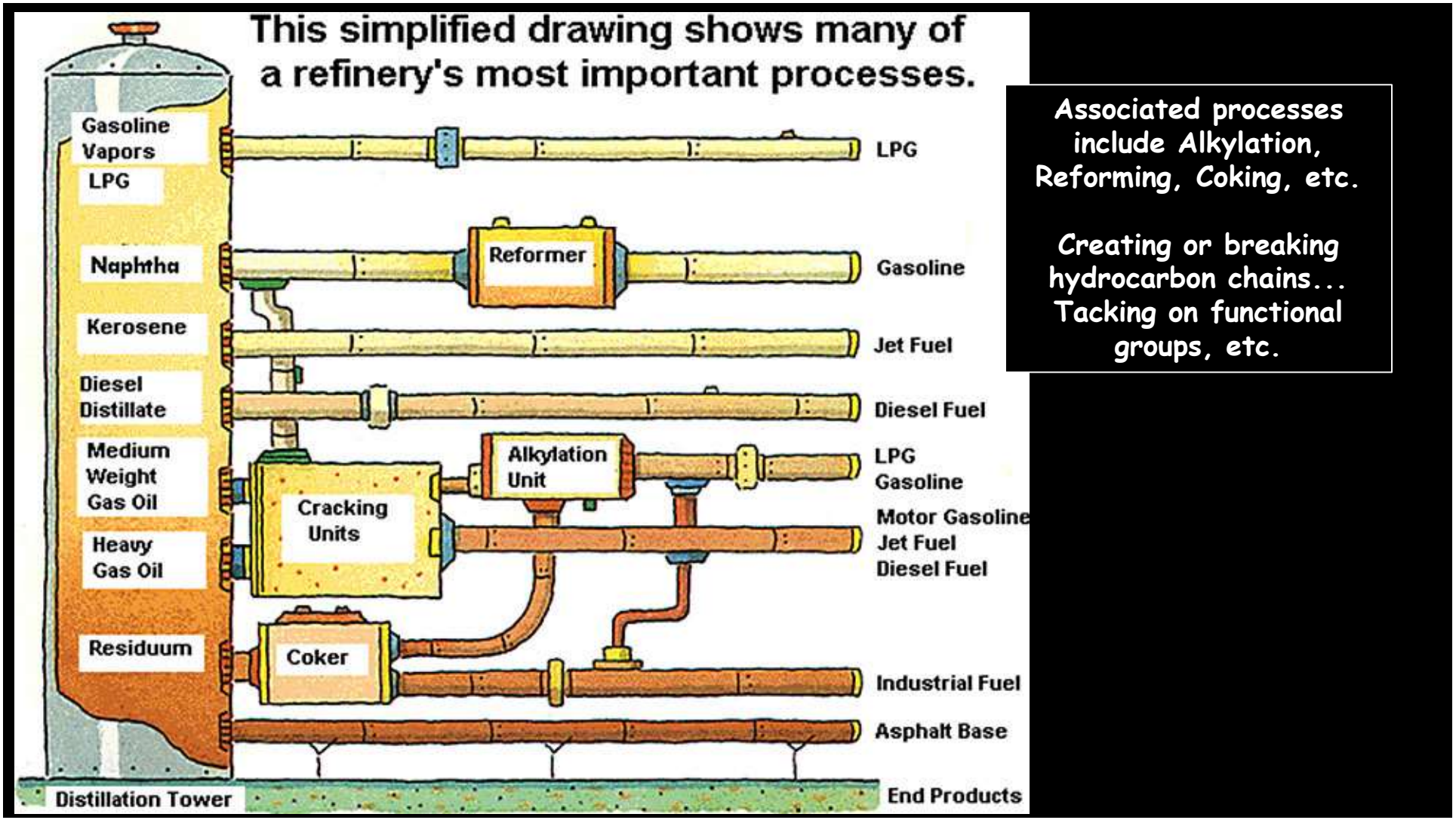
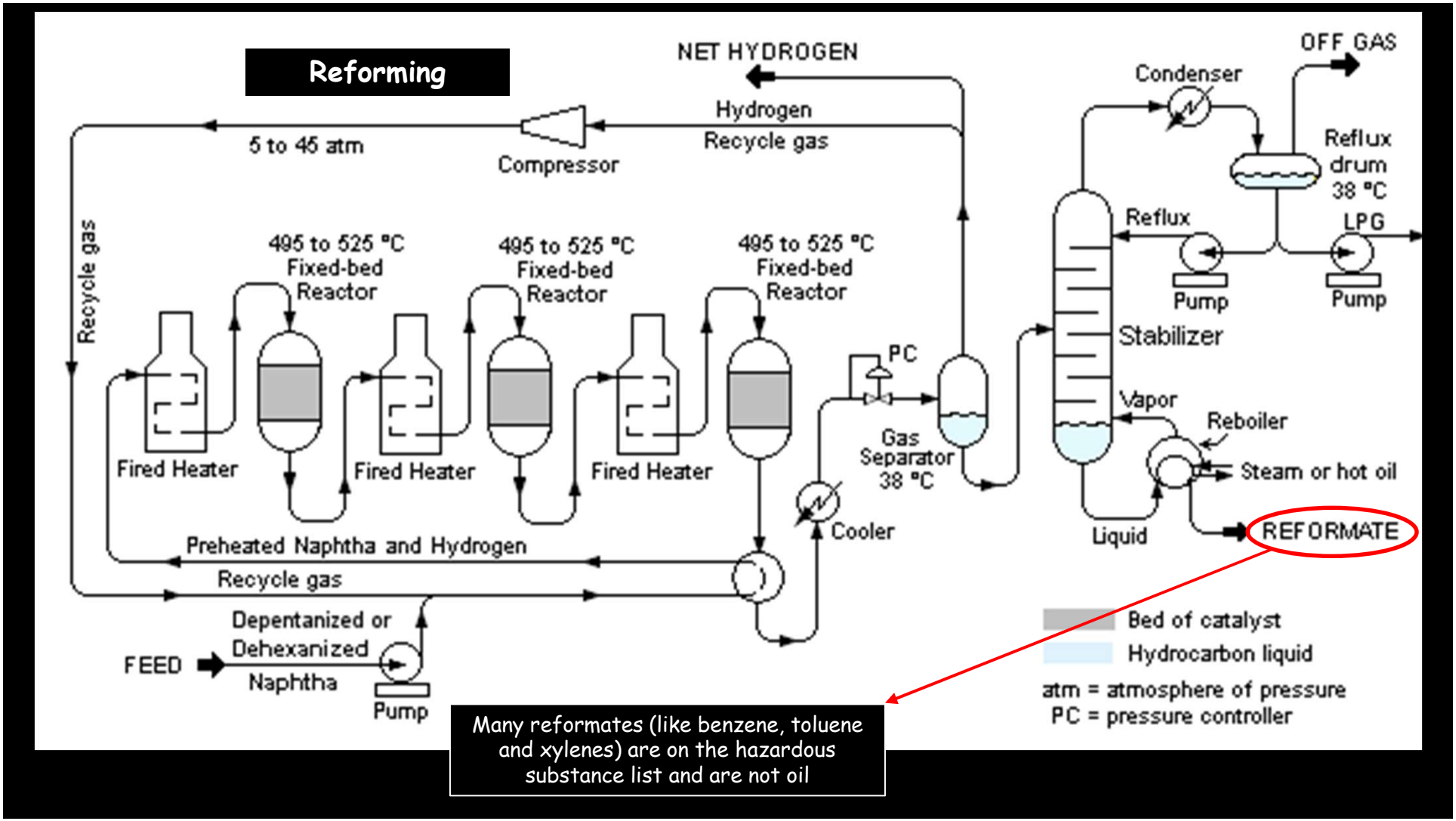
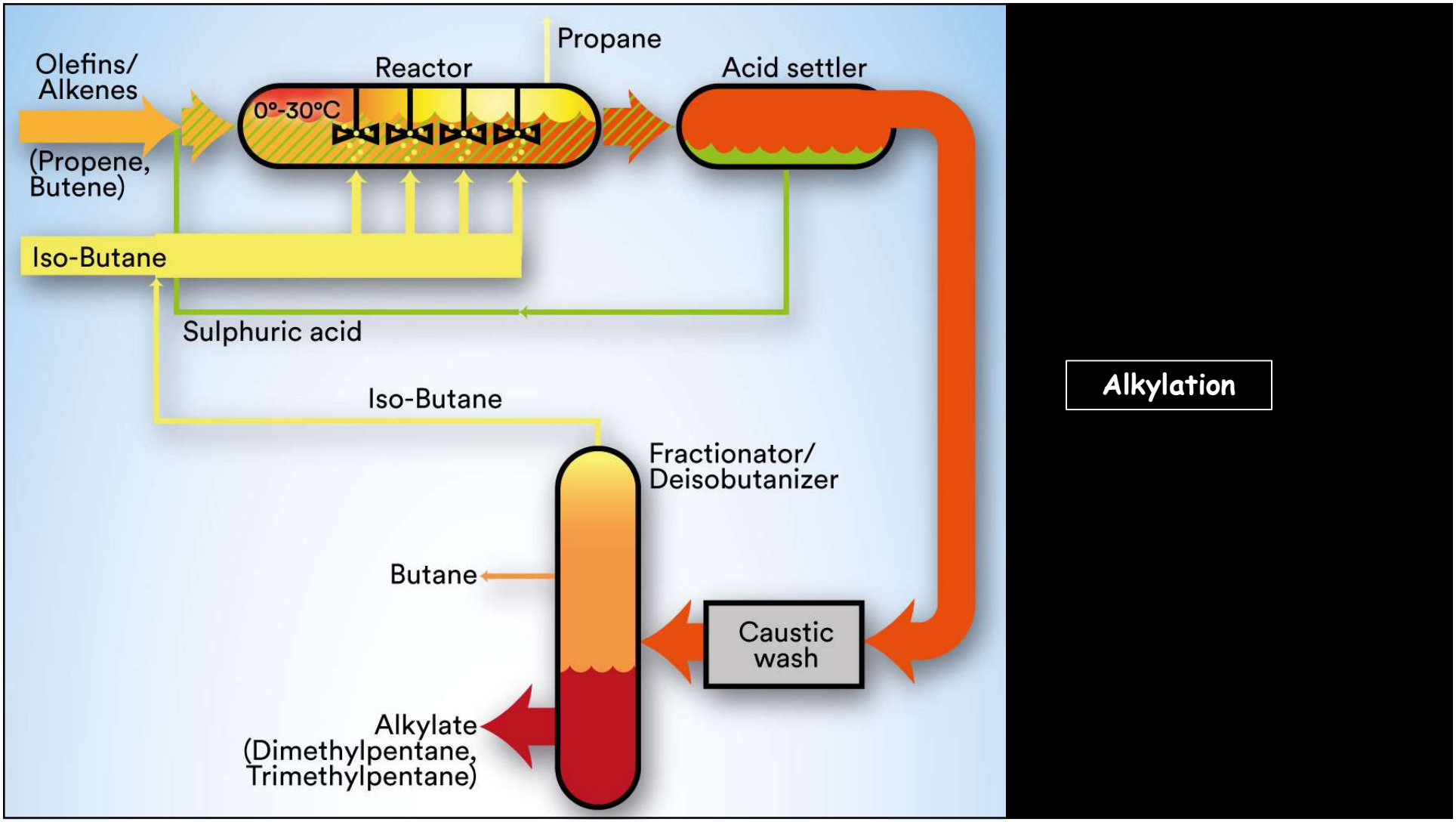


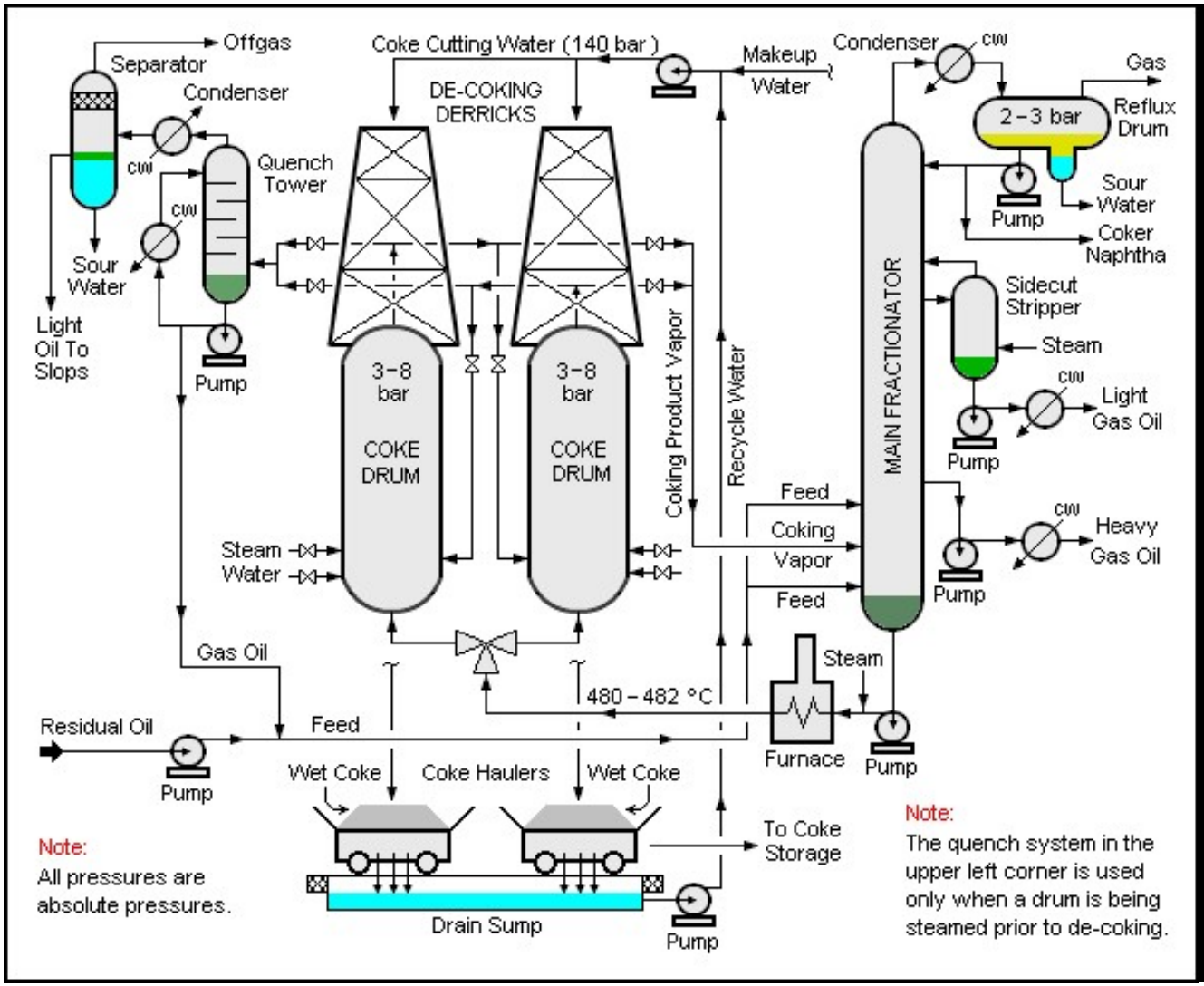

**Associated processes include Alkylation, Reforming, Coking, etc.**

**Creating or breaking hydrocarbon chains... Tacking on functional groups, etc.**



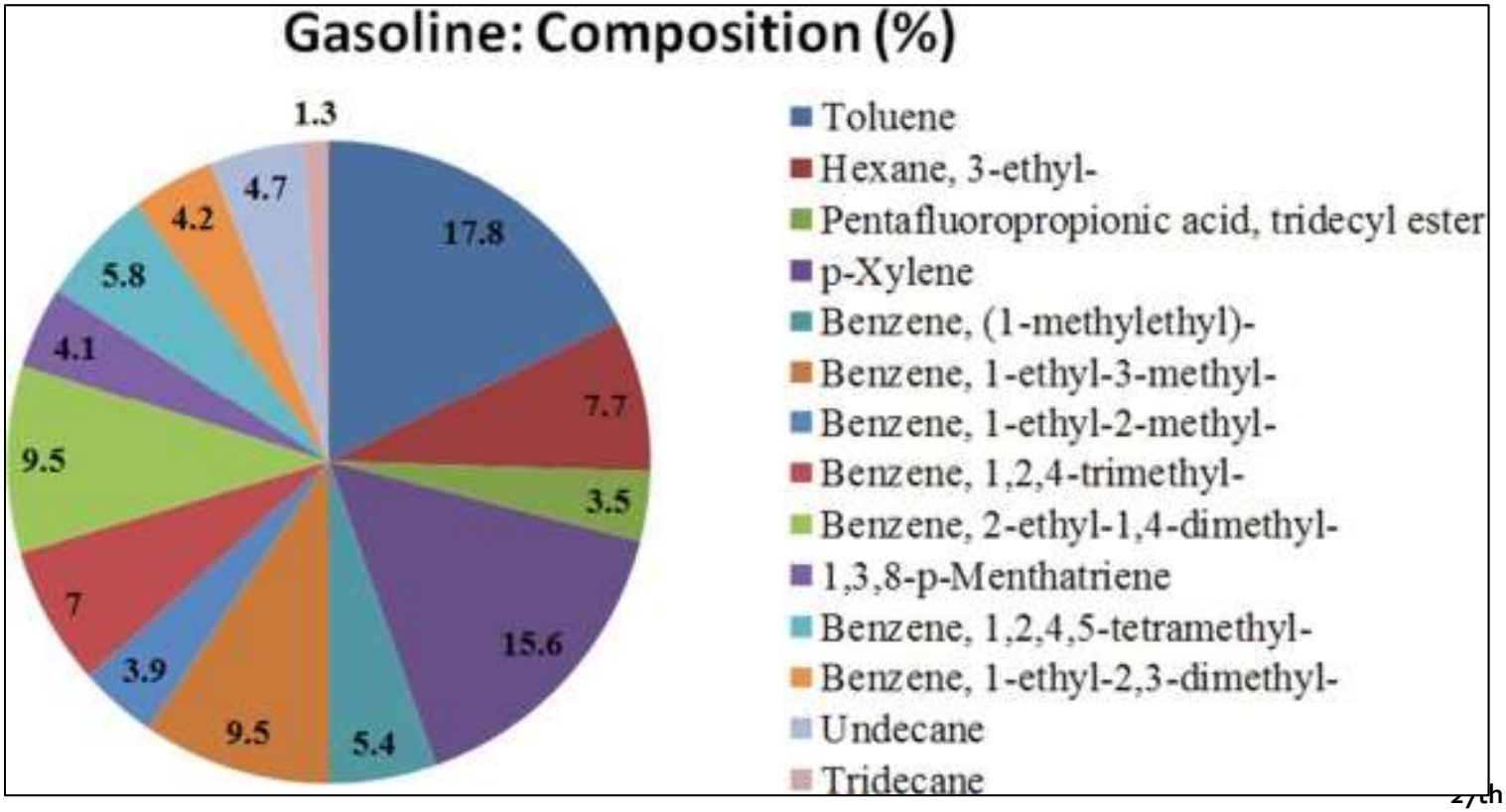

Many reformates (like benzene, toluene and xylenes) are on the hazardous substance list and are not oil






**Coking**

# Final products are often mixtures/blends



# Main Difference: APSA Petroleum vs 'non-APSA' Petroleum

- **HSC 25270.2 (h) Petroleum means derived from crude oil or fraction of crude oil…and**
  - Physical state is ***liquid*** at normal sea level atmospheric pressure (14.7 pounds per square inch absolute, psi) and 60 degrees Fahrenheit (60°F) temperature
- e.g.: Asphalt is a petroleum (derived) product
  - ***Bitumen*** is a viscous liquid binder produced in crude refining
  - **Asphalt (or asphalt cement)** is a thermoplastic material, composed of unsaturated aliphatic and aromatic compounds, that softens when heated and hardens upon cooling…it shows viscous flow behavior and elastic deformation depending upon temperature *(SPCC regulated)*
  - **Hot mix asphalt (HMA)** is a blend of AC and aggregate material (stone, ground tires, sand, gravel, etc.) that is heated so it can be more easily spread/applied *(SPCC-exempt)*
  - **Asphalt emulsion** is a liquid made of asphalt, water, and an emulsifying agent *(SPCC regulated)*

# What is NOT APSA Petroleum?

- **Petroleum or crude oil fractions in solid, semi-solid or gaseous form (not liquid) at 60°F and 14.7 psi, such as**:
  - **Propane, liquified petroleum gas and liquified natural gas** (all are gases at 14.7 psi and 60°F but can be pressurized to >14.7 psi and become liquefied fuel sources)
  - **Petroleum greases and waxes** -which are 'semi-solid' (too viscous to flow as a liquid) at 14.7 psi and 60°F.
  - **Hot mix asphalts**, which are 'solid' (too viscous to flow as a liquid) at 14.7 psi and 60°F.
  - **Some very heavy fuel oils** (too viscous to flow as a liquid) at 14.7 psi and 60°F.

# Mixtures with Petroleum? A common misconception

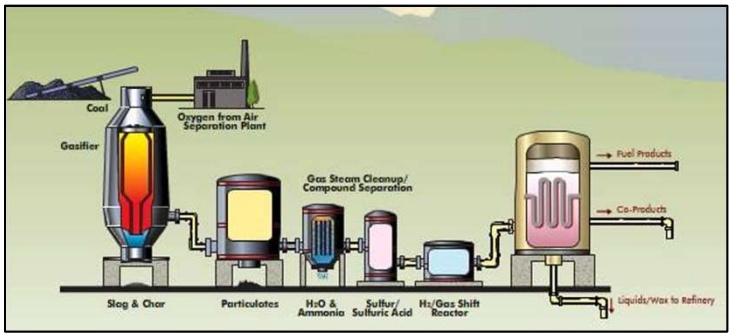
- **'Five percent and below' petroleum product concentrations are not APSA regulated…?**
  - ***Not true!***
- **There is *no* minimum concentration or percentage stated for APSA petroleum**
  - The SDS will tell the tale in most cases (generally does not list ingredients < 1%)
  - May need to call the manufacturer if the SDS lacks details (like percentages)
- **Can a product with less than 1% petroleum still be considered APSA regulated?**
  - ***Maybe***… The APSA statute and regulations specifically note conformance/alignment with the SPCC rule, which does not address de minimus concentration in its definition of oil… (but recall the 'sheen rule')
  - No sheen rule in APSA … But recall the referenced conformity with the federal rule
    - Example: A wash water with only traces of oil (& no SDS to verify oil/petroleum)?
      - If it would cause a sheen , etc. = APSA & SPCC
      - If no sheen ≠ APSA OR SPCC
      - Recall it takes maybe around 100 ppm O&G to create a sheen

# APSA Petroleum vs. US EPA Oils?

- **APSA regulates 'petroleum' only**
  - Crude oil, distillates and its fractions… if liquid @ 60°F
- **US EPA regulates all types of oils**
  - Petroleum
  - Synthetic
  - Any type of mineral oil
  - Animal (including fats and greases)
  - Vegetable (including nut oils)
- **In determining APSA applicability: Use *only* petroleum**
  - In determining 40 CFR 112.6 'qualified facility' applicability: Use *all* oils *(because QF is a federal criteria)*

# What is NOT APSA Petroleum?


- **Hydrocarbon products not derived from crude oil such as:**
  - **Hydrocarbon biofuels** produced from biomass (including many possible sources such as organic wastes, tree/grass/straw/bark, waste paper or reclaimed wood)
  - **B100 biodiesel** derived from biological sources like vegetable oils, animal fats, or recycled greases
    - But check the SDS or the manufacturer!
  - **Synthetic fuels** produced via extensive chemical processes such as gasification, hydrogenation, chemical catalysis, reforming and thermochemical conversion. Feedstock can include coal or natural gas.
  - **Full synthetic lubricants** consisting of manufactured chemical compounds (**not derived** from crude oil), typically made using proprietary lab processes. Feedstock can include natural gas.

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# Can Get Sketchy…These ARE APSA Petroleum

- **Non-petroleum oil products blended with petroleum:**
  - **Biodiesel blends** that are mixtures of B100 biodiesel (non-petroleum) with petroleum diesel (e.g. B20 fuel contains 20% biodiesel and 80% petroleum diesel, B99 is 99% bio + 1% petroleum [for road tax relief])…may be a bit < 1%
  - **Synthetic oil blends** (semi-synthetic) that are mixtures of full synthetic (non-petroleum) oil and petroleum-based oil. Commonly found in the marketplace, due to the high cost of 100% full synthetic oil
  - **Metalworking fluids** may contain some petroleum oil content (may even be <1%)
- The Safety Data Sheet *should (but not always)* confirm the petroleum blend



# APSA Petroleum?

- Sinclair B100 Biodiesel

**Safety Data Sheet**
Biodiesel

**SECTION 1 IDENTIFICATION**

**Product Name:** Biodiesel
**Synonyms**: Biodiesel from soybean oil, B100, methyl soyate, soy methyl esters, rapeseed methyl esters (RME), methyl tallowate, fatty acid methyl esters, fatty acid alky; esters

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

| Chemical name | CAS No. | Concentration |
|---|---|---|
| Methyl Esters (Soybean Oil) | 67784-80-9 | 0-100% |
| Methyl Esters (Rapeseed Oil) | 73891-99-3 | 0-100% |
| Methyl Esters (Tallow) | 61788-61-2 | 0-100% |
| Methyl Esters, Fatty Acids C12-C18 | 68937-84-8 | 0-100% |

# APSA Petroleum?

- Texon Biodiesel

## Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)

TEXON

### Section 1: Identification

**Product Identifier:** **Biodiesel**

**Other means of identification:**
- B100
- B99
- Fatty Acid Methyl Esters
- Fatty Acid Alkyl Esters
- Methyl Soyate
- Methyl Tallowate
- Soy Biodiesel
- Rapeseed Biodiesel
- Tallow Biodiesel
- Canola Biodiesel

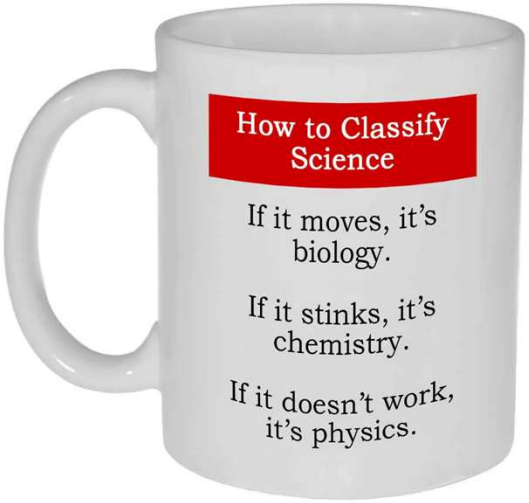
### Section 3: Composition/Information on Ingredients

| Chemical Name | CASRN | Concentration[1] |
|---|---|---|
| Soybean Oil Methyl Esters | 67784-80-9 | 0-100% |
| Rapeseed Oil Methyl Esters | 73891-99-3 | 0-100% |
| Tallow Methyl Esters | 61788-61-2 | 0-100% |
| Biodiesel (Canola Derived) | 129828-16-6 | 0-100% |
| Biodiesel (Fatty Acid, Methyl Ester) | 68937-84-8 | 0-100% |
| ULSD (Ultra Low Sulfur Diesel) | 68476-30-2 | < .1% |

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

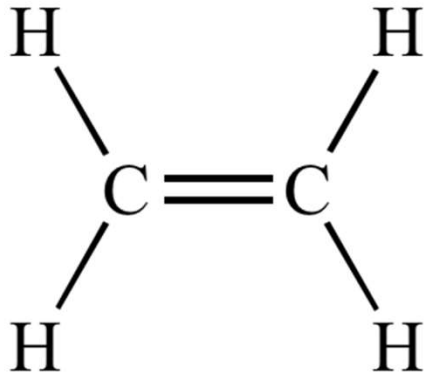
# Are these APSA Petroleum?

- Synthetic oil
- Mineral oil
- Torque oil
- Gear oil
- #6 Fuel oil
- Transmission fluid
- Hydraulic fluid
- Dielectric fluid
- FR3
- Heat transfer fluid
- Metalworking fluid
- Flocculant



# APSA Petroleum?

- Synthetic oils





AI Overview

1-Decene, a linear alpha olefin, is commercially produced from crude oil **through ethylene oligomerization**, with the Ziegler process and SHOP (Shell Higher Olefins Process) being the main industrial methods.

**Here's a more detailed explanation:**

**Crude Oil as the Starting Point:**

Crude oil is the primary source of hydrocarbons, including ethylene, which is a key feedstock for 1-decene production.

**Ethylene Production:**

Ethylene, a C2 hydrocarbon, is extracted from crude oil through a process called cracking, where large hydrocarbon molecules are broken down into smaller, more useful molecules.

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# APSA Petroleum?

**SECTION 1 PRODUCT AND COMPANY IDENTIFICATION**

**Havoline ProDS Full Synthetic Euro Motor Oil SAE 5W-40**

**Product Use:** Passenger Car Motor Oil
**Product Number(s):** 223504
**Company Identification**
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583


**SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS**

| COMPONENTS | CAS NUMBER | AMOUNT |
|---|---|---|
| Lubricating oils, petroleum, C20-50, hydrotreated neutral oil-based | 72623-87-1 | 70 - 99 %weight |
| Distillates, hydrotreated heavy paraffinic | 64742-54-7 | 1 - 5 %weight |
| Lubricating oils, hydrotreated C15-30, neutral oil-based | 72623-86-0 | 1 - 5 %weight |

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# APSA Petroleum?

- Mineral oil

**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Name** : LIGHT MINERAL OIL (Mineral oil
**Chemical Family:** Petroleum Hydrocarbon.
**MANUFACTURER ADDRESS:**

- **CAS Number:** 8020-83-5

**2. COMPOSITION/INFORMATION ON INGREDIEN**

| Ingredients | CA |
|---|---|
| Several hydro treated petroleum oil | |

**3. HAZARDS IDENTIFICATION**

- MDL Number: MFCD00131611

EC No

AI Overview

The CAS number 8042-47-5 is for **white mineral oil**, a petroleum-based product. It's a colorless, clear liquid that's made from a complex combination of hydrocarbons.

**Uses**

- Used in transplantation experiments
- Used to prepare beads embedded with Psuedomonas aeruginosa
- Used to dilute benzaldehyde and 3-octanol
- Used in short-term memory experiments

**Properties**

- White mineral oil is a highly refined petroleum mineral oil
- It's a complex combination of hydrocarbons
- It's obtained from the intensive treatment of a petroleum fraction w and oleum, or by hydrogenation

# APSA Petroleum?

- Torque oil

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier**

**Product name** TORQUE FLUID 32

**1.3. Details of the supplier of the safety data sheet**

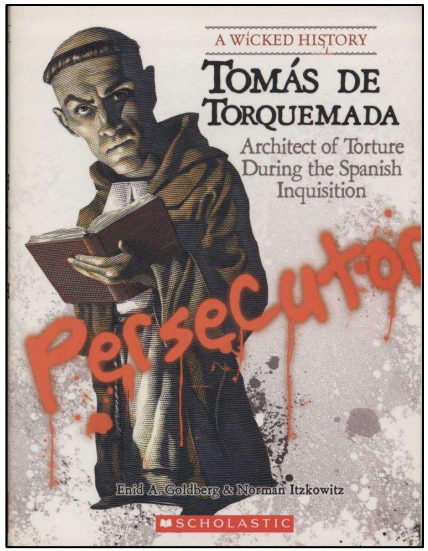
**Supplier**

PETROL OFİSİ A.Ş.
Ünalan Mahallesi, Libadiye Caddesi No: 82F Kat: 2-3-4, 34700 Üsküdar/ Istanbul
Tel: +90 850 339 1919
Fax: +90 216 275 3854
madeniyag@petrolofisi.com.tr

1-5%

CAS number: 68649-42-3 EC number: 272-028-3

**Classification**
Skin Irrit. 2 - H315
Eye Dam. 1 - H318




Bu ürün petrol ürünü müdür?

# APSA Petroleum?

- Gear oil

SECTION 1: PRODUCT AND COMPANY IDENTIFICAT

## Section 1. Identification

| | | |
|---|---|---|
| GHS product identifier | : | Lucas SAE 80W-90 Gear Oil |
| Other means of identification | : | Not available. |
| Product number | : | 10043, 10046, 10066, 10067, 10069 |

## Section 3. Composition/information on ingredients

| | | |
|---|---|---|
| Substance/mixture | : | Mixture |
| Other means of identification | : | Not available. |

CAS number/other identifiers

| | | |
|---|---|---|
| CAS number | : | Not applicable. |
| Product code | : | Not available. |

| Ingredient name | % | CAS number |
|---|---|---|
| Lubricating oils, petroleum, c>25, hydrotreated bright stock-based | 30 - 60 | 72623-83-7 |
| Dec-1-ene, oligomers, hydrogenated | 10 - 30 | 68037-01-4 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are

NTS

| |
|---|
| |
| % |
| 30-60 |
| 30-60 |
| |

# APSA Petroleum?

- **#6 Fuel Oil**
  - **Comes out the lower end of the distillation process**
  - **Highly viscous**
  - **Is it a liquid at 60°F?**
  - **What's a 'liquid'?**
    - **'semi-solid'?**

# APSA Petroleum?

- Transmission fluid or oil
  - Similar to torque oil

**SECTION 1 IDENTIFICATION**

**Havoline Automatic Transmission Fluid MD-3**

**Recommended Use:** Automotive ATF (Automatic Transmission Fluid)
**Restrictions on Use:** Consult supplier when used other than those specified.
**Other means of identification:** Havoline Automatic Transmission Fluid MD-3 ISOCLEAN
**Product Number(s):** 221854, 223082

**SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS**

| COMPONENTS | CAS NUMBER | AMOUNT |
|---|---|---|
| Highly refined mineral oil (C15 - C50) | Mixture | 70 - 99 %weight |

| Ingredient name | % | CAS number |
|---|---|---|
| Diphenylamine | 0.1 - 1 | 122-39-4 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

# APSA Petroleum?

- Hydraulic fluid


**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**Product identifier**

**Product name:** Skydrol® 500B-4 Fire Resistant Hydraulic Fluid

**Product No.:** 34101-00, P3410105, P3410100, P3410101, P3410103, P3410102, P3410104

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

**Identified uses:** Hydraulic fluid

**Uses advised against:** None known.

**SECTION 3: Composition/information on ingredients**

**Substances / Mixtures**

**General information:**

| Chemical name | Concentration | Additional identification | Notes |
|---|---|---|---|
| Dibutylphenylphosphate | 40 - 70% | CAS-No.: 2528-36-1 | # |
| tributyl phosphate | 19 - 20% | CAS-No.: 126-73-8 | # |
| Butyl diphenyl phosphate | 10 - 30% | CAS-No.: 2752-95-6 | |
| 7-Oxabicyclo[4.1.0]heptane-3-carboxylic acid, 2-ethylhexyl ester | <10% | CAS-No.: 62256-00-2 | |
| butylated hydroxytoluene | 0.1 - <1% | CAS-No.: 128-37-0 | # |

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
# This substance has workplace exposure limit(s).

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# APSA Petroleum?

- Dielectric fluid (aka transformer oil)

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

**1.1. Product identifier**

| | | |
|---|---|---|
| Product form | : | Substance |
| Substance name | : | DIELECTRIC FLUID 868 |
| UFI | : | 7HGF-00NS-Q000-YYUC |
| Product code | : | 5236 |

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

**SECTION 3: Composition/information on ingredients**

**3.1. Substances**

Name : DIELECTRIC FLUID 868

| Name | Product identifier | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---|---|---|
| HYDROCARBONS, C11-14, N-ALKANES, ISOALKANES, CYCLIC, <2% AROMATICS | EC-No.: 926-141-6<br>REACH-no: 01-2119456620-43 | Asp. Tox. 1, H304 |

Full text of H- and EUH-statements: see section 16

4742-53-6)

# APSA Petroleum?

- ….uh…FR3??

**SECTION 1: Identification**

**Product identifier**

**Product name:** ENVIROTEMP™ FR3™ FLUID

**Product code:** 100088941; 100089128; 100089127; 100089129; 110013820; 110016511

**Recommended use of the product and restriction on use**

**SECTION 3: Composition/information on ingredients**

| Identification | Name | Weight % |
|---|---|---|
| CAS number: 8001-22-7 | Soybean Oil | >99 |

# APSA Petroleum?

- Heat Transfer Fluids

**Product name: DOWFROST™ 25 Heat Transfer Fluid**

**Issue Date:** 06/07/2018
**Print Date:** 07/17/2018

THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the

1 Product and Company Identification

Section 1: Chemical Product and Company Identification

**Cat# :** 2201

**Part Name:** Heat Transfer Fluid 550

**Supplier:** **Foxwest Sales, Inc.**
460 Glennie Circle King of Prussia, Pa 19406

**Emergency Telephone Numbers**
US Chemtrec: (800) 424-9300
Canada: (703) 527-3887

3 Composition Information

**Section 3: Composition/ Information on ingredient**

| Name | CAS # | % in Product |
|---|---|---|
| Diphenyl-dimethylsiloxane | 68083-14-17 | 100% |

Octamethyl Cyclotetrasiloxane 556-67-2 0.1 - 1.0 %

Dipotassium hydrogen phosphate 7758-11-4 < 3.0 %

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# APSA Petroleum?

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1 - IDENTIFICATION

QUADROIL HP-2

3 - COMPOSITION/ INFORMATION ON INGREDIENTS

| Chemical name | CAS # | Concentrati |
|---|---|---|
| Ingredients classified as non-hazardous under OSHA regulations (29CFR 1900-1200) (Hazcom 2012) | | |

| | | | | |
|---|---|---|---|---|
| - | - | - | Flam. Liq. 3: H226; Eye Irrit. 2: H319; Skin Irrit. 2: H315; Skin Sens. 1: H317; Aquatic Chronic | <1% |

| Chemical name | Common name and synonyms | CAS number | % |
|---|---|---|---|
| TRIETHANOLAMINE | | 102-71-6 | 10 - 20 |
| MONOISOPROPANOLAMINE | | 78-96-6 | 3 - 5 |
| NONANOIC (PELARGONIC) ACID | | 112-05-0 | 1 - 3 |
| Other components below reportable levels | | | 70 - 80 |


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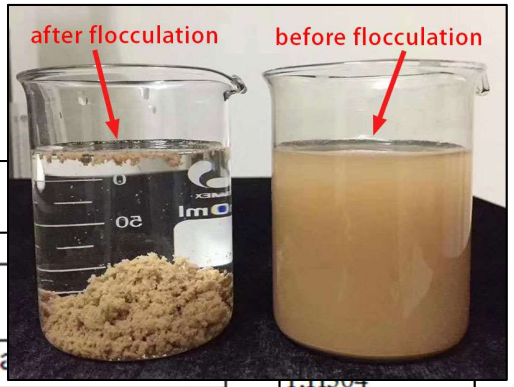
# APSA Petroleum?

- Flocculants




Hazardous components

*Distillates (petroleum), hydrotreated light*

SOLENIS
Strong bonds. Trusted solutions.

**SAFETY DATA SHEET**

Revision Da

Print Date: 24.12.2022

SDS Number: R1201062

Version: 3.1

Zetag™ 8165 FLOCCULANT

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registered

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**SECTION 3: Composition/information on ingredients**

**3.2 Mixtures**

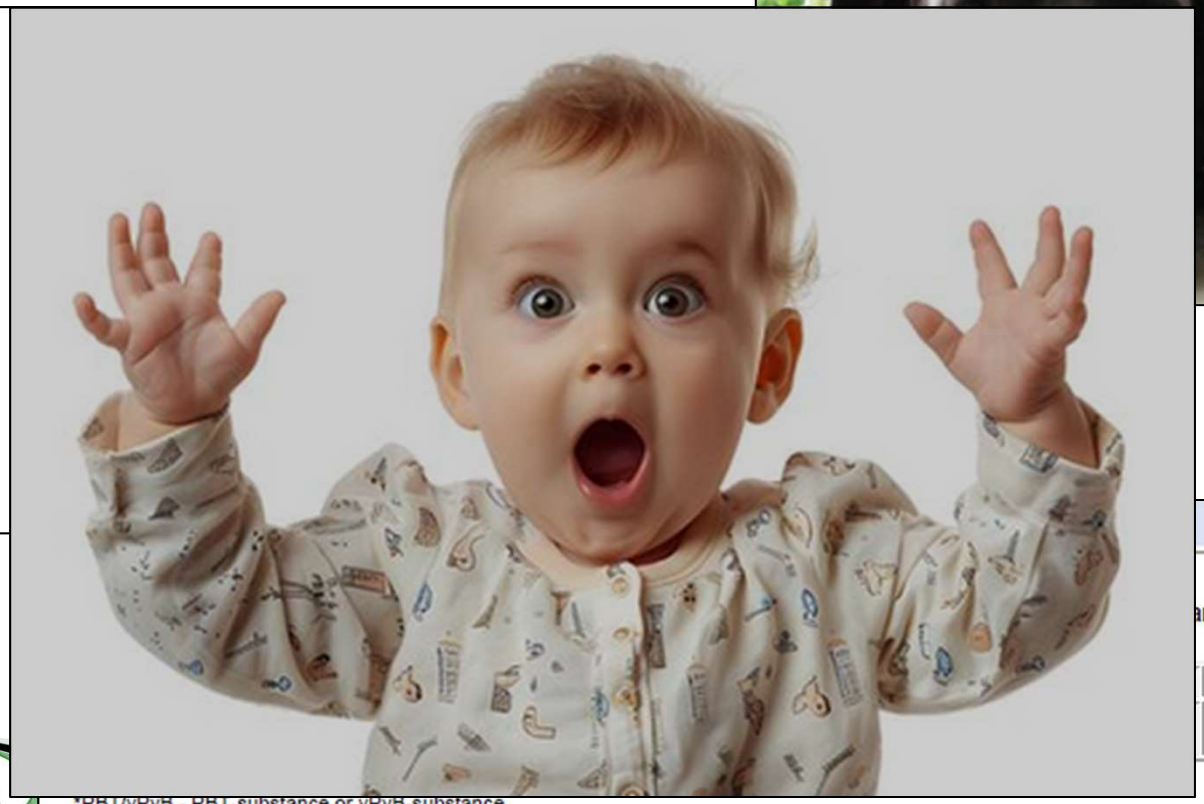
**Components**

| Chemical name | CAS-No.<br>EC-No.<br>Index-No.<br>Registration number | Classification | Concentration (% w/w) |
|---|---|---|---|
| adipic acid | 124-04-9<br>204-673-3<br>01-2119457561-38-xxxx | Eye Irrit. 2; H319 | >= 2,5 - < 5 |

For explanation of abbreviations see section 16.

# APSA Petroleum?

- BABY OIL????



ant State and

Notes

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*PBT/vPvB - PBT-substance or vPvB-substance.

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ESCI ENVIROSERVICES, INC.

# Any Questions?

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