TOPICAL PETROCHEMISTRY Oil, Bitumen, Coal Tar, Tar, Asphalt, Pitch & Tarmac

"Topical Petrochemistry" describes how oil, gas, fossil fuels, coal and petroleum products have been applied to the exterior of bodies human and otherwise, to further health, sustenance and cosmetic goals.

"The relatively recent growth of the human population is connected to the story of fossil fuel, whether we look back on human history or anticipate our futures. After all, it was fossil fuel energy, 'and only fossil fuel energy, [that] made it possible to break with the old agrarian pattern and construct the industrial world,' writes the "peak oil theorist" John Michael Greer. The benefits (for humans) of plentiful and cheap energy derived from fos-sil fuel have been innumerable: food improved, both in quality and quan-tity improvement in housing and clothing, more bygienic and healthier sil fuel have been innumerable: food improved, both in quality and quan-tity, improvement in housing and clothing, more hygienic and healthier conditions in many places, public safety (better policing), and better illu-mination. The exponential growth of both human population and our av-erage life span in the twentieth century—and here, of course, the poor are included in both figures—have generally had much to do with fossil fuels through the use of artificial fertilizers, pesticides, pumps for irrigation, and the use of petrochemicals in the manufacture of common pharmaceutical products such as antibiotic medicines."

— Dipesh Chakrabarty, "The Human Condition in the Anthropocene" - The Tanner Lectures in Human Values, Delivered at Yale University February 18–19, 2015

Topical Petrochemistry (Oil, Coal Tar, Vaseline) Histogram showing increa-sing abundance of bitumen HURT n mummv balms from the nastic to Roman pe Hydrocarbon Universal Running Tool cient Egyptian mummies. Phil. Trans. R. Soc. A. 374(2079), 20160229. n = 31(n = 27)

"The healthful balm,

from Nature's secret

health, and life, to man will bring;

the magic liquid

As from her depths

To calm our suffer-

ings, and assuage our woes"

tisement c. 1850

- Seneca Oil Adver-

spring,

flows,

The bloom of

Diagenesis is a process of compaction under mild conditions of temperature and pressure. When organic aquatic sediments (proteins, lipids, carbohydrates) are deposited, they are very saturated with water and rich in minerals. Through chemical reaction, compaction, and microbial action during burial, water is forced out and proteins and carbohydrates break down to form new structures that comprise waxy material known as "kerogen"

a black tar like substance called "bimen". All of this occurs within the several hundred meters of burial.

πrst

— (US Geological Survey)

Bitumen is the product

deposition and maturation of organic matter, and the extractable organic material by organic solvents in petroleum source rocks and reservoir rocks is often defined as bitumen. Upon exposure to high regional temperatures over geological time, bitumen is converted to pyrobitumen as a result of the

HISTVISME

Historical Viscosity Measurement

Predynastic

to second

Intermediate Period

number analysed

number containing

petroleum bitumen

n = 18

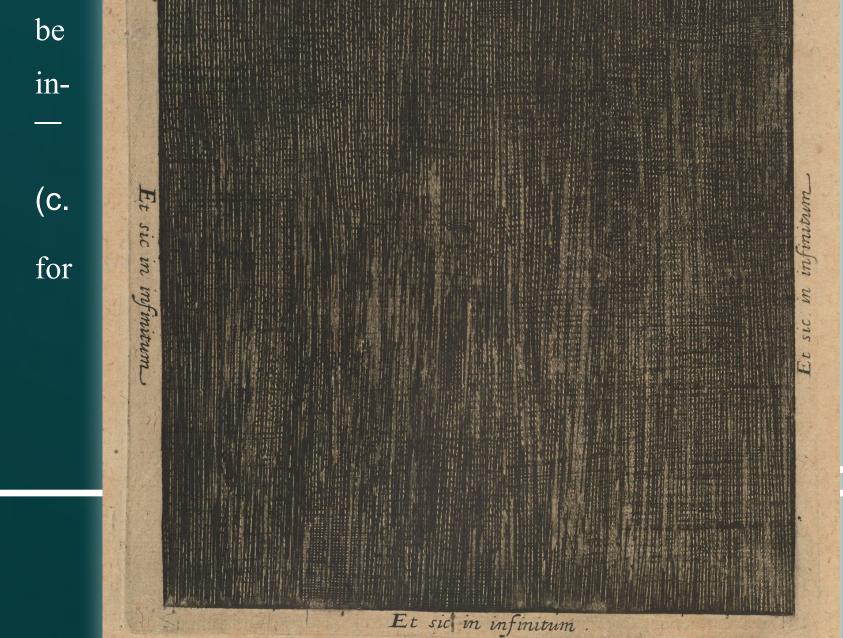
New Kingdom to Late Period

Ptolemaic to

Roman

"Vacuum Residue is the bottom product from the vacuum distillation unit, used to process bitumen. It has several options for its use in me ing a refinery's product slate. In the case of the energy refineries it c upgraded to prime distillate products by a recycling thermal cracking process, co.king, deep oil fluid catalytic cracking or hydro-cracking deed a combination of these processes."





oilngasseparator.info

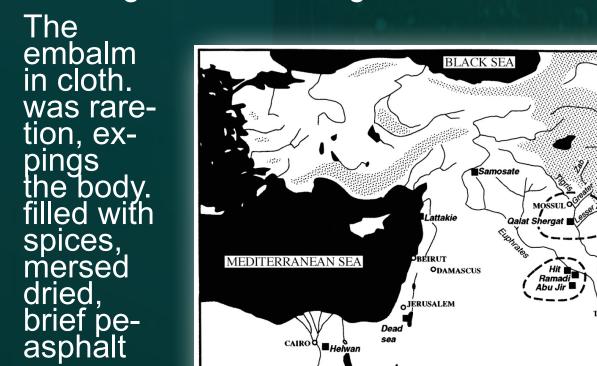
The book of Genesis refers to bitumen as a main material use the construction of the Tower of Babel, and the Epic of Gilgam 2500 BC) reports of bitumen use in the construction of Babylo

"The building of Babel in the land of Shinar by a people that had bri stones and bitumen had they for mortar" (Genesis xi)

Bitumen, tar and coal tars were substances that fascinated a chemists, calling up as it does the material-chemical, curative and aesthetic potencies of the nigredo, or the black nothing from which all potential difference, value and otherness is derived, and pictured in Robert Fludd's et sic in infinitum, 1624:

Ancient Assyrian alchemists recommended asphalt for topical medicinal purposes, as well as for building pur-poses, and perhaps there is some merit in the fact that the Assyrian moral code recommended that asphalt, in the molten state, be poured onto the heads of delin-

quents. Pliny, the Roman author, also notes that bitumen could be used to stop bleeding, heal wounds, drive away snakes, treat cataracts as well as a wide variety of other diseases, and straighten out eyelashes which inconvenience the eyes. One can appreciate the use of bitumen to stop bleeding but its use to cure other ailments is questionable and one has to consider what other agents were being used concurrently with bitumen.



Egyptians were the first to their dead, wrapping bodies Before 1000 BC, asphalt ly used in this mummificacept to coat the cloth wrapand thereby further protect Bodily cavities were first a mixture of resins and and then corpses were imin a bath of potash or soda, and finally wrapped. For a riod (500 to about 40 BC) was used in cases to fill the cavities, as well as to cloth wrappings. The word first appears in Arabian and tine literature, signifying The spread of the Islamic brought Arabic science, use of bitumen, to western



ermally activated reactions that drive off ghter oil and gas products and leave an inoluble, carbon-rich residue.

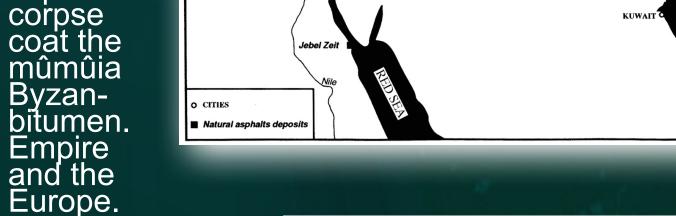
robitumen represents a significant fraction of the ultimate te of petroleum liquids formed from kerogen during catanesis. In the laboratory, experiments on organic-rich rocks il shale and petroleum source rocks), decomposition of the itially insoluble organic matter (defined as kerogen) produces gaseous and liquid products. The soluble fluid that remains in the heated rock is often defined (incorrectly) as bi-tumen. Upon further thermal exposure, this type of bitumen ntinues to evolve and reacts further to produce a harder pyrobitumen along with volatile products (liquid distillate and

___ (US Geological Survey) Bitumen, tar and coal tars were substances that fascinated alchemists, calling up as it does the material-chemical, curative and aesthetic po-tencies of the nigredo, or the black nothing from which all potential difference, value and othernes is derived, and pictured in Robert Fludd's et sic in infinitum, 1624:



ORIGINAL

What was once called mum, mummia or mumia is defined by at least three main mineralogical terms:



Map of the Near East showing the locations of the major natural asphalt deposits — Connan, J. (1999). Use and trade of bitumen in antiquity and prehistory: molecular archaeology reveals secrets of past civilizations. Philo-sophical Transactions of the Royal Society of London B: Biological Sciences, 354(1379), 33-50.

ferred to a paraffin wax that was symptomatic of some mained after the destructive distillation of bitumen —

A man lies in a bathtub filled with

crude <u>o</u>il during

a health therapy

session at Naf-talan Health Cen-ter in Baku, Azer-baijan June 27. (From Businessin-

`sider.com)

In Persian, the term bitumen re-of the crude oils in the area and reparaffins crystallized from the mixture over time. In Syriac, the term bitumen alluded predominantly to substances used for mummification. In Egypt, natural resins were used extensively for the purposes of embalming up to the Ptolemaic period 305 to 30 BC, when asphalts gradually came into use.

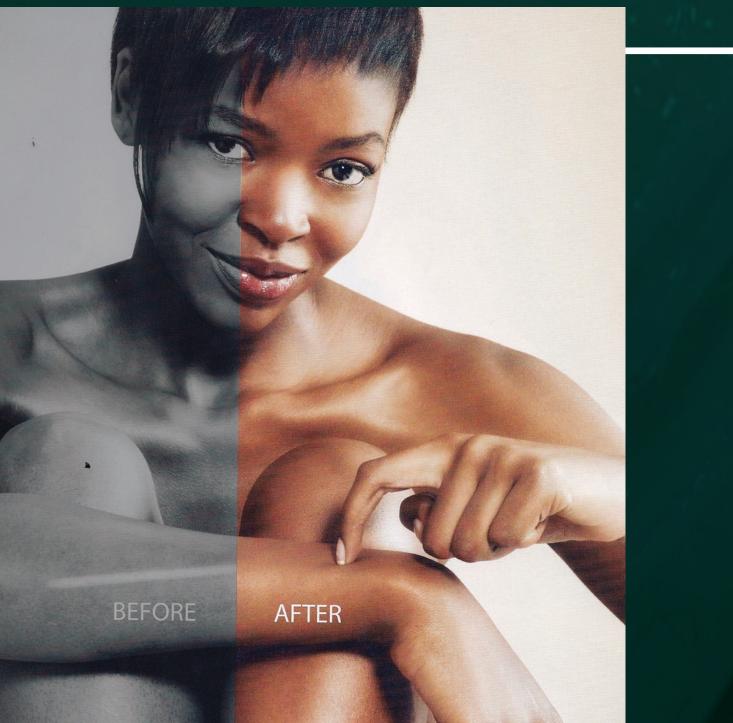
"Bitumen is the agent most closely associated with Egyptian embalming: The word "mum-my" has long been thought to come from mumiyah, the Arabic word for bitumen. For cen-turies many people have believed that some mummies owe their black appearance to a thick coating of the material, which is found floating in blocks on the Dead Sea and seeps from the earth throughout the Middle East. Yet the Bristol team couldn't find a trace of it in their samples.

Small quantities of bitumen may have been used to waterproof some Roman-era mummies, Bristol concedes. But "the idea that bitumen was widely and generally used is just rub-bish, quite frankly," Buckley says. "Some mummies are not black; they're only black when they're unwrapped by people," rather as a cut apple browns when exposed to air. Given that beeswax was a primary material used in mummification, Buckley says, the real origin of "mummy" may lie much closer to home: In Egyptian Coptic, the word for wax is mum."

— Glausiusz, J. The Chemistry of Mummies: The secret ingredients used by Egyptian embalmers are revealed at last. Discovery Magazine. Friday, March 01 are revealed at last. 2002



stuff is heavily prescribed in Roman medicine as a treateverything from toothaches. it should be used in the treat-"mammary excoriations" (Sir Cormack. A Treatise on the



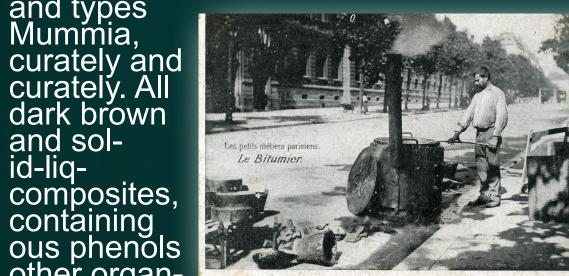
What was once called mum, mummia or mumia is defined by at least three main mineralogical terms:

I. Bitumen (from Latin bitūmen) originally meant "a kind of mineral pitch found in Palestine and Babylon, used as mortar, etc. The same as asphalt, mineral pitch, Jew's pitch, Bitumen juda-icum", and in modern scientific use means "the generic name of certain mineral inflammable substances, native hydrocarbons more or less oxy-genated, liquid, semi-solid, and solid, including naphtha, petroleum, asphalt, etc."

2. Asphalt (from Ancient Greek ásphaltos "asphalt, bitumen") first meant "A bituminous substance, found in many parts of the world, a smooth, hard, brittle, black or brownish-black resinous mineral, consisting of a mixture of different hydrocarbons; called also mineral pitch, Jews' pitch, and in the [Old Testament] 'slime'", and presently means "A composition made by mixing bitumen, pitch, and sand, or manufactured from natural bituminous limestones, used to pave streets and walks, to line cisterns, etc.", used as an abbreviation for asphalt concrete. Until the 20th century, the Latinate term asphaltum was also used.

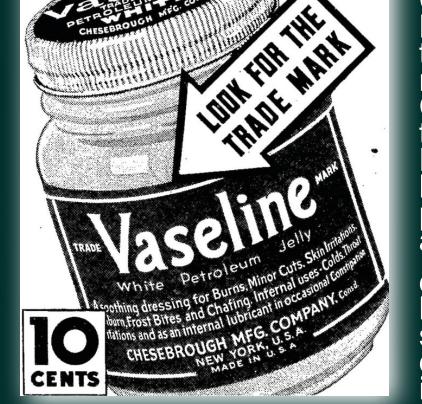
3. Pissasphalt (from Greek pissasphaltus "pitch" and "asphalt") names "A semi-liquid variety of bi-tumen, mentioned by ancient writers".

Likewise, creosote, pitch, coal tar and tar are terms that have described varying viscocities and types



Oacnacare oils uid variand

Chemical, Proper-by Experi-with Some ment of veian Prize millennia Muslim it for skin The memummia shilajit or "rock-consian mūmvarious



Medicinal, and Physiological ties of Creosote: Illustrated ments on the Lower Animals: Considerations on the Embal-the Egyptians. Being the Har-Dissertation for 1836). Many later, with the coming of Islam, physicians began to prescribe ailments and wounds.

dicinal use of bituminous has parallels in Ayurveda: silajit (from Sanskrit shilajatu queror") or mumijo (from Periyā "wax") is a name given to solid or viscous substances

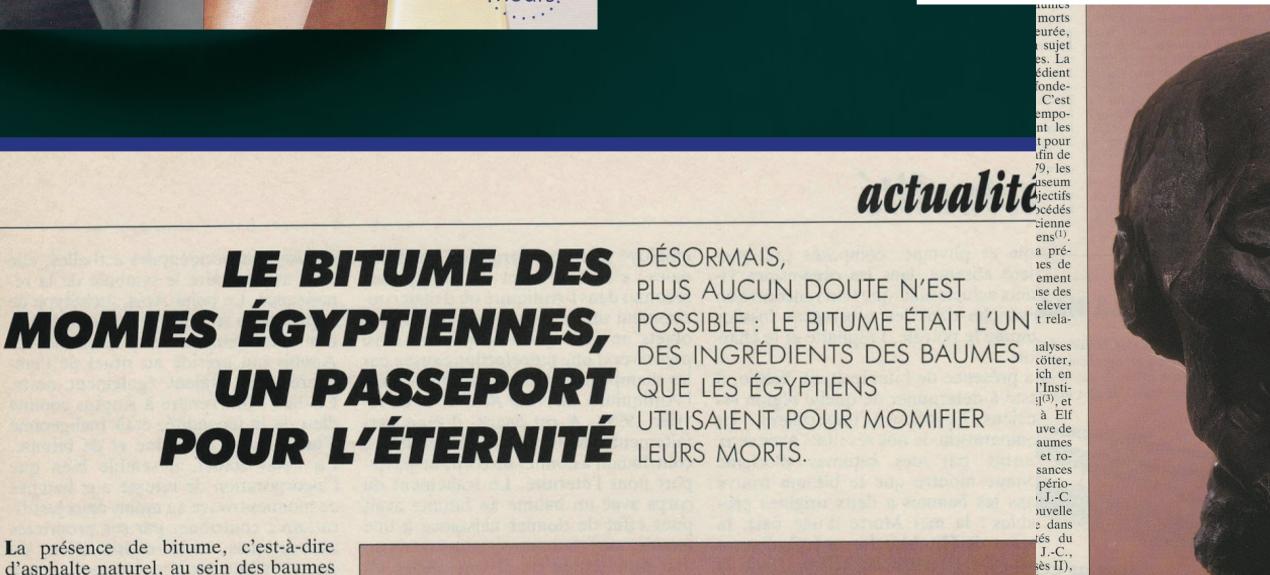
found on rock in India and Nepal, including a dark-brown odoriferous substance which is used in traditional Indian medicine and probably con-sists principally of dried animal urine.

This geo-chemical-medicinal lineage short circuits toward petroleum jelly, lip-balm and petro-cosmetics. Vaseline, the Brooklyn-born balm, was American inventor and chemist Robert Chesebrough's brainchild. Chesebrough created the hydrocarbon mixture first in 1859, inspired by the resurgence of alchemical texts and practices in Europe. He dis-tilling a raw slurry leftover from Pennsylvania oil fields called "rod wax". Chesebrough took to pouring acid on himself and burning himself with flames in public demonstrations in order to example the healing powers of his product. He also ate two spoonfuls of distilled rod wax a day. We now rub petroleum on ourselves; we smear our children with oil.



utilisés pour la momification des morts

compounds, distilled from coal tar and used, broadly speaking, as preservatives. Pitch, creosote, coal tar and bitumen have properties that make it essential for waterproofing and electrical insulation. It has found its way into hundreds of applications from road surfacing, to ship building, to roofing, to in-dustrial anode and cathode production.



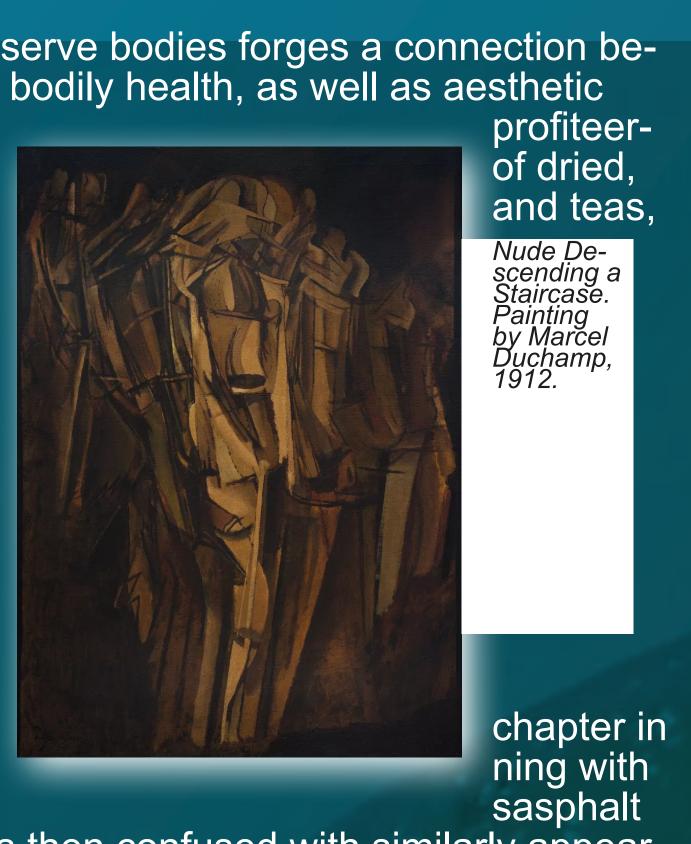
) G.G. Bensor Manchester Museum Mummy Proje A.R. David A.R. Davia (ed.), Manchester Museum, 1979, p. 119. (2) A. Lucas et J.R. Harris, in Ancient Egyptian Materials and Industries, chap. XII, 290, 1962. (3) J. Rullkötte

APETE **Artistic Petrophysical Evaluation**

The practice or belief that it was used to preserve bodies forges a connection between tar, coal tar, asphalt and bitumen and bodily health, as well as aesthetic

pleasures. Inaugurating two-millennia of ing derived from the ground up remains mummified body parts, used as tinctures pigments and powers. The ground up bodily remains of mummies constituted representations of the fleshy imagings of modern artists like Marcel Duchamp. The pigment "Mummy Brown," a dark brooding greyish-brown, was popular amongst European artists well into the early twentieth-century. It was a colour created from the grinding up mummified corpses, available into the mid-1970s (McCouat, Philip. "The Life and Death of Mummy Brown," Journal of Art In Society, 2013). Mummia became a lengthy and unusual

the history of both art and medicine, begina well known Persian mumiya black pis-



remedy for wounds and fractures, which was then confused with similarly appearing black bituminous materials used for Egyptian mummification, which then gave way to misinterpretations by Medieval Latin translators and alchemists to mean whole mummies. All of this was further complicated by greed for profitable fake mummy drugs, dust and paints.

To cause the face to appear in a mass of flame make use of the following: mix together thoroughly petroleum, lard, mutton tallow and quick lime. Distill this over charcoal fire, and the liquid which results can be burned on the face without harm

— Harry Houdini



HID Health and Welfare Improvement Data

Coal tar topical (for the skin) is used to treat the skin symptoms of psoriasis, including dryness, flaking, scaling, and far can help slow the rapid growth of skin cells and skin's appearance tion, it can help reduce itching and the inflammation, psoriasis. Tar prodvary dramatically from brand to brand. Coal tar is not a cure for psoriasis, and it will provide only temporary relief of skin symptoms

MG217 is 3% coal tar, as strong as you can get without a prescription. Coal tar is excellent on some psoriasis suffer-ers at reducing inflammation on their scalp while simultaneously slowing down cell regeneration. The anti-fungal properties of coal tar can also help alleviate mild cases of seborrheic dermatitis but there are better ingredients on the market.

After 40 years of suffering with

mg217.com/testimonials/letters/)

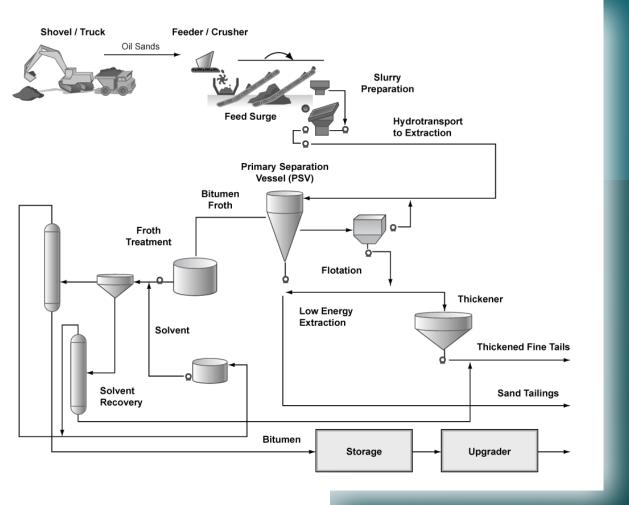
Its character is of a solid at normal room temperatures, which can be shattered with a hard impact. It is always fluid, flowing imperceptibly over long durations — artist Rosemary Lee has highlight this through the slippage or spillage from 'durée' (as in length or period of time) to 'dureté' (as in durability or hardness). Unhindered in its movement, bitumen is an allegorical material, a substance that examples obdurate, slow violence—while fluid, it can effect great earthquakes and powerful ruptures—a cracking, liquid earth.



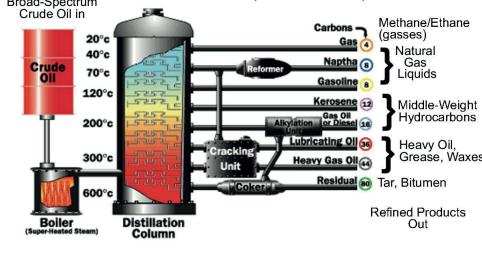
Warnings: For external use only. Ask a doctor before use if condition psoriasis and trying different prod-ucts, I finally got relief from this terrible condition when I found MG217 Medicated Coal Tar Oint-MG217 Medicated Coal Tar Ont-ment and MG217 Medicated Coal Tar Lotion. I only wish I knew about it earlier. It would have defi-nitely changed my life. But better late than never! — I. C. -Haddonfield, NI (www. - L.C. -Haddonfield, NJ (www. product contains coal tar, a product known in the state of California to cause cancer. (amazon.com)







Crude Oil Refining



EUQ EDIBLE UTILITY QUOTIENT

The French tradition of Gigot bitume involv leg of lamb wrapped in kraft paper and cooked i h of molten bitu traditional prep tion for a ceremonia hat celebrates the of a construction pro and takes place on construction sites of ings and public work



Topical Petrochemistry Oil, CoalTar

Coal Tar To Ease Psoriasis

The major chemical components of coal tar'solutions are aromatics, and other components from partially hydrogenated aromatics and heterocycles. Non-exhaustively, chemical compounds contained in Coal Tar Topical solutions include:

1 ring aromatics

Benzene; 1,2-dimethylbenzene; Biphe-nyl; Phenol; toluene; xylene; cresol (3 isomers); p-cresol; o-cresol

2 fused rings

Naphthalene; Phenanthrene; Indene; In-

3 fused rings

Anthracene; Anthraquinone; Dicyclopentadiene; Acenaphtene; Acenaphthylene; =luorene;

4 fused rings

Heterocycles (in which the ring contains one or many hetroatoms such as nitrogen, oxygen, sulfur)

Pyridine; Indole; Benzofurane; Carba-zole; Quinoline; Quinaldine; Thiophene

Synthetic Color and Dyes (FD&C Blue 1, Green 3, Yellow 5 & 6, Red 33) .ip-balm, also known as "lip salve' petrochemical derivative, applied y to the lips of the mouth to sturize and relieve chapped or lips, angular cheilitis, stomatitis Derived from coal tar, FD&C color The chemicals in sunscreer igments contain heavy metal salts l sores. Lip balm often contains are disruptive to the body's that deposit toxins onto the skin. beeswax or carnauba wax, camphor, hormone system. The most causing skin sensitivity and irritation cetyl alcohol, lanolin, paraffin, and common chemical sun-Animal studies have shown almost all petrolatum, among other ingredients. Some varieties contain dyes, flavor, screen is oxybenzone can FD&C colors to be carcinogenic. act like estrogen in the body, altering, amongst other fragrance, phenol, salicylic acid, and various chemicals which affect sun-BHT (butylated hydroxytoluene) things, sperm production. BHT has been show to mimic estrogen (endocrine disruptor). Is is linked **Petrolatum (petroleum jelly, miner-**to developmental and reproductive **al oil):** screening.

The major petrochemical components of lip-balm are aromatics, and other components from partially hy-drogenated aromatics and heterocycles. Non-exhaustively, chemical compounds contained in lip-balms in-clude:

Parabens (methylparaben, butyl-paraben, etc.)

Parabens are known to interfere with hormone function, linked to increased risk of breast cancer and reproductive toxicity, and may also interfere with male reproductive functions. In a sur-male reproductive functions. In a surprising recent study, methylparaben was found to block the breast cancer drug tamoxifen (more).



Routes of Entry:

Inhalation, Skin, Mucous Membranes, Eye Contact And Ingestion At Elevated Tempera-ture Only

Effects of Exposure / Symptoms: A Moderate Irritant.

Emergency Treatment: Remove Victim To Fresh Air, Contacted Body Part To Be Immediately Plunged Un-der Cold Running Water For Ten Minutes.

Serious Eye Damage/Eye Irritation - Cate-gory 2A Skin Sensitization - Category 1 Causes serious eye irritation. May cause an allergic skin reaction.

Germ Cell Mutagenicity - Category 2 Car-cinogenicity - Category 1B Suspected of causing genetic defects. May cause cancer.

Reproductive Toxicity - Category 2 Suspected of damaging fertility or the un-

Specific target organ toxicity - Single expo-sure - Category 1 (blood) Causes damage to organs.

Specific target organ toxicity - Single expo-sure - Category 2 (eyes) May cause damage to organs.

Specific Target Organ Toxicity - Repeated Exposure - Category 1 (blood , eyes , respiratory system) Causes damage to organs through prolonged or repeated exposure.

> Hazardous to the Aquatic Environment - Acute - Category 1 Very toxic to aquatic life with long las-ting effects.

Hazardous to the Aquatic Environment - Chronic -Category 1 Very toxic to aquatic life with long lasting effects.

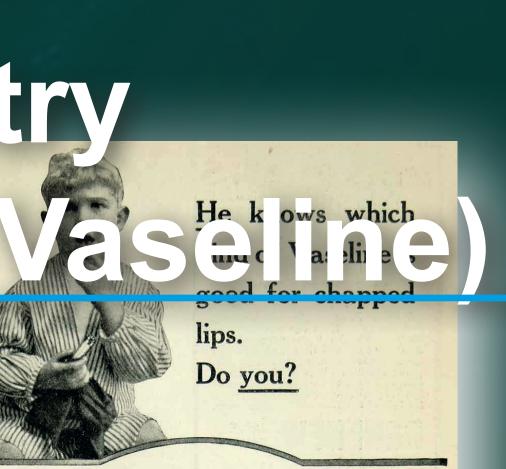
Suitable Extinguishing Media — regular dry çhe ical, carbon dioxide, regular water sprav

uitable Extinguishing Media -pressure water streams

Hazardous Combustion Pro-ducts — oxides of carbon

Adv ce for firefighters — Slight fire hazard. Contact with heat may generate toxic and/or flammable gases. Containers may rupture or explode if exposed to heat.

risk. Stay upwind and keep out of low areas. Use extinguishing agents appropriate for surround-ing fire. Flood with fine water spray. Directly spraying water or foam onto hot burning product may cause frothing. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Withdraw immediately in case of rising sound from venting safety device or any discol-oration of tanks due to fire.



VASELINE IN TUBES

v of using the safest and best of

toxicity, and a possible carcinogen. Fragrance and Flavor

The U.S. Federal Drug Administra-tion allows manufacturers to include a panapoly of ingredients in products under the term "fragrance", without having to list the constituent chem-ical compounds. Many of these are composed of phthalates, which are are hormone disruptors linked to pretoms.

Sunscreens (Oxybenzone, Octi-noxate, Octisalate, Octocrylene, Avobenzone, Padimate)

Petrolatum is refined from petroleum (oil), processes which use toxic compounds. Petroleum jelly can become contaminated by PAHs (polycyclic ar-omatic hydrocarbons). PAHs are po-tentially carcinogenic and are linked to breast cancer. Petrolatum also creates an airtight barrier on the skin, causing it to act as a "penetration enhancer" aggravating the effects of other chemicals by increasing ab-sorption into the bloodstream.

itical	Institute of
edia	Experimental
b sel	Design and Media
	Cultures

NSNF Swiss National Science Foundation

HERPIS Health and Environment Related Petrocultural Infrastructure Systems

The Naftalan resort is located 50 km from the ancient city of Ganja (Kirovabads), the second largest city in Azerbaijan, in a green area in a pine park on the shore of an artificial lake.



of the park created a reat comfortable atmosphere for rest and treatment. The history of the Resort Naftalar has its origins in 1873. when the naphthalene

was extracted manually from shallow wells. "Thick blood of the earth" - the so-called naphtha lene. It has been over 100 years

since the beginning of the study and application of therapeu-tic properties naftalan. Its efficacy in various diseases con-firmed by the results of more than 1,600 scientific papers and monographs. (naftalan-booking.com/)



Fire Fighting Meas-ures — Avoid inhalation of mateial or combustion by-products. Move container from fire area if it can be done without

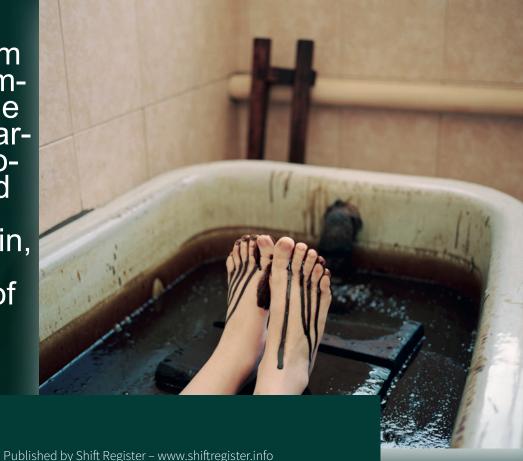


the workshop The Eve Altering (cur. Garance Malivel

bruary 2–3, 2018, Cité Internationale des Arts, Paris

lited by Jamie Allen, Martin Howse, Jonathan Kemp

Designed by Merle Ibach



ACKNOWL-EDGEMENTS

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